United States
Department of
Agriculture

Natural Resources
Conservation Service

In cooperation with
National Park Service
and University of
Tennessee Agricultural
Experiment Station

Soil Survey of Great Smoky Mountains National Park, Tennessee and North Carolina

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.

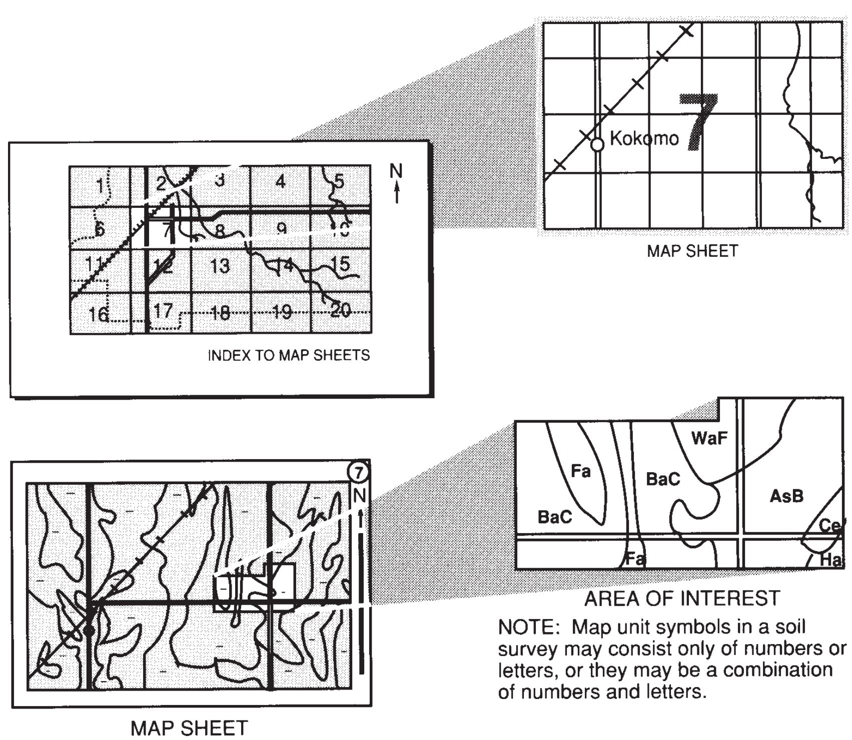
Detailed Soil Maps

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 go to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Go 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.



National Cooperative Soil Survey

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 2005. Soil names and descriptions were approved in 2007. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 2007. This survey was made cooperatively by the Natural Resources Conservation Service, the National Park Service, and the University of Tennessee Agricultural Experiment Station. The survey is part of the technical assistance furnished to the National Park Service.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

Nondiscrimination Statement

Citation

United States Department of Agriculture, Natural Resources Conservation Service. 2009. Soil survey of Great Smoky Mountains National Park, Tennessee and North Carolina.

Cover Caption

Mount LeConte in Great Smoky Mountains National Park.

Additional information about the Nation's natural resources is available online from the Natural Resources Conservation Service at http://www.nrcs.usda.gov.

Contents

Issued 2009

Foreword

This soil survey contains information that affects current and future resource management in the park. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, actions needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for the National Park Service and their partners to help them better understand the various soil properties present in the park and their affect on various natural ecological properties and thus to help them understand, protect, and enhance the environment.

The information in this report is intended to identify soil properties that are used in making various resource management decisions. Statements made in this report are intended to help the park staff identify and reduce the effects of soil limitations on various potential management actions.

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 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 park is described. 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 as well as at the National Park Service Natural Resource Program Center.

Kevin Brown and Mary Combs
State Conservationists in Tennessee and North Carolina
Natural Resources Conservation Service

Soil Survey of
Great Smoky Mountains National Park, Tennessee and North Carolina

By Doug Thomas and Anthony Khiel, Natural Resources Conservation Service

Fieldwork by Doug Thomas, Anthony Khiel, Tim Harlan, and Dillon Gray, Natural Resources Conservation Serice

United States Department of Agriculture, Natural Resources Conservation Service,
in cooperation with
National Park Service and University of Tennessee Agricultural Experiment Station

Great Smoky Mountains National Park comprises 21,247 hectares in the Southern Appalachian Mountains along the Tennessee and North Carolina State boundaries. It was established in 1934 and was dedicated by President Franklin Roosevelt. Elevations range from 300 to 2,030 meters above sea level. The area included in the park is one of the most bio-diverse areas in North America. It is also one of the largest protected areas east of the Rocky Mountains.

Great Smoky Mountains National Park hosts almost 10 million visitors each year and is the most visited national park in the United States. Hiking, backpacking, and sightseeing are just some of the many activities that visitors enjoy throughout the year. More than 1,300 kilometers of hiking trails are maintained in the park, and more than 112 kilometers of the Appalachian Scenic Trail traverse the higher elevations.

Soils are an integral part of what makes Great Smoky Mountains National Park such a unique place. The investigation into the composition and distribution of the soils in the park took 9 years to complete and involved more than 30 experienced soil scientists and naturalists. This project will serve as a lasting resource tool for the National Park Service and the public in the support and protection of the natural resources that are Great Smoky Mountains National Park.

How This Survey Was Made

This survey was made in conjunction with the National Park Service's Soil Inventory and Monitoring Program to provide information about the soils and miscellaneous areas in Great Smoky Mountains National Park.

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 slopes; the general pattern of drainage; the kinds of 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 to 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 soil/landscape relationship model. These models were developed by extensive field investigations in accessible areas of Great Smoky Mountains National Park and then they were applied to the extremely remote portions of the park. These models enable 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 productivity.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil 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 scientist assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class is 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 analysis and for engineering tests. In Great Smoky Mountains National Park, 72 individual soil pedons were sampled to provide supporting data related to the soils and landscapes in the park. 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 observations 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 forest site index are assembled 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 with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but 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.

General Soil Map Units

The general soil map in this publication show broad areas that have a distinctive pattern of soils and relief. The map units on the general soil map are unique natural landscapes. They typically consist of two or more major soils and some minor soils and miscellaneous areas. They are named for the major soils.

The general soil map units were based on geology and soil temperature regime. Subdivisions of these original separations were based on landscapes, the source of transported material, and the potential for mass wasting. These separations resulted in the formation of 15 general soil map units.

Most of the units are linked to the underlying geology. However, they are also linked to the origin of the transported material in those units. Soils exist in reoccurring patterns. The upland units are linked to the underlying geology. The transported material in those units may or may not be related to the underlying geology. This material could be from an upslope part of the landscape with a different geology. Watersheds are used to determine the origin of the transported material. The materials are transported by moving water and the forces of gravity. In the upper parts of watersheds, the transported material is often the same as the underlying geology. The lower parts of watersheds are more likely to be buried by material from a differing geology. A single unit may have areas of transported material from the underlying geology and from other sources. Some units consist of only transported material.

1. Frigid Anakeesta Slate: Luftee-Anakeesta Soils

Geology

This general soil map unit consists of black slates (Anakeesta) in a frigid temperature regime (figs. 1 and 2). It is in areas at elevations of more than 1,280 meters in watersheds draining north to east and in areas at elevations of more than 1,402 meters in watersheds draining south to west. It is associated with black slate which is interbedded with some massive metasandstone. It also includes the chloritoid slate found on Mount LeConte.

The risk of exposing pyrite to the environment is high. The risk of stream acidification is high. The risk of landslides is high.

Landslides are common on this landscape. Road construction can increase the number of landslides. However, many slides occur naturally where the dip in rock is the same direction as the incline of the side slope. The streams remove most of the toeslope and footslope material. When downslope support is removed, slides are likely. Landslides expose large amounts of pyrite-rich material on slide faces and in talus, resulting in a high risk of environmental degradation. This landscape produces varying rock fragment sizes, ranging to boulders. These rock fragments tend to weather physically when exposed on the surface, releasing sulfur into the environment. The sulfur becomes sulfuric acid, which rapidly lowers the pH in streams, adversely affecting aquatic life. Chemical weathering of black slate is slow when it is covered with soil material. A signature on infrared photography can identify landslides. These landslides can be easily remote sensed. Recent landslides are sky

Figure 1.—An exposure of the Anakeesta Slate Formation as viewed from the Alum Cave Bluff Trail in Great Smoky Mountains National Park.

blue or greenish blue. Older landslides are white. The shape is wider on the slide face and narrower on the talus. Talus material is funneled into very narrow drainageways.

Landscape

This unit is above 1,280 meters in elevation in watersheds draining north to east and above 1,402 meters in watersheds draining south to west. It ranges to more than 1,829 meters at Mount Le Conte. The difference in elevation is due to watersheds draining north to east receiving less direct sunlight than watersheds draining south to west. The soils remain cooler because they retain more water and are not dried out by direct sunlight. This unit is on some of the most rugged landscapes of the park. This landscape commonly has knife-edged ridges and very long, very steep side slopes. It has very few well shaped head slopes and not much colluvium. The colluvium occurs in small discontinuous pockets along the drainageways. The colluvial areas are vegetated. The slide faces and the talus from landslides make up the mapped areas called slides.

Examples

Good examples are along U.S. Highway 441 from the Alum Cave Trailhead to Newfound Gap.

Vegetative Cover

This unit is commonly covered with red spruce and Fraser fir. Some areas are covered in northern hardwoods, such as northern red oak, yellow birch, sweet birch, beech, and sugar maple. Understory plants are commonly sparse under pure northern hardwoods. Laurel and rhododendron commonly dominate and form heath balds. This is a rare/unique habitat for wildlife. A signature on infrared photography can identify heath balds. Heath balds are bright pink in color. The shape of these heath balds is

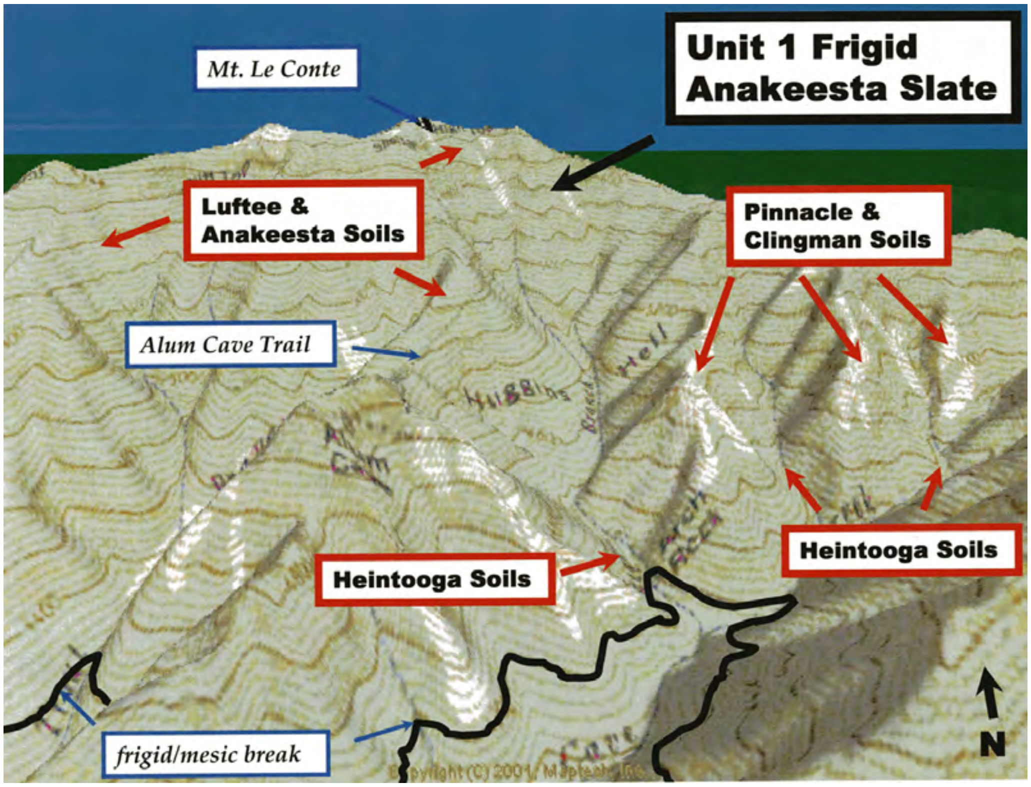


Figure 2.—Unit 1, Frigid Anakeesta Slate: Luftee-Anakeesta Soils.

commonly long and narrow following the ridges and may finger in all directions if the ridge forks. This landscape has very low vigor and productivity. It has a very low wildlife food source rating. Only the colluvium has a moderate wildlife food source rating. Species of moderate-value wildlife food include spruce and fir. Tree throw is very common. It is very difficult for vegetation to reestablish on slide faces and talus. Plant cover types show little effect from aspect at high elevations.

Soils

Soils in this general soil map unit are very low in plant macro-nutrients. Upland soils, landslides, and heath balds comprise more than 99 percent of the landscape, and the colluvial soils less than 1 percent. For the most part upland soils range from deep to moderately deep. Luftee and Anakeesta soils are mapped in a complex and are on the side slopes and ridges. Clingman and Pinnacle soils are mapped in a complex and are on the heath balds. Soils on heath balds are in a frigid temperature regime. Small pockets of Heintooga soils occur in the drainageways.

2. Frigid Hard Sandstone: Breakneck-Pullback Soils

Geology

This general soil map unit consists of hard metasandstone (Thunderhead) in a frigid temperature regime (figs. 3 and 4). It is in areas at elevations of more than 1,280 meters in watersheds draining north to east and in areas at elevations of more than 1,402 meters in watersheds draining south to west. It is associated with massive

Figure 3.—Rock outcrop of the Thunderhead Sandstone Formation as viewed along the Appalachian Trail in Great Smoky Mountains National Park.

metasandstone which is interbedded with some black slate. There is some pyrite in the metasandstone, but most is associated with the black slate.

The risk of exposing pyrite to the environment is moderate. The risk of stream acidification is moderate. The risk of landslides is moderate.

Landslides are much less common than on the black slates. This is confirmed by the infrared photography. Most slides are induced by road construction. Slides occur where the dip in rock is the same direction as the incline of the side slope. When

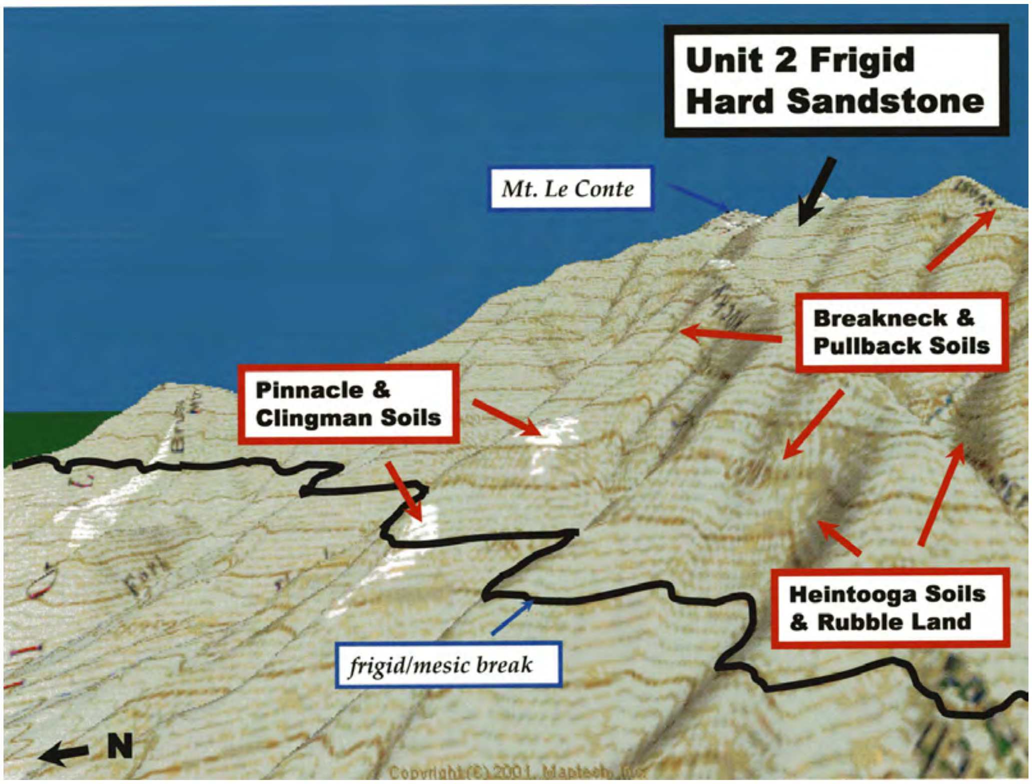


Figure 4.—Unit 2, Frigid Hard Sandstone.

downslope support is removed, slides are likely. Talus from these slides has less sulfur-bearing rock. Much less sulfuric acid is present in the environment. Thus, this unit has less risk of environmental degradation than the black slate unit. Rock fragments tend to weather very slowly physically when exposed on the surface. The fragments are durable even when transported long distances by gravity and/or water. Chemical weathering of hard metasandstone is slow when it is covered with soil material. A signature on infrared photography can identify landslides. Recent landslides are sky blue or greenish blue. Older landslides are white. The shape is wider on the slide face and narrower on the talus. Talus material is funneled into very narrow drainageways.

Landscape

This unit is above 1,280 meters in elevation in watersheds draining north to east and above 1,402 meters in watersheds draining south to west. It ranges to more than 1,829 meters at Clingman's Dome and Mount Guyot. The difference in elevation is due to watersheds draining north to east receiving less direct sunlight than watersheds draining south to west. The soils remain cooler because they retain more water and are not dried out by direct sunlight. This unit is on a somewhat less rugged landscape than the black slate unit. It has very steep side slopes. However, ridgetops are commonly well rounded domes. The majority of this landscape is inaccessible. Rock outcrops are common, and large amounts of fragments of all sizes are produced (fig. 5). However, more and larger boulders are produced in hard sandstone units than in others. Rock outcrops differ from slide faces in that the vegetative cover is not stripped away from large areas. Rock outcrops are small in size and difficult to see on the photography because of the vegetative cover. Boulder trains and boulder fields occur below nearly vertical rock outcrops. They differ from talus in that they have

Figure 5.—A high-elevation landscape showing boulders derived from the Thunderhead Sandstone Formation near the Chimneys picnic area in Great Smoky Mountains National Park.

vegetative cover. Some boulder trains and boulder fields are large enough to be map units; others are too small to map and are inclusions. There are continuous flows of colluvium, which span long distances from the source material into the lower elevation units.

Examples

Good examples occur on Mount Collins and Clingman's Dome.

Vegetative Cover

This unit is most commonly covered with red spruce and Fraser fir on the ridges and side slopes. The understory is often sparse. Incorporated in this unit are heath balds. This is a rare/unique habitat in the park. A signature on infrared photography can identify heath balds. Heath balds are bright pink in color. The shape is commonly long and narrow following the ridges and may finger in all directions if the ridge forks. The colluvial part of this landscape is covered with northern hardwoods, such as northern red oak, yellow birch, sweet birch, beech, and sugar maple. Plant vigor and productivity are moderate or low. Species of moderate-value wildlife food include spruce and fir. This unit is only slightly better than the black slate unit. This is largely due to the increased amount of colluvium.

Soils

Soils in this general soil map unit are very low in plant macro-nutrients. Upland soils, rock outcrops, and heath balds comprise more than 95 percent of the landscape and the colluvial soils less than 5 percent. Upland soils range from moderately deep to shallow for the most part. Breakneck and Pullback soils are mapped in a complex and are dominant on the residual side slopes and ridges. Heintooga and Chiltoskie soils are mapped in a complex and are in the colluvial flows and high elevation coves. On slopes of more than 50 percent, Heintooga soils are mapped. Rubble land occurs below nearly vertical rock outcrops in this unit. Clingman and Pinnacle soils are mapped in a complex and are found on the heath balds. Soils on heath balds are in a frigid temperature regime. Detailed soil map units include varying amounts of rock outcrops, surface fragments, rubble land, and boulder fields. These inclusions are difficult to remote sense with the tools avialable. Aspect does not effect a change in surface soil morphology (all are umbric/histic). Tree throw is common as hard rock is a barrier to root penetration.

3. Frigid Soft Sandstone: Oconaluftee Soils

Geology

This general soil map unit consists of soft metasandstone (Copperhill, Roaring Fork, and Elkmont) in a frigid temperature regime. It is in areas at elevations of more than 1,280 meters in watersheds draining north to east and in areas at elevations of more than 1,402 meters in watersheds draining south to west (figs. 6 and 7). It is associated with soft metasandstone with varying amounts of black slate.

The risk of exposing pyrite to the environment is low. The risk of stream acidification is moderate. The risk of landslides is low.

Natural landslides are much less common in this unit than in the black slate unit. This is confirmed by the infrared photography. Many slides are induced by road construction. Slides occur where the dip in rock is the same direction as the incline of the side slope. When downslope support is removed, slides are likely. Talus from these slides has less sulfur-bearing rock. Much less sulfuric acid is present in the

Figure 6.—A high-elevation landscape underlain by the Copperhill Sandstone Formation in the Deep Creek Watershed in Great Smoky Mountains National Park.

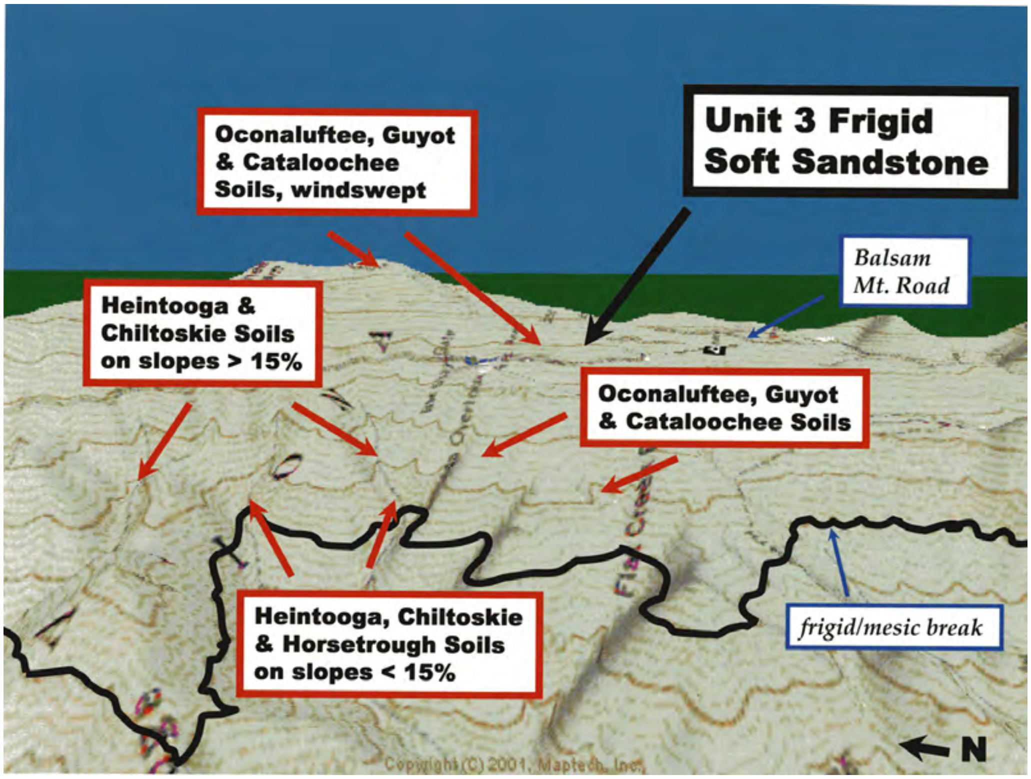


Figure 7.—Unit 3, Frigid Soft Sandstone.

environment. Thus, this unit has less risk of environmental degradation than the black slate unit. Rock fragments tend to weather very slowly physically when exposed on the surface. The fragments are durable even when transported long distances by gravity and/or water. Chemical weathering of soft metasandstone is moderately rapid when it is covered with soil material. A signature on infrared photography can identify landslides. Recent landslides are sky blue or greenish blue. Older landslides are white. The shape is wider on the slide face and narrower on the talus. Talus material is funneled into drainageways.

Landscape

This unit is above 1,280 meters in elevation in watersheds draining north to east and above 1,402 meters in watersheds draining south to west. The difference in elevation is due to watersheds draining north to east receiving less direct sunlight than watersheds draining south to west. The soils remain cooler because they retain more water and are not dried out by direct sunlight. This unit occurs only in North Carolina. This landscape is much more rounded than the hard metasandstone landscape. The soft metasandstone tends to have minerals that chemically weather easily, such as feldspars. Well formed head slopes are common. Colluvium is common and relatively continuous in the drainageways, except where lithic soils occur on very steep side slopes. Head slopes and colluvium make up more of this landscape than that of the hard metasandstone unit. A few parts of this landscape have lithic soils. They are largely confined to very steep side slopes with nearly vertical rock outcrops and boulder trains. Boulder trains are commonly too small to map and are inclusions. Hanging coves commonly are upslope from these areas. Commonly there is little or no toeslope colluvium below the very steep side slopes. Cascades and waterfalls are common and occur on the very steep side slopes. This unit has fewer rock outcrops producing fewer rock fragments than the hard metasandstone unit. There are fewer rock fragments on the surface and in the streams than in areas of the hard metasandstone. There are areas of very steep side slopes that are the same as the hard metasandstone unit. They have rock outcrops. Rock outcrops differ from slide faces in that the vegetative cover is not stripped away from large areas. Rock outcrops are small in size and difficult to see on photography because of the vegetative cover. These areas are the source of most of the rock fragments. Rock fragments of all sizes are produced.

Examples

Good examples occur in the Flat Creek area on the Balsam Mt. Road.

Vegetative Cover

Northern hardwoods are the most common cover and include northern red oak, yellow birch, sweet birch, beech, maple, black cherry, buckeye, and serviceberry. The red spruce and Fraser fir cover does occur, but there are commonly mixed stands of spruce/fir and northern hardwoods. Heath balds are common and are generally confined to windswept ridgetops. This is a rare/unique habitat in the park. A signature on infrared photography can identify heath balds. Heath balds are bright pink in color. The shape is commonly long and narrow following the ridges and may finger in all directions if the ridge forks. Rhododendron and red spruce cover is found in some hanging coves. These hanging coves are a rare/unique habitat in the park. Except for the windswept areas, this landscape has moderate or high vigor and productivity. The windswept ridgetops were used as reference points on the landscape. Then, field observations were used to determine the steepness and length of slope that was needed to identify the areas of the landscape out of the strong winds. Thus, a tool was available to remote sense non-windswept areas. Non-windswept areas may make up more than 45 percent of the landscape. The head slopes and colluvium are more productive than the surrounding side slopes. Species include oak, hickory, black cherry, maple, birch, beech, pine, and serviceberry. Tree throw is less common than in the hard metasandstone unit.

Soils

Soils in this general soil map unit are low in plant macro-nutrients. Upland soils, rock outcrops, and heath balds comprise more than 85 percent of the landscape, and the colluvial soils less than 15 percent. Upland soils range from very deep to moderately deep for the most part. The very deep soils comprise more than 60 percent of the upland, deep and moderately deep soils less than 30 percent, and shallow soils less than 10 percent. Oconaluftee, Guyot, and Cataloochee soils are mapped in a complex and are dominant on the residual side slopes and ridges. These soils are mapped in windswept and non-windswept phases. Oconaluftee soils are dominant in areas farther from the soft metasandstone/hard metasandstone contact. Guyot and Cataloochee soils become more common near the hard metasandstone/ soft metasandstone contact. Breakneck and Pullback soils are mapped in a complex and occur only on the very steep side slopes. Heintooga and Chiltoskie soils are mapped in a complex and are in the colluvial flows and high elevation coves. On slopes of less than 15 percent, Horsetrough soils are added to the Heintooga-Chiltoskie complex. On slopes of more than 50 percent, Heintooga soils are mapped alone. Clingman and Pinnacle soils are mapped in a complex and are found on the heath balds. The soils on heath balds are in both frigid and mesic temperature regimes. Alarka and Wesser soils are mapped in a complex and are found in hanging coves with organic mats. Alarka and Wesser soils are on slopes of less than 8 percent.

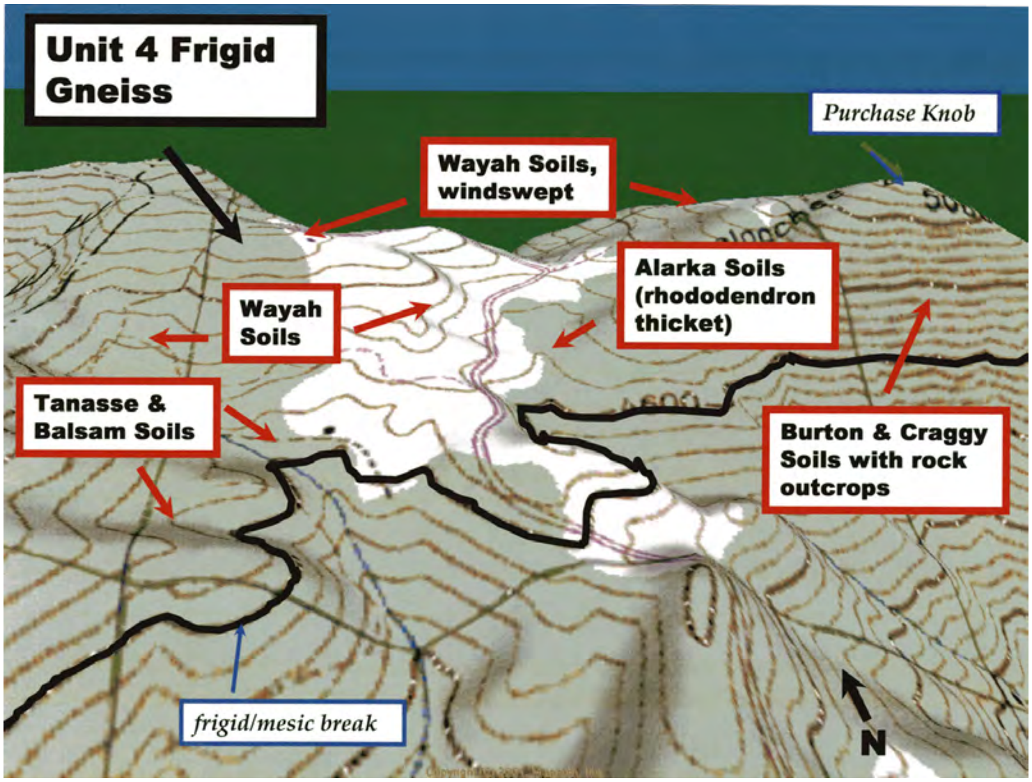


Figure 8.—Unit 4, Frigid Gneiss.

4. Frigid Gneiss: Wayah Soils

Geology

This general soil map unit consists of gneiss (biotite granitic gneiss) in a frigid temperature regime (fig. 8). It is in areas at elevations of more than 1,402 meters in watersheds draining south to west. It is associated with biotite granite gneiss. It is interlayered with biotite gneiss, amphibolite, and calc-silicate granofels.

There is no risk of exposing pyrite to the environment. There is no risk of stream acidification. The risk of landslides is low.

Rock fragments tend to weather very slowly physically when exposed on the surface. The fragments are durable even when transported long distances by gravity and/or water. Chemical weathering of gneiss is rapid when it is covered with soil material. Gneiss is the best geology in the park for the production of plant nutrients.

Landscape

This unit is above 1,402 meters in elevation. It is only in watersheds draining south to west. This landscape has well rounded ridges and side slopes. It has more well formed head slopes and colluvium than most other landscapes. Colluvium is common and relatively continuous in the drainageways, except where lithic soils occur on very steep side slopes. Lithic soils are not common on this landscape. Rock outcrops are not common. Where they do occur they are a source of rock fragments. Rock outcrops differ from slide faces in that the vegetative cover is not stripped away from large areas. Rock outcrops are small in size and difficult to see on the photography because of the vegetative cover. Rock fragments of all sizes are produced.

Figure 9.—The south face of Purchase Knob in areas of Burton and Craggey soils in Great Smoky Mountains National Park.

Examples

Purchase Knob is a good example (fig. 9).

Vegetative Cover

Climax vegetation is generally northern hardwoods, such as northern red oak, yellow birch, sweet birch, beech, maple, black cherry, buckeye, and serviceberry. There are some mixed stands of spruce/fir and northern hardwoods. Heath balds are extremely rare. Rhododendron and red spruce cover is found in some hanging coves. This is a rare/unique habitat in the park. Except for the part that is windswept, the landscape has moderate or high vigor and productivity. The windswept ridgetops were used as reference points on the landscape. Then, onsite field observations were used to determine the steepness and length of slope that was needed to identify the areas of the landscape out of the strong winds. Thus, a tool to remote sense non-windswept areas was available. Non-windswept areas may make up more than 45 percent of the landscape. Non-windswept side slopes have moderate vigor and productivity, and head slopes and colluvial areas have high.

Soils

Soils in this general soil map unit have a moderate amount of plant macro-nutrients. Upland soils comprise more than 85 percent of the landscape, and the colluvial soils less than 15 percent. Upland soils range from very deep to moderately deep for the most part. The very deep soils comprise more than 80 percent of the upland, moderately deep soils less than 15 percent, and shallow soils about 5 percent. Wayah soils dominate the upland landscape in this unit. These soils are mapped in windswept and non-windswept phases. Burton and Craggy soils are mapped in a complex and

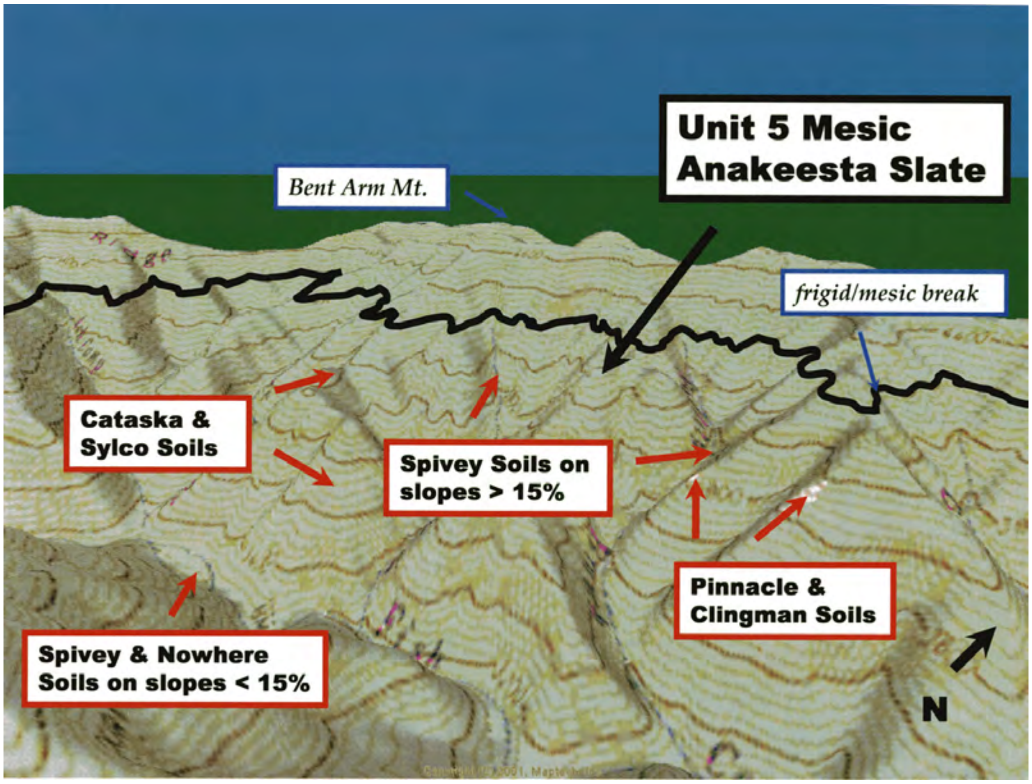


Figure 10.—Unit 5, Mesic Anakeesta Slate.

are most commonly on the very steep side slopes. Hanging coves are often found upslope from rock outcrops. Tanasee and Balsam soils are mapped in a complex and are on colluvial portions of this landscape. A few small areas of Alarka and Wesser soils are mapped in a complex and are in hanging coves with rhododendron and red spruce cover. Alarka and Wesser soils are on slopes of less than 8 percent.

5. Mesic Anakeesta Slate: Cataska-Sylco Soils

Geology

This general soil map unit consists of black slates (Anakeesta) in a mesic temperature regime (fig. 10). It is in areas at elevations of less than 1,280 meters in watersheds draining north to east and in areas at elevations of less than 1,402 meters in watersheds draining south to west. It is most commonly associated with black slates.

The risk of exposing pyrite to the environment is high. The risk of stream acidification is high. The risk of landslides is high.

Landslides are common on this landscape. Road construction can increase the number of landslides. However, many slides occur naturally where the dip in rock is the same direction as the incline of the side slope. The streams remove most of the toeslope and footslope material. When downslope support is removed, slides are likely. Landslides expose large amounts of pyrite-rich material on slide faces and in talus, resulting in a high risk of environmental degradation. This landscape produces varying rock fragment sizes, ranging from channers to boulders. These rock fragments tend to weather physically when exposed on the surface, releasing sulfur into the environment. The sulfur becomes sulfuric acid, which rapidly lowers the pH in streams, adversely affecting aquatic life. Chemical weathering of black slate is slow when it is covered with soil material. A signature on infrared photography is used to identify landslides, which can be easily remote sensed. Recent landslides are sky blue or greenish blue. Older landslides are white. The shape is wider on the slide face and narrower on the talus. Talus material is funneled into very narrow drainageways.

Landscape

This general soil map unit is below 1,280 meters in elevation in watersheds draining north to east and below 1,402 meters in watersheds draining south to west. The difference in elevation is due to watersheds draining north to east receiving less direct sunlight than watersheds draining south to west. The soils remain cooler because they retain more water and are not dried out by direct sunlight. This unit is on some of the most rugged landscapes of the park. It commonly has narrow ridges and very long, very steep side slopes. It has very few well shaped head slopes and not much colluvium. The colluvium occurs in small discontinuous pockets along the drainageways. The talus from landslides is not mapped as colluvial soils until they are vegetated. Talus is part of the landslide.

Examples

Good examples occur on the lower parts of Alum Cave Trail and the Chimneys Trail.

Vegetative Cover

This landscape is most commonly covered with oak-hickory-yellow pine on the ridges and side slopes. Various other species may occur or dominate at any given spot on the uplands, such as white pine, laurel, black locust, red maple, and sourwood. Understory plants are often sparse. Laurel and rhododendron often dominate and form heath balds. This is a rare/unique habitat in the park. A signature on infrared photography can identify heath balds. Heath balds are bright pink in color. The shape is commonly long and narrow following the ridges and may finger in all directions if the ridge forks. The colluvial part of this landscape is most often covered in yellow-poplar. Various other species may occur or dominate at any given spot in the colluvium, such as northern red oak, sweet birch, black cherry, and white pine. Tree throw is very common. On slide faces and talus it is very difficult for vegetation to reestablish. Plant vigor and productivity are very low. Only the colluvial part of the landscape has good plant vigor and productivity.

Soils

Soils in this general soil map unit are very low in plant macro-nutrients. Upland soils, landslides, and heath bald comprise more than 98 percent of the landscape, and the colluvial soils less than 2 percent. Upland soils range from moderately deep to shallow for the most part. Cataska and Sylco soils are mapped in a complex and are the dominant soils on the residual side slopes and ridges. Clingman and Pinnacle soils are mapped in a complex and are on the heath balds. Soils on heath balds are in a frigid temperature regime. Small pockets of Spivey soils occur in the drainageways.

6. Mesic Hard Metasandstone: Ditney-Unicoi Soils

Geology

This general soil map unit consists of hard metasandstone (Thunderhead) in a mesic temperature regime (figs. 11 and 12). It is in areas at elevations of less than

Figure 11.—The Thunderhead Sandstone Formation at Laurel Falls in Great Smoky Mountains National Park.

1,280 meters in watersheds draining north to east. It is associated with hard massive metasandstone which is interbedded with black slate.

The risk of exposing pyrite to the environment is moderate. The risk of stream acidification is moderate. The risk of landslides is moderate.

Landslides are much less common than in areas of the black slate unit. This is confirmed by the infrared photography. Most slides are induced by road construction. Slides occur where the dip in rock is the same direction as the incline of the side

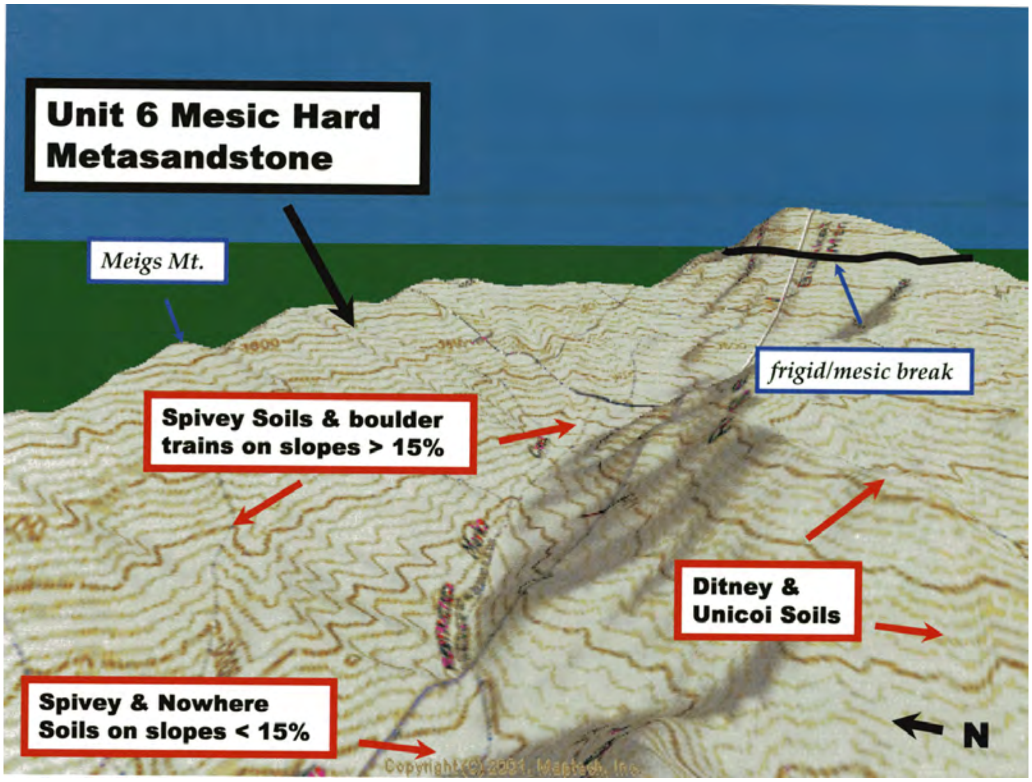


Figure 12.—Unit 6, Mesic Hard Metasandstone.

slope. When downslope support is removed, slides are likely. Talus from these slides has less sulfur-bearing rock. Much less sulfuric acid is present in the environment. Thus, this unit has less risk of environmental degradation than the black slate unit. Rock fragments tend to weather very slowly physically when exposed on the surface. The fragments are durable even when transported long distances by gravity and/or water. Chemical weathering of hard metasandstone is slow when it is covered with soil material. A signature on infrared photography can identify heath landslides. Recent landslides are sky blue or greenish blue. Older landslides are white. The shape is wider on the slide face and narrower on the talus. Talus material is funneled into very narrow drainageways.

Landscape

This general soil map unit is below 1,280 meters in elevation in watersheds draining north to east. It is only in Tennessee. This unit is on a somewhat less rugged landscape than the black slate unit. It has very steep to nearly vertical side slopes. However, ridgetops are commonly well rounded. Well formed head slopes are not common. The majority of this landscape is inaccessible. There are very few heath balds. Rock outcrops are common, and large amounts of fragments of all sizes are produced. Rock outcrops differ from slide faces in that the vegetative cover is not stripped away from large areas. Rock outcrops are small in size and difficult to see on the photography because of the vegetative cover. Boulder trains and boulder fields occur below nearly vertical rock outcrops in this unit. They differ from talus in that they have vegetative cover. Some boulder trains and boulder fields are large enough to be detailed soil map units; others are too small to map and are inclusions. There are continuous flows of colluvium, which span long distances from the source material into the lower elevation units. Cascades and waterfalls are common and occur on the very steep side slopes.

Examples

An example is Greenbrier Pinnacle in areas below 1,280 meters in elevation. The top of the pinnacle is frigid.

Vegetative Cover

This landscape is most commonly covered with oak-hickory-yellow pine on the ridges and side slopes. The main exception is on the east- to north-facing, very steep side slopes, where a cover of northern hardwoods and hemlock-white pine-rhododendron dominates. Various other species may occur or dominate at any given spot on the uplands, such as white pine, laurel, black locust, red maple, and sourwood. The colluvial part of this landscape is most often covered in yellow-poplar. Various other species may occur or dominate at any given spot in the colluvium, such as northern red oak, sweet birch, black cherry, hemlock, black locust, fraser magnolia, beech, white pine, and silverbell. Plant vigor and productivity are moderate or low. Only the colluvial part of the landscape has good vigor and productivity. This map unit is a little better than the black slate unit. This is largely due to the increased amount of colluvium. The map unit has a very low wildlife food source rating. Tree throw is common as hard rock is a barrier to root penetration.

Soils

Soils in this general soil map unit are very low in plant macro-nutrients. Aspect does cause a change in surface soil morphology on shaded well formed head slopes. Upland soils and rock outcrops comprise more than 80 percent of the landscape, and the colluvial and shaded head slopes soils less than 20 percent. Upland soils range from moderately deep to shallow for the most part. Ditney and Unicoi soils are mapped in a complex and are dominant on the residual side slopes and ridges. Spivey and Santeelah soils are mapped in a complex and are the dominant soils in the colluvial flows and coves. On slopes of less than 15 percent, Nowhere soils are added to the Spivey-Santeelah complex.

7. Mesic Soft Metasandstone: Soco-Stecoah Soils

Geology

This general soil map unit consists of soft metasandstone (Copperhill, Roaring Fork, Elkmont, Wading Branch, Longarm, and Wehutty Metasandstone) in a mesic temperature regime (fig. 13). It is in areas at elevations of less than 1,280 meters in watersheds draining north to east and in areas at elevations of less than 1,402 meters in watersheds draining south to west. It is associated with soft metasandstone with varying amounts of black slate.

The risk of exposing pyrite to the environment is low. The risk of stream acidification is moderate. The risk of landslides is low.

Landslides are much less common than in the black slate unit. This is confirmed by the infrared photography. Most slides are induced by road construction. Slides occur where the dip in rock is the same direction as the incline of the side slope. When downslope support is removed, slides are likely. Talus from these slides has less sulfur-bearing rock than the black slate. Much less sulfuric acid is present in the environment. Thus, this unit has less risk of environmental degradation than the black slate unit. Rock fragments tend to weather very slowly physically when exposed on the surface. The fragments are durable even when transported long distances by gravity and/or water. Chemical weathering of soft metasandstone is moderately rapid when it

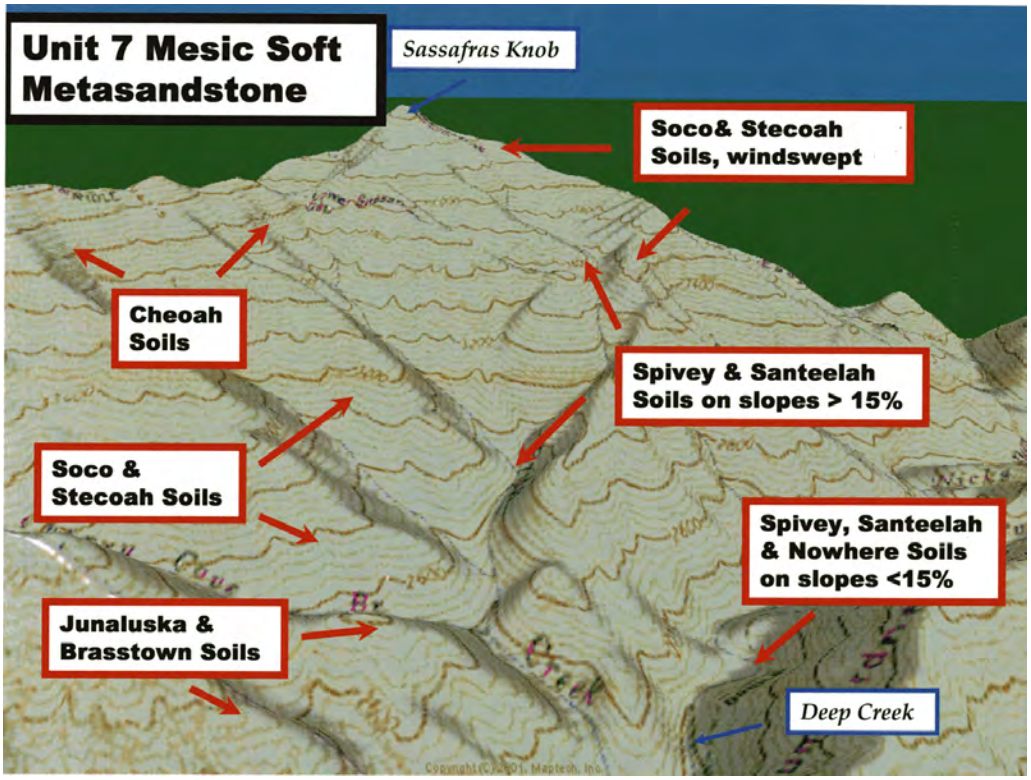


Figure 13.—Unit 7, Mesic Soft Metasandstone.

is covered with soil material. A signature on infrared photography can identify landslides. Recent landslides are sky blue or greenish blue. Older landslides are white. The shape is wider on the slide face and narrower on the talus. Talus material is funneled into drainageways.

Landscape

This unit is below 1,280 meters in elevation in watersheds draining north to east and below 1,402 meters in watersheds draining south to west. The difference in elevation is due to watersheds draining north to east receiving less direct sunlight than watersheds draining south to west. The soils remain cooler because they retain more water and are not dried out by direct sunlight. This landscape is much more rounded than the hard metasandstone landscape. The soft metasandstone tends to have minerals that chemically weather easily, such as feldspars. Well formed head slopes are common. Colluvium is common and relatively continuous in the drainageways, except where lithic soils occur on very steep side slopes. Head slopes and colluvium make up more of this landscape than that of the hard metasandstone. A few parts of this landscape have lithic soils. Lithic soils are largely confined to very steep side slopes with nearly vertical rock outcrops and boulder trains. Rubble land is commonly too small to map and is an inclusion. Hanging coves commonly are upslope from these areas. Commonly there is little or no toeslope colluvium below the very steep side slopes. Cascades and waterfalls are common and occur on these very steep side slopes. This unit has fewer rock outcrops, producing fewer rock fragments than the hard metasandstone unit. There are fewer rock fragments on the surface and in the streams. There are areas of very steep side slopes that are the same as in the hard metasandstone unit. They have rock outcrops. Rock outcrops differ from slide faces in that the vegetative cover is not stripped away from large areas. Rock outcrops are small in size and difficult to see on the photography because of the vegetative cover. These areas are the source of most of the rock fragments. Rock fragments of all sizes are produced.

Examples

Good examples are along U.S. Highway 441 from Mingus Mill to the Trailhead for Kanati Fork.

Vegetative Cover

This landscape is most commonly covered with oak-hickory-yellow pine on the hot ridges and side slopes. The main exception is on the east- to north-facing, very steep side slopes, where a cover of northern hardwoods and hemlock-white pine-rhododendron dominates. Various other species may occur or dominate at any given spot on the hot uplands, such as white pine, laurel, black locust, red maple, and sourwood. The colluvial and shaded head slope areas are most often covered in yellow-poplar. This is a rare/unique habitat for wildlife due to the high vigor and productivity. Various other species may occur or dominate at any given spot in the colluvium and on shaded head slopes, such as northern red oak, sweet birch, black cherry, hemlock, basswood, black locust, fraser magnolia, beech, white pine, white ash, silverbell, and black walnut. Heath balds are common and are generally confined to windswept ridgetops. This is a rare/unique habitat in the park. A signature on infrared photography can identify heath balds. Heath balds are bright pink in color. The shape is commonly long and narrow following the ridges and may finger in all directions if the ridge forks. Rhododendron and white pine or hemlock cover is found in some hanging coves. This is a rare/unique habitat for wildlife such as salamanders. Colluvial and/or alluvial areas of this landscape have old farmstead sites. These farmsteads commonly had apple, peach, cherry, plum, and pear trees. Except for the windswept areas, this landscape has moderate vigor and productivity. Windswept areas are less than 15 percent of the landscape. The shaded head slopes and colluvium areas of the landscape are more productive.

Soils

Soils in this general soil map unit are very low in plant macro-nutrients. Aspect does cause a change in surface soil morphology on shaded well formed head slopes. Warmer upland soils, heath balds, and rock outcrops comprise more than 75 percent of the landscape, and the colluvial and shaded head slope soils less than 25 percent. Upland soils are deep and moderately deep for the most part. Soco and Stecoah soils are mapped in a complex and are the dominant soils on the residual side slopes and ridges. A windswept phase of the Soco-Stecoah complex is mapped on prominent ridges. Junaluska and Brasstown soils are mapped in a complex and are on the residual side slopes and ridges at elevations of less than 1,097 meters. Junaluska and Brasstown soils are on slopes of less than 50 percent. Soco and Stecoah soils are mapped on slopes of more than 15 percent. Cheoah and Snowbird soils are on shaded head slopes. Cheoah soils are at elevations of more than 640 meters. Snowbird soils are at elevations of less than 640 meters. Cheoah and Snowbird soils are limited to northwest- to east-facing aspects. At the extremes of the aspect range, Cheoah and Snowbird soils are only on the lower part of the head slopes. Commonly 60 to 75 percent of the lower head slopes is Cheoah or Snowbird soils. The upper part of the head slopes is either Soco and Stecoah soils or Junaluska and Brasstown soils, depending on elevation and slope. Clingman and Pinnacle soils are mapped in a complex and are on the heath balds. Soils on heath balds are in a frigid temperature regime. Ditney and Unicoi soils are mapped in a complex and occur only on the very steep side slopes. Rubble land occurs below nearly vertical rock outcrops in this unit. Spivey and Santeelah soils are mapped in a complex and are the dominant soils in the

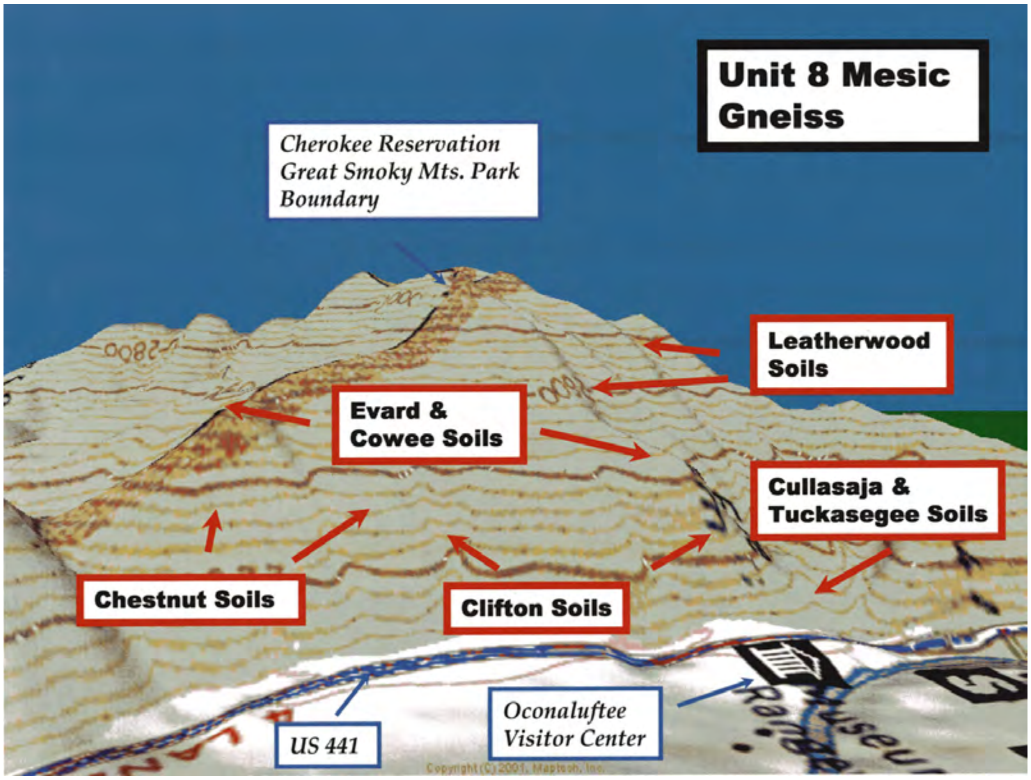


Figure 14.—Unit 8, Mesic Gneiss.

colluvial flows and coves. On slopes of less than 15 percent, Nowhere soils are added to the Spivey-Santeelah complex. On slopes of more than 50 percent, Spivey soils are mapped alone. Alarka, Wesser, and Whiteside soils are mapped in a complex and are found in hanging coves with rhododendron and white pine or a hemlock canopy. Alarka and Wesser soils are on slopes of less than 8 percent. Alarka and Whiteside soils are on slopes of 8 to 15 percent.

8. Mesic Gneiss: Evard-Cowee Soils

Geology

This general soil map unit consists of gneiss (biotite granitic gneiss) in a mesic temperature regime (figs. 14 and 15). It is in areas at elevations of less than 1,280 meters in watersheds draining south to west. It is associated with biotite granite gneiss. It is interlayered with biotite gneiss, amphibolite, and calc-silicate granofels.

There is no risk of exposing pyrite to the environment. There is no risk of stream acidification. The risk of landslides is low.

Rock fragments tend to weather very slowly physically when exposed on the surface. The fragments are durable even when transported long distances by gravity and/or water. Chemical weathering of gneiss is rapid when it is covered with soil material. In the park, gneissic parent material produced soils with the highest natural contents of plant nutrients.

Landscape

This unit is below 1,402 meters in elevation. It is only in North Carolina. This landscape has well rounded ridges and side slopes. This landscape has more well

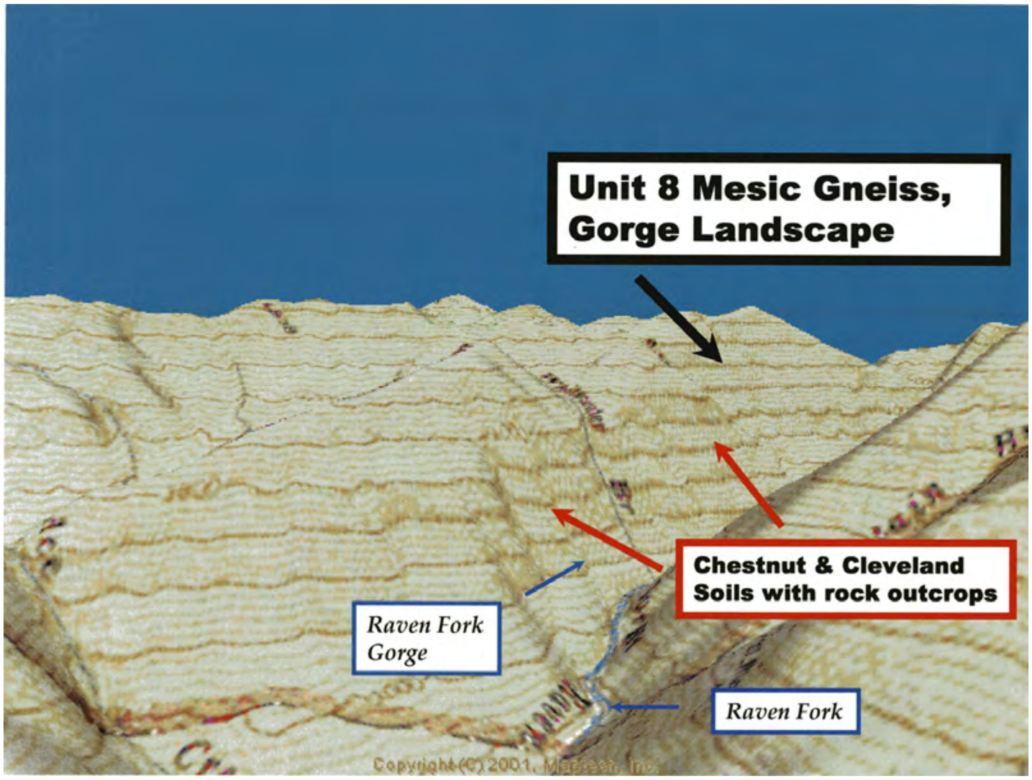


Figure 15.—Unit 8, Mesic Gneiss, gorge landscape.

formed head slopes and colluvium than most other landscapes. Colluvium is relatively continuous, except where lithic soils occur on very steep side slopes. Lithic soils are largely confined to very steep side slopes with nearly vertical rock outcrops and boulder trains. Hanging coves commonly are upslope from these areas. Commonly there is little or no toeslope colluvium below the very steep side slopes. Cascades and waterfalls are common and occur on these very steep side slopes. Rock outcrops are not common, except in Raven Fork Gorge. Where rock outcrops occur, they are a source of rock fragments. Rock outcrops differ from slide faces in that the vegetative cover is not stripped away from large areas. Rock fragments of all sizes are produced.

Examples

The area around the Oconaluftee Visitor Center is a good example.

Vegetative Cover

This landscape is most commonly covered with oak-hickory-yellow pine on the ridges and side slopes. The main exception is on the east- to north-facing, very steep side slopes, where a cover of northern hardwoods and hemlock-white pine-rhododendron dominates. Various other species may occur or dominate at any given spot on the warm uplands, such as white pine, laurel, black locust, red maple, and sourwood. The colluvial and shaded side slope areas are most often covered in yellow-poplar. This is a rare/unique habitat in the park due to the high plant vigor and productivity. Various other species may occur or dominate at any given spot on the colluvium and shaded side slopes, such as northern red oak, sweet birch, black cherry, hemlock, basswood, black locust, fraser magnolia, beech, white pine, silverbell, and black walnut. Rhododendron and white pine or hemlock cover is found in some hanging coves. This is a rare/unique habitat in the park. The majority of this landscape has moderate plant vigor and productivity. The shaded side slopes and colluvium have some of the highest plant vigor and productivity measured in the park.

Soils

Soils in this general soil map unit have a moderate amount of plant macro-nutrients. Hot upland soils comprise more than 70 percent of this landscape, and the shaded side slopes and colluvial soils less than 30 percent. Hot upland soils range from very deep to moderately deep for the most part. The hot, very deep and moderately deep soils comprise more than 80 percent of the upland, the shallow soils less than 5 percent, and the soils on shaded side slopes about 15 percent. Evard and Cowee soils are mapped in a complex and are on the residual side slopes and ridges at elevations of less than 1,097 meters. Chestnut and Cleveland soils are mapped in a complex and are most commonly on the very steep side slopes with rock outcrops. Leatherwood soils are on shaded head slopes. Ravenfork soils are on shaded nose slopes. Leatherwood and Ravenfork soils are limited to northwest- to east-facing aspects. At the extremes of the aspect range, Leatherwood soils are only on the lower part of the side slopes. Commonly Leatherwood soils are on 60 to 75 percent of the lower head slopes. The upper part of the head slopes and nose slopes is either Chestnut soils or Evard and Cowee soils, depending on elevation and slope. Cullasaja and Tuckasegee soils are on colluvial portions of this landscape.

9. Mesic Wehutty Schist: Cataska-Sylco Soils

Geology

This general soil map unit consists of black schist (Wehutty) in a mesic temperature regime (fig. 16). It is in areas at elevations of less than 1,402 meters in North Carolina. It is mostly associated with black graphitic, sulfidic schist.

The risk of exposing pyrite to the environment is moderate. The risk of stream acidification is moderate. The risk of landslides is moderate.

Landslides are much less common than in the black slate unit. All of this landscape is mapped and remote sensed. No slides were mapped. Road construction has exposed rock faces and spoil piles with large amounts of sulfur-bearing rock. Less sulfuric acid is present in the environment because there are fewer slides. Thus, this unit has much less risk of environmental degradation than the black slate unit. The risk increases if this schist is exposed because of road construction. This landscape produces small rock fragments, generally channers and a few flagstones. These rock fragments tend to weather quickly physically when exposed on the surface. Chemical weathering of black schist is slow when it is covered with soil material. A signature on infrared photography can identify landslides. These landslides can be easily remote sensed. The use of infrared-photography-confirmed slides occurs much less frequently in the black schist unit than in the black slate unit. Recent landslides are sky blue or greenish blue. Older landslides are white. The shape is wider on the slide face and narrower on the talus.

Landscape

This general soil map unit is below 1,402 meters in elevation. It is only in North Carolina. This unit is on rugged landscapes. This landscape commonly has narrow ridges and very long, very steep side slopes. It has very few well shaped head slopes and not much colluvium. The colluvium is continuous along the drainageways. The colluvium is largely composed of material from the soft metasandstone landscape.

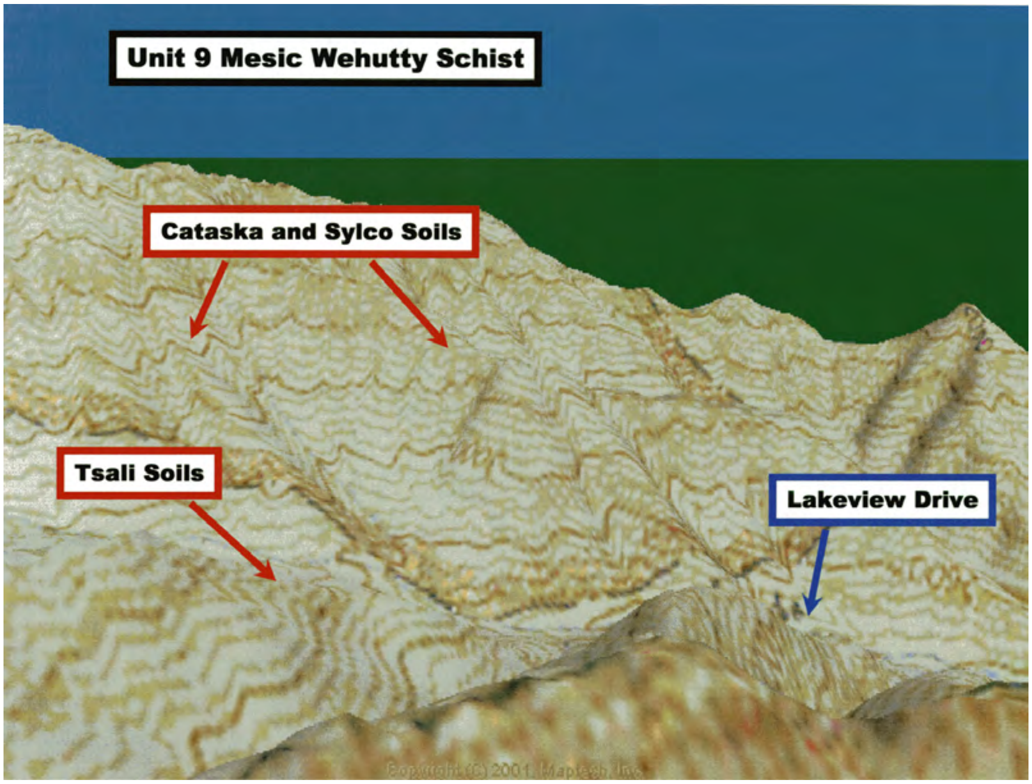


Figure 16.—Unit 9, Mesic Wehutty Schist.

Examples

Good examples occur along Lakeview Drive west of Bryson City, North Carolina.

Vegetative Cover

This landscape is most commonly covered with oak-hickory-yellow pine on the ridges and side slopes. Various other species may occur or dominate at any given spot on the uplands, such as white pine, laurel, black locust, red maple, and sourwood. Understory plants are often sparse. Laurel and rhododendron may dominate and form heath balds. This is a rare/unique habitat in the park. A signature on infrared photography can identify heath balds. Heath balds are bright pink in color. The shape is commonly long and narrow following the ridges and may finger in all directions if the ridge forks. The colluvial part of this landscape is most often covered in yellow-poplar. Various other species may occur or dominate at any given spot in the colluvium, such as northern red oak, sweet birch, black cherry, and white pine. Tree throw is very common. Road cuts and spoil areas are very difficult to revegetate. Plant vigor and productivity are very low. Only the colluvial part of landscape has good vigor and productivity. It has a very low wildlife food source rating. Plant cover type is affected little by aspect due to the very low vigor of this landscape.

Soils

Soils in this general soil map unit are very low in plant macro-nutrients. Upland, residual soils dominate this landscape. Upland soils range from moderately deep to shallow for the most part. Cataska and Sylco soils are mapped in a complex and are the dominant soils on the residual side slopes and ridges. Spivey soils are in the

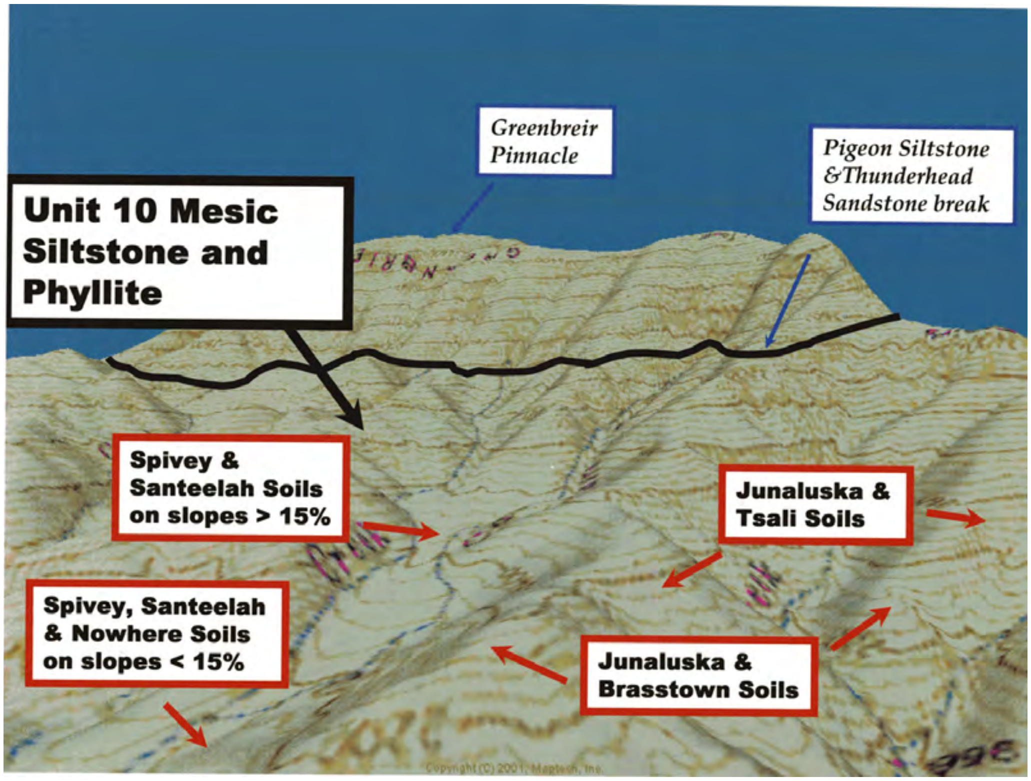


Figure 17.—Unit 10, Mesic Siltstone and Phyllite.

narrow drainageways. On slopes of less than 15 percent, Nowhere soils are added to make a Spivey-Nowhere complex.

10. Mesic Siltstone and Phyllite: Junaluska-Tsali Soils

Geology

This general soil map unit consists of siltstone and phyllite (Pigeon Siltstone and Metcalf Phyllite) in a mesic temperature regime (figs. 17 and 18). It is in areas at elevations of less than 1,280 meters in Tennessee. It is most commonly associated with siltstone and phyllite but could be applied to any thinly bedded rock with little or no pyrite, such as argillites and slate.

The risk of exposing pyrite to the environment is low. The risk of stream acidification is low. The risk of landslides is moderate.

Landslides are much less common in this unit than in the black slate unit. This is confirmed by the infrared photography. Most slides are induced by road construction. Slides occur where the dip in rock is the same direction as the incline of the side slope. When downslope support is removed, slides are likely. Talus from these slides has little sulfur-bearing rock. Little sulfuric acid is present in the environment. Thus, this unit has much less risk of environmental degradation than the black slate unit. This landscape produces small rock fragments, generally channers with a few flagstones. These rock fragments tend to weather quickly physically when exposed on the surface. Chemical weathering of siltstone and phyllite is slow when they are covered with soil material. A signature on infrared photography can identify landslides.

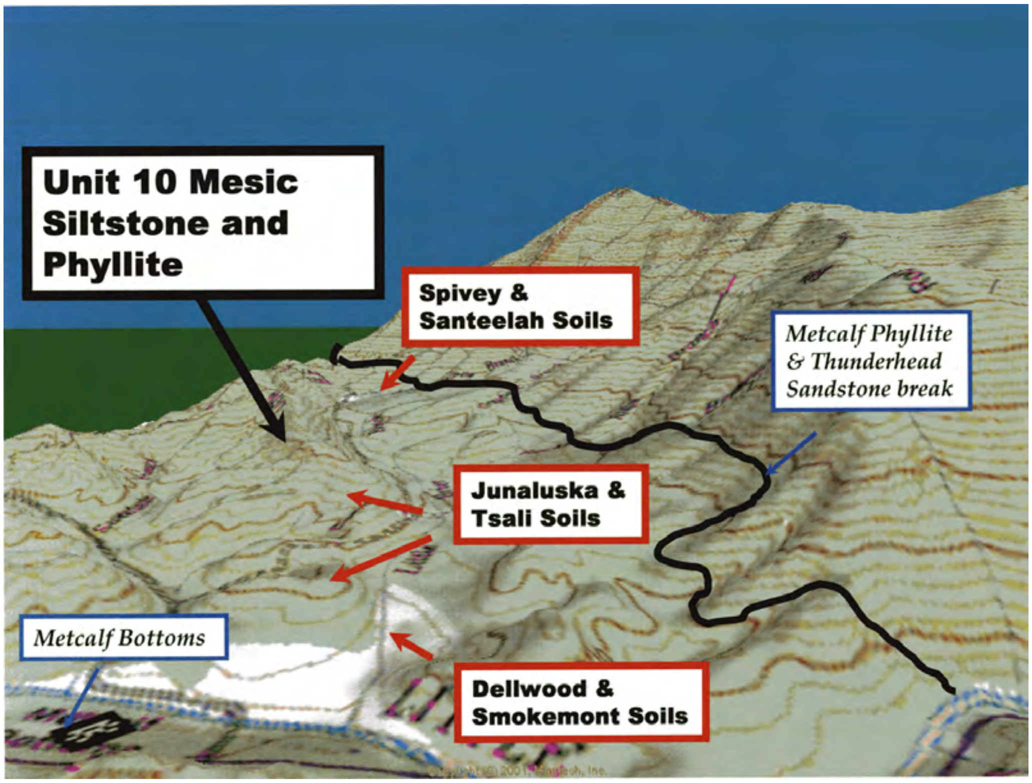


Figure 18.—Unit 10, Mesic Siltstone and Phyllite.

Recent landslides are sky blue or greenish blue. Older landslides are white. The shape is wider on the slide face and narrower on the talus.

Landscape

This unit is below 1,280 meters in elevation. It is only in Tennessee. This landscape commonly has narrow ridges and long very steep side slopes. However, there are some well rounded hills adjacent to large areas of colluvium. This colluvium covers this geology with a thick layer. These large areas of colluvium are not related to the underlying siltstone/phyllite. This colluvium is largely from metasandstone. These large areas of colluvum are treated as another unit. The colluvium from the siltstone/phyllite occurs in narrow continuous drainageways. The landscape has few well shaped head slopes.

Examples

Good examples occur on Rich Mountain and along the Old Settlers Trail between Greenbrier and Cosby.

Vegetative Cover

This landscape is most commonly covered with oak-hickory-yellow pine on the ridges and side slopes. The main exception is on the east- to north-facing, very steep side slopes, where a cover of northern hardwoods and hemlock-white pine-rhododendron dominates. Various other species may occur or dominate at any given spot on the uplands, such as white pine, laurel, black locust, red maple, and sourwood. The colluvial and shaded head slope areas are most often covered in yellow-poplar. Various other species may occur or dominate at any given spot on the colluvium and shaded head slopes, such as northern red oak, sweet birch, black cherry, hemlock, basswood, black locust, fraser magnolia, beech, white pine, silverbell, and black walnut. Laurel and rhododendron dominate and form heath balds. This is a rare/unique habitat in the park. A signature on infrared photography can identify heath balds. Heath balds are bright pink in color. The shape is commonly long and narrow following the ridges and may finger in all directions if the ridge forks. This landscape has low vigor and productivity. Only the shaded head slopes and colluvial areas of the landscape have good vigor and productivity.

Soils

Soils in this general soil map unit are low in plant macro-nutrients. Hot upland soils comprise more than 90 percent of the landscape, and the shaded head slope and colluvial soils less than 10 percent. Hot upland soils range from deep to shallow. The hot deep and moderately deep soils comprise more than 85 percent of the upland, and the shallow soils less than 15 percent. Junaluska and Tsali soils are mapped in a complex and dominate the upland landscape in this unit. Brasstown soils are on the well rounded hills. Cheoah and Snowbird soils are on shaded head slopes. Cheoah soils are at elevations of more than 640 meters. Snowbird soils are at elevations of less than 640 meters. Cheoah and Snowbird soils are limited to northwest- to east-facing aspects. At the extremes of the aspect range, Cheoah and Snowbird soils are only on the lower part of the head slopes. Commonly 60 to 75 percent of the lower head slopes is Cheoah or Snowbird soils. The upper parts of the head slopes are Junaluska and Tsali soils. Cheoah and Snowbird soils are most commonly on slopes of more than 50 percent. However, there are a few areas on 30 to 50 percent slopes. Spivey and Santeelah soils are mapped in a complex and are on colluvial portions of this landscape. On slopes of less than 15 percent, Nowhere soils are added to the Spivey-Santeelah complex.

11. Large Basins of Colluvium: Spivey-Santeetlah Soils

Geology

This general soil map unit consists of large basins of colluvium in a mesic temperature regime (figs. 19 and 20). It is in areas at elevations of less than 1,280 meters in Tennessee. It is associated largely with colluvium from hard metasandstone (Thunderhead) but has varying amounts of colluvium from any of the following formations: Roaring Fork, Elkmont, Wading Branch, Longarm, Pigeon Siltstone, and Metcalf Phyllite.

There is no risk of exposing pyrite to the environment. There is no risk of stream acidification. The risk of landslides is none.

The high occurrence of rock fragments dominates this unit. All sizes are present, from channers to boulders more than 5 meters across. The rock fragments tend to be those that weather very slowly physically and are durable even when transported a long distance.

Landscape

This general soil map unit is below 1,280 meters in elevation. It is only in Tennessee. This landscape is made up of large basins and fans. The basins and fans are the result of many, large scale, catastrophic mass wasting events related to climatic shifts and faulting (valley filling). Downcutting by the larger streams causes this landscape to have many surfaces. The oldest surfaces are high above the streams. The younger surfaces are less than a meter above the streams. There are many seeps and springs. The depth to the water tables varies from less than 0.3 meter to more than 1.5 meters.

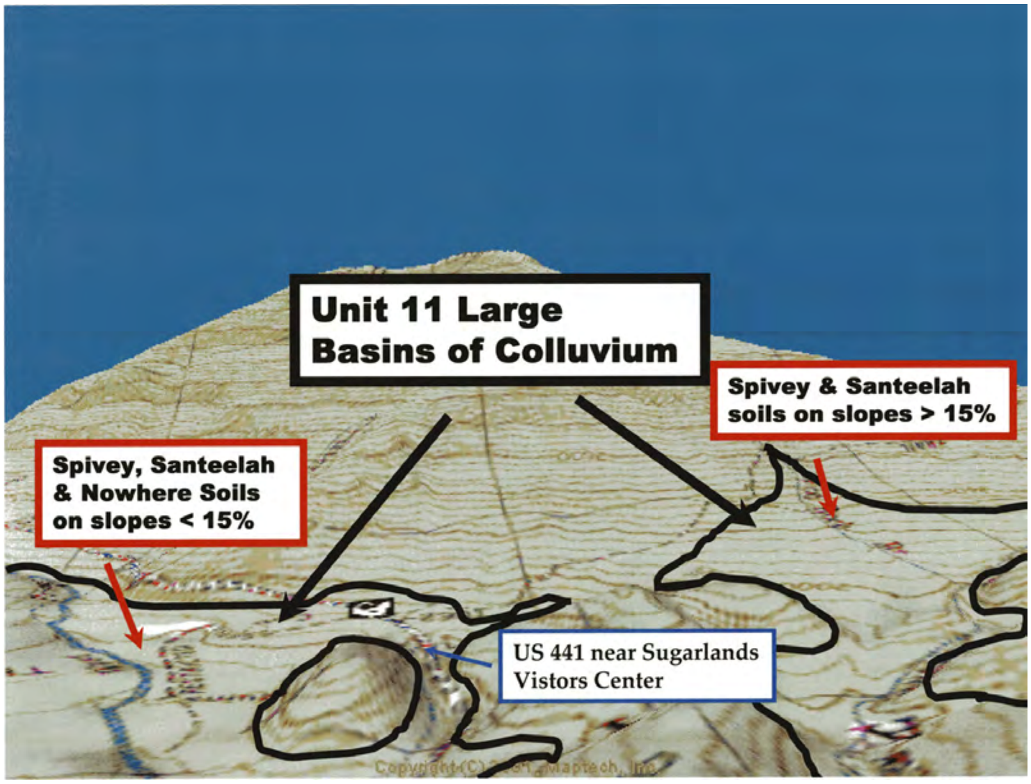


Figure 19.—Unit 11, Large Basins of Colluvium.

Examples

Good examples occur at Sugarlands and Cosby Cove.

Vegetative Cover

This landscape is most commonly covered in yellow-poplar. Various other species may occur or dominate at any given spot, such as northern red oak, white oak, hickory, sweet birch, black cherry, hemlock, basswood, black locust, fraser magnolia, beech, white pine, silverbell, and black walnut. Rhododendron can form small thickets. This landscape has old farmstead sites. These farmsteads commonly had apple, peach, cherry, plum, and pear trees. This landscape has very high vigor and productivity.

Soils

Spivey and Santeelah soils are mapped in a complex and are the dominant soils in this general soil map unit. On slopes of less than 15 percent, Nowhere soils make up to 15 percent of the unit and are added to the Spivey-Santeelah complex. Water tables range from a depth of 30 to more than 152 centimeters.

12. Mesic Interbedded Mica Schist and Mica Metasandstone: Lauada-Fannin Soils

Geology

This general soil map unit consists of interbedded schist and micaceous metasandstone in a mesic temperature regime (not identified on geology maps)

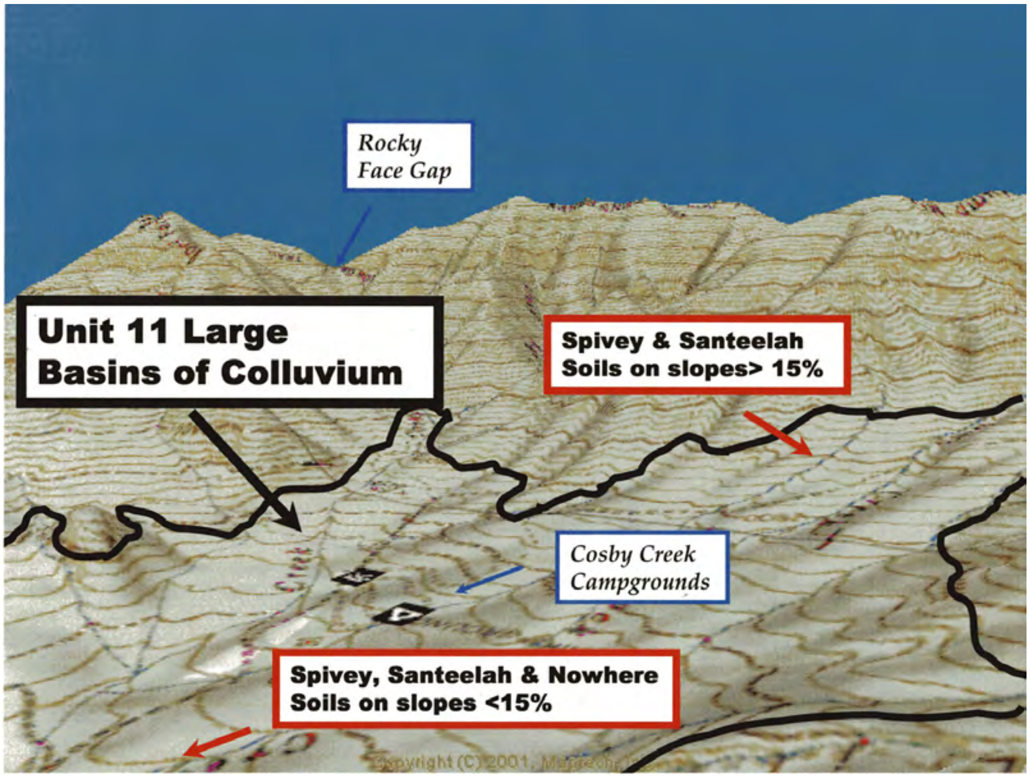


Figure 20.—Unit 11, Large Basins of Colluvium.

(fig. 21). It is in areas at an elevation of less than 1,402 meters in North Carolina. It is most commonly associated with interbedded schist and micaceous metasandstone. This unit is adjacent to the biotite granitic gneiss unit.

The risk of exposing pyrite to the environment is low. The risk of stream acidification is low. The risk of landslides is moderate.

Landslides are much less common than on the black slates. This is confirmed by the infrared photography. Most slides are induced by road construction. Slides occur where the dip in rock is the same direction as the incline of the side slope. When downslope support is removed, slides are likely. Talus from these slides has little sulfur-bearing rock. Little sulfuric acid is present in the environment. Thus, this unit has much less risk of environmental degradation than the black slate unit. This landscape produces small rock fragments, generally channers with a few flagstones. The rock fragments from the schist tend to weather quickly physically when exposed on the surface. Some of the interbedded micaceous metasandstone is more resistant to physical weathering, and some rock fragments are found on the surface. Chemical weathering of schist is slow when it is covered with soil material. The micaceous metasandstone weathering is moderately rapid.

Landscape

This unit is below 1,402 meters in elevation. It is only in North Carolina. This landscape commonly has narrow ridges and long, steep or very steep side slopes. The colluvium occurs in narrow continuous drainageways. This landscape has few well shaped head slopes.

Examples

Good examples occur west of the Deep Creek Campground.

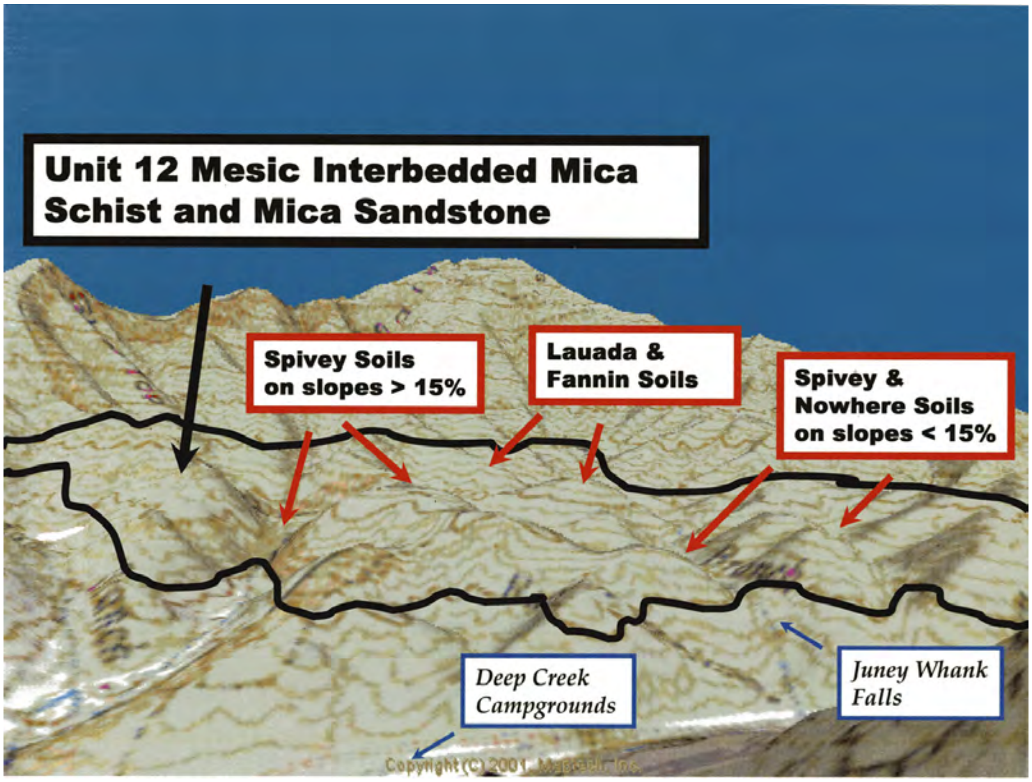


Figure 21.—Unit 12, Mesic Interbedded Mica Schist and Mica Sandstone.

Vegetative Cover

This landscape is most commonly covered with oak-hickory-yellow pine on the ridges and side slopes. Various other species may occur or dominate at any given spot on the uplands, such as white pine, laurel, black locust, red maple, and sourwood. The colluvial part of this landscape is most often covered in yellow-poplar. Various other species may occur or dominate at any given spot on the colluvium, such as northern red oak, sweet birch, black cherry, hemlock, basswood, black locust, fraser magnolia, beech, white pine, silverbell, and black walnut. Laurel and rhododendron may dominant and form heath balds. This is a rare/unique habitat for wildlife. A signature on infrared photography can identify heath balds. Heath balds are bright pink in color. The shape is commonly long and narrow following the ridges and may finger in all directions if the ridge forks. This landscape has low vigor and productivity. Only the colluvial part of the landscape has good vigor and productivity.

Soils

Soils in this general soil map unit are low in plant macro-nutrients. Warm upland soils comprise more than 90 percent of the landscape, and the shaded head slope and colluvial soils less than 10 percent. Hot upland soils range from very deep to moderately deep. Lauada and Fannin soils are mapped in a complex and dominate the upland landscape in this unit. Spivey and Santeelah soils are mapped in a complex and are on colluvial portions of this landscape. On slopes of less than 15 percent, Nowhere soils are added to the Spivey-Santeelah complex.

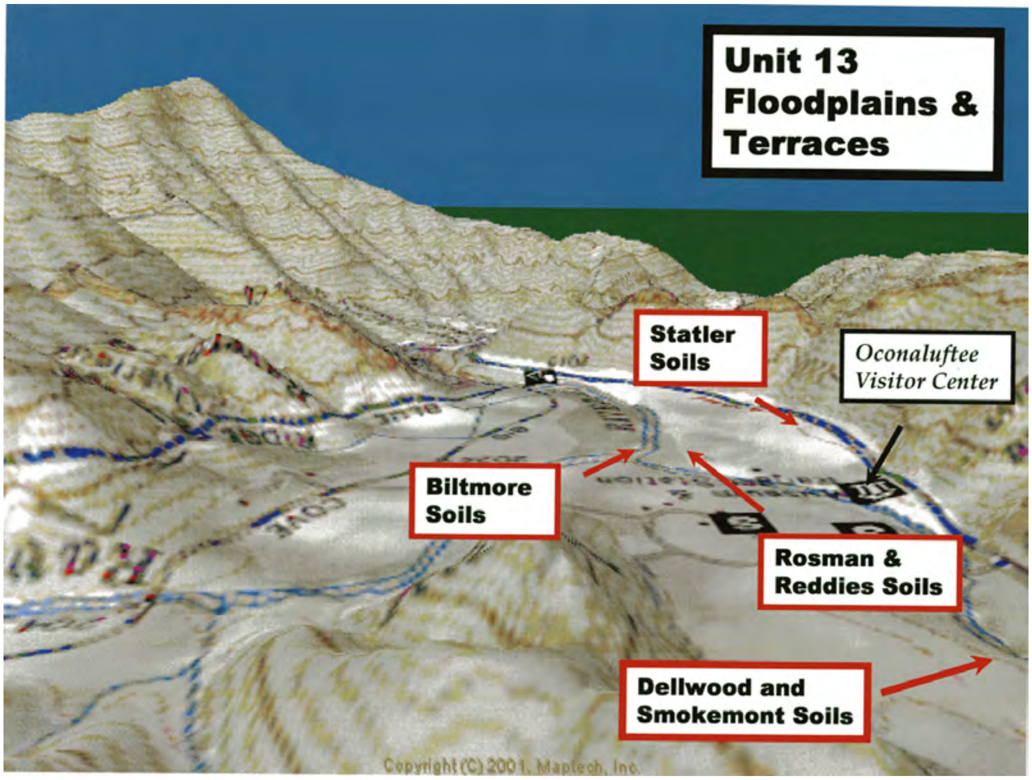


Figure 22.—Unit 13, Floodplains and Terraces.

13. Floodplains and Terraces: Rosman-Reddies-Dellwood Soils

Geology

This general soil map unit consists of floodplains and terraces in a mesic temperature regime (fig. 22). It is in areas at elevations commonly ranging from about 366 to 975 meters.

There is no risk of exposing pyrite to the environment. There is no risk of stream acidification. There is no risk of landslides.

Areas of this unit are associated with alluvium weathered and transported from the surrounding upland geology. The alluvium varies in age. The alluvial material can be recent on the floodplains or very old on the high stream terraces. Floodplains and terraces have two main types of layers—fine-earth layers and gravel/cobble beds. Floodplains are actively flooding at frequencies of very frequent to occasional. The fine-earth material is being added in some areas and removed in others. Low stream terraces may flood, but it is rare. Fine-earth material is being added, but at a very slow rate. High stream terraces no longer flood. The ground surface of the floodplains ranges from less than 0.3 meter to about 2.4 meters above normal water level in the adjacent stream. The ground surface of the low stream terraces ranges from 2.4 to about 6.1 meters above normal water level in the adjacent stream. The ground surface of the high stream terraces ranges from 6.1 to more than 12.2 meters above normal water level in the adjacent stream. Floodplains and stream terraces are associated with most of the mesic units.

Figure 23.—A floodplain and stream terrace landscape near the Oconaluftee Visitor Center in Great Smoky Mountains National Park.

Landscape

The elevation commonly ranges from 366 to about 975 meters. However, there are some isolated floodplains that are higher in elevation. There are a few small floodplains that are frigid. They occur along Flat Creek and Bunches Creek near Heintooga Ridge Road.

The areas of floodplains and stream terraces are generally associated with the large streams. Most floodplains have more than one surface or active area. For example, a single map unit may have parts that flood very frequently and other parts that flood occasionally. Some floodplains may have a primary channel and one or more secondary channels. Floodplains are continually on the move, forming and then reforming. Fontana Lake covers some floodplains and stream terraces.

Examples

Good examples occur at the Oconaluftee Visitor Center and in Cataloochee (fig. 23).

Vegetative Cover

Some of the floodplains and stream terraces are in tall fescue that is used as forage for wildlife or hay for livestock. Some areas have been revegetated with trees. Stream terraces have many old farmstead sites. These farmsteads commonly had apple, peach, cherry, plum, and pear trees. Wooded areas are most commonly covered in yellow-poplar. Various other species may occur or dominate at any given spot, such as northern red oak, white oak, hickory, sweet birch, black cherry, hemlock, basswood, black locust, honey locust, fraser magnolia, beech, shortleaf pine, white pine, silverbell, sweetgum, and black walnut. Rhododendron can form small thickets.

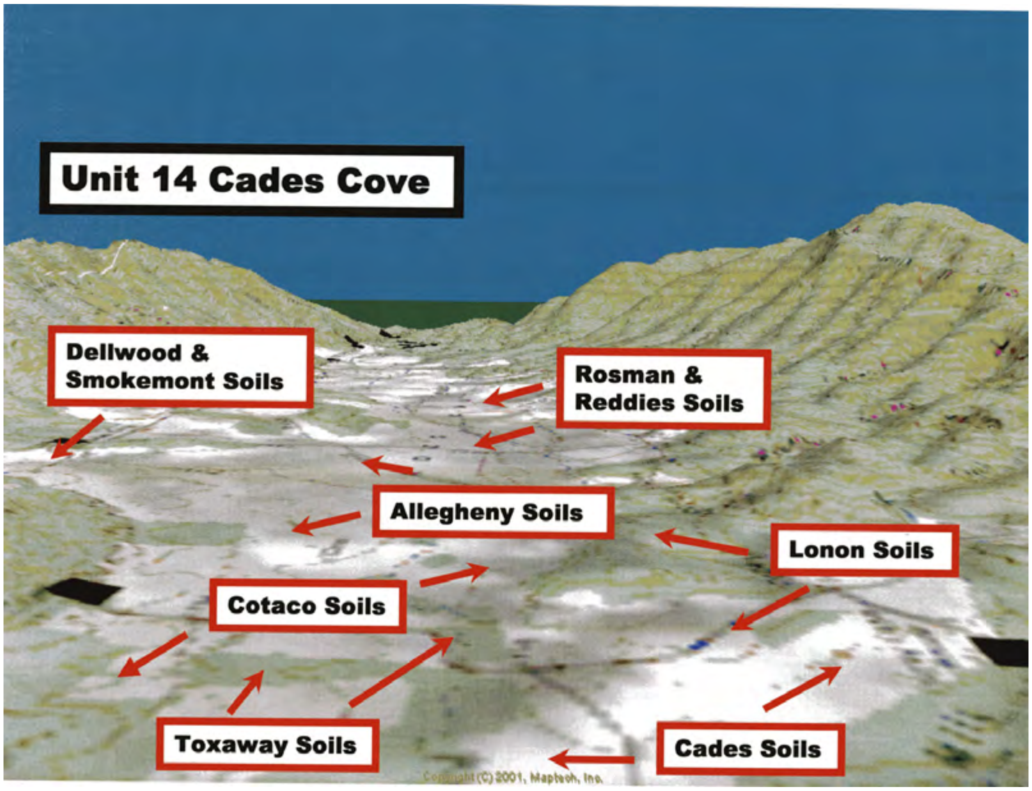


Figure 24.—Unit 14, Cades Cove.

Some areas that have sycamore and river birch occur along streams. Plant vigor and productivity is very high.

Soils

The floodplain areas have different soils depending on the depth of the fine-earth material over the gravel/cobble beds and the drainage class. There are three soils mapped where the fine-earth material is less than 51 centimeters over the gravel/cobble beds: Dellwood, Smokemont, and Wesser. There are three soils mapped where fine-earth material is 51 to 102 centimeters over the gravel/cobble beds: Cullowhee, Ela, and Reddies. There are two soils mapped where the fine-earth material is more than 102 centimeters over the gravel/cobble beds: Biltmore and Rosman. Statler soils are mapped on the low stream terraces. Low stream terraces are elevated areas along present-day floodplains and are directly associated with modern-day stream systems.

14. Cades Cove: Lonon-Cades Soils

Geology

This general soil map unit consists of Cades Cove and Whiteoak Sink and is in a mesic temperature regime (figs. 24 and 25). It is in areas at elevations of 518 to 610 meters in Tennessee.

The risk of exposing pyrite to the environment is none. The risk of stream acidification is none. The risk of landslides is none.

This unit is associated largely with alluvium and/or colluvium over limestone. The

Figure 25.—Cades Cove terrace; Cades soil series landscape in Great Smoky Mountains National Park.

underlying geology is mostly Jonesboro Limestone. A small part of the cove on the north side is underlain with phyllite. The alluvium and/or colluvium are from the Webb Mountain, Elkmont, Thunderhead, Anakeesta, and Metcalf Phyllite Formations. There are some limestone rock outcrops in the cove.

Landscape

The elevation ranges from 518 to 610 meters. The cove is only in Tennessee. There are four main levels exposed in the cove. The upper three are combinations of colluvial fans and old stream terraces. The lowest level is the current floodplain along Abrams Creek. All four levels are not continuous throughout the cove. The cove has experienced multiple cycles of deposition and erosion, and the current landscape is the result. The small outliers of phyllite occur as isolated knobs on the floor of the cove and have been confused with Indian mounds.

Examples

Good examples occur in Cades Cove and Whiteoak Sink.

Vegetative Cover

The vegetation has been totally manipulated. The majority of the cove is in tall fescue that was used as pasture for livestock. Some areas are being managed for warm-season grasses. This landscape has old farmstead sites. These farmsteads commonly had apple, peach, cherry, plum, and pear trees. Wooded areas are dominated by oak-hickory-yellow pine. Some areas of sycamore and yellow-poplar occur along the drainageways. Plant vigor and productivity are very high.

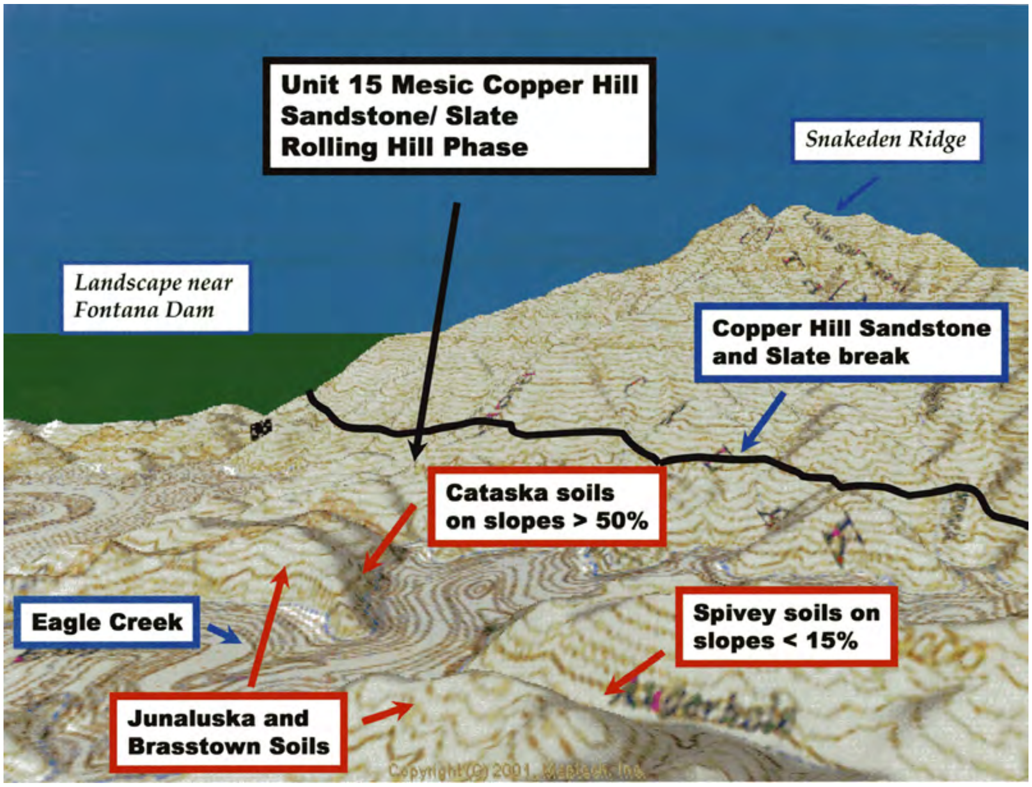


Figure 26.—Unit 15, Mesic Copperhill Sandstone/Slate Rolling Hill Phase.

Soils

In this general soil map unit, The highest level above the floodplain is dominated by Lonon soils and is mainly an example of remnants of an old stream terrace system. The next lower level is a colluvial fan deposit that is dominated by Cades soils. The level just above the floodplain is a series of stream terrace deposits that occur along the current drainageways, and the dominant soils are Allegheny and Cotaco. This level does not flood. The floodplain is discontinuous in places, and Dellwood, Smokemont, Rosman, and Toxaway soils are found here. This area does flood for very brief duration in winter and during episodes of very intense rainfall.

15. Mesic Copperhill Sandstone/Slate Rolling Hill Phase: Junaluska-Brasstown-Soco Soils

Sandstone Portion of the Unit

Geology

This general soil map unit consists of soft sandstone (Copperhill) in a mesic temperature regime in a rolling hills phase (fig. 26). It is in areas at elevations of less than 793 meters in North Carolina. It is associated with soft metasandstone with varying amounts of black slate.

The risk of exposing pyrite to the environment is low. The risk of stream acidification is moderate. The risk of landslides is low.

Landslides are much less common than in the black slate unit. This is confirmed by the infrared photography. Most slides are induced by road construction. Slides occur where the dip in rock is the same direction as the incline of the side slope. When downslope support is removed, slides are likely. Talus from these slides has less sulfur-bearing rock than the black slate. Much less sulfuric acid is present in the environment. Thus, this unit has less risk of environmental degradation than the black slate unit. Rock fragments tend to weather very slowly physically when exposed on the surface. The fragments are durable even when transported long distances by gravity and/or water. Chemical weathering of soft metasandstone is moderately rapid when it is covered with soil material. A signature on infrared photography can identify landslides. Recent landslides are sky blue or greenish blue. Older landslides are white. The shape is wider on the slide face and narrower on the talus. Talus material is funneled into drainageways.

Landscape

This unit is below 793 meters in elevation. It is only in North Carolina. This unit is for the most part on landscapes with rounded ridges and side slopes. The exception is in the gorges along the major streams where there are very steep side slopes. Much of the gorge areas is under the waters of Fontana Lake. The soft metasandstone tends to have minerals that chemically weather easily, such as feldspars. This landscape commonly has rounded, strongly sloping ridges and short, steep side slopes. All the gorges are downslope from these rounded ridges and side slopes. The landscape has a few cool-aspect, well shaped head slopes. Colluvium is common and relatively continuous in the drainageways. However, many of the drainageways are too narrow to map at the scale used for the survey. The exception is on the very steep side slopes in the gorges. Rubble land is commonly too small to map and is an inclusion. Hanging coves commonly are upslope from these areas. Commonly, there is little or no toeslope colluvium below the very steep side slopes. Cascades and waterfalls are common and occur on these very steep side slopes. This unit has fewer rock outcrops, producing fewer rock fragments than the hard metasandstone unit. There are fewer rock fragments on the surface and in the streams. There are areas of very steep side slopes that are the same as those of the hard metasandstone unit. They have rock outcrops. Rock outcrops differ from slide faces in that the vegetative cover is not stripped away from large areas. Rock outcrops are small in size and difficult to see on the photography because of the vegetative cover. These areas are the source of most of the rock fragments. Rock fragments of all sizes are produced.

Examples

Good examples occur along Fontana Lake between Noland Creek and Hazel.

Vegetative Cover

This landscape is most commonly covered with oak-hickory-yellow pine on the ridges and side slopes. The main exception is in the east- to north-facing gorges, where a cover of hemlock-white pine-rhododendron dominates. Various other species may occur or dominate at any given spot on the uplands, such as white pine, laurel, black locust, red maple, and sourwood. The colluvial part of this landscape is most often covered in yellow-poplar. Various other species may occur or dominate at any given spot on the colluvium, such as northern red oak, sweet birch, black cherry, hemlock, basswood, black locust, fraser magnolia, beech, white pine, silverbell, and black walnut. This landscape has low vigor and productivity. Only the colluvial part of landscape has good vigor and productivity.

Soils

Soils in this general soil map unit are very low in plant macro-nutrients. Upland soils comprise more than 90 percent of the landscape, and the colluvial soils less than 10 percent. Upland soils range from deep to shallow. Junaluska and Brasstown soils are mapped in a complex and are on the rounded ridges and side slopes. Ditney and Unicoi soils are mapped in a complex and are on the side slopes of the gorges. Spivey and Santeelah soils are mapped in a complex and are in the drainageways where the colluvium is from watersheds with east-draining side slopes. Northcove and Maymead soils are mapped in a complex and are in the drainageways where the colluvium is from watersheds with south- and west-draining side slopes. On slopes of less than 15 percent, Nowhere soils are added to the Spivey-Santeelah complex.

Slate Portion of the Unit

Geology

This general soil map unit consists of black slate (Copperhill) in a mesic temperature regime in a rolling hills phase. It is in areas at elevations of less than 793 meters in North Carolina. It is mostly associated with black graphitic, sulfidic slate.

The risk of exposing pyrite to the environment is moderate. The risk of stream acidification is moderate. The risk of landslides is moderate.

Landslides are much less common than in the other black slate unit. All of this landscape is mapped and remote sensed. No slides were mapped. Road construction has exposed rock faces and spoil piles with large amounts of sulfur-bearing rock. Less sulfuric acid is present in the environment because there are fewer slides. Thus, this unit has much less risk of environmental degradation than the other black slate unit. The risk increases if this slate is exposed because of road construction. This landscape produces small rock fragments, generally channers and a few flagstones. These rock fragments tend to weather quickly physically when exposed on the surface. Chemical weathering of black slate is slow when it is covered with soil material. A signature on infrared photography can identify landslides. These landslides can be easily remote sensed. The use of infrared-photography-confirmed slides occurs much less frequently on the black schist landscape than on the black slate landscape. Recent landslides are sky blue or greenish blue. Older landslides are white. The shape is wider on the slide face and narrower on the talus.

Landscape

This unit is below 793 meters in elevation. It is only in North Carolina. This unit is for the most part on landscapes with rounded ridges and side slopes. The exception is in the gorges along the major streams where there are very steep side slopes. Most of these very steep side slopes are under the waters of Fontana Lake. This landscape commonly has narrow, rounded, strongly sloping ridges and short, steep side slopes. All the gorge areas are downslope from these rounded ridges and side slopes. The landscape has very few well shaped head slopes and not much colluvium. Most of the drainageways are too narrow to map at the scale used for the survey. There are some hanging coves above the gorges.

Examples

Good examples occur at Fontana Dam along the lakeshore and below the dam along the river.

Vegetative Cover

This landscape is most commonly covered with oak-hickory-yellow pine on the ridges and side slopes. The main exception is in the east- to north-facing gorges, where a cover of hemlock-white pine-rhododendron dominates. Various other species may occur or dominate at any given spot on the uplands, such as white pine, laurel, black locust, red maple, and sourwood. Understory plants are often sparse. The colluvial part of this landscape is most often covered in yellow-poplar. Various other species may occur or dominate at any given spot in the colluvium, such as northern red oak, sweet birch, black cherry, and white pine. Tree throw is very common. Road cuts and spoil areas are very difficult to revegetate. Plant vigor and productivity are very low. Only the colluvial part of the landscape has good vigor and productivity. Plant cover type is affected little by aspect due to the very low vigor of this landscape.

Soils

Soils in this general soil map unit are very low in plant macro-nutrients. Upland soils comprise more than 95 percent of the landscape, and the colluvial soils less than 5 percent. Upland soils range from moderately deep to shallow for the most part. Junaluska and Tsali soils are mapped in a complex and are on the rounded ridges and side slopes. Cataska and Sylco soils are mapped in a complex and are on the side slopes of the gorges. Spivey and Santeelah soils are mapped in a complex and are in the drainageways where the colluvium is from watersheds with east-draining side slopes. Northcove and Maymead soils are mapped in a complex and are in the drainageways where the colluvium is from watersheds with south- and west-draining side slopes. On slopes of less than 15 percent, Nowhere soils are added to the Spivey-Santeelah complex.

Detailed Soil Map Units

The map units delineated on the detailed soil 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.

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

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

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

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives 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.* All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. The soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases.* Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Leatherwood cobbly clay, 15 to 30 percent slopes, stony, is a phase of the Leatherwood 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. Heintooga-Rubble land complex, 50 to 95 percent slopes, extremely bouldery, is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Slide area is an example.

Table 1 gives the area in hectares and the proportionate extent of each map unit. Other tables 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.

AwB—Alarka-Wesser complex, 0 to 8 percent slopes, flooded

Setting

Elevation: 762 to 1,524 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Cove on mountains

Composition

Alarka soil and similar components: 60 percent
Wesser soil and similar components: 20 percent
Minor soils: 20 percent

Properties and Qualities of the Alarka Soil

Available water capacity: High (about 30.0 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: 0.0 to 15.0 centimeters
Water table (kind): Apparent
Ponding: None
Drainage class: Poorly drained
Flooding: Occasional
Organic matter content in the surface layer: 90.0 to 95.0 percent
Parent material: Loamy colluvium over gravelly alluvium derived from metasedimentary rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Moderately decomposed plant material
Potential for surface runoff: Low

Typical Profile of the Alarka Soil

0 to 8 centimeters; moderately decomposed plant material
8 to 18 centimeters; highly decomposed plant material
18 to 25 centimeters; highly decomposed plant material
25 to 33 centimeters; loam
33 to 53 centimeters; loam

53 to 91 centimeters; very fine sandy loam
91 to 152 centimeters; very gravelly sandy loam

Interpretive Groups for the Alarka Soil

Prime farmland: Not prime farmland
Hydric soil: Yes

Properties and Qualities of the Wesser Soil

Available water capacity: Very high (about 43.1 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: 0.0 to 15.0 centimeters
Water table (kind): Apparent
Ponding: Long
Depth of ponding: 8.0 to 23.0 centimeters
Drainage class: Poorly drained
Flooding: Frequent
Organic matter content in the surface layer: 70.0 to 80.0 percent
Parent material: Sandy and gravelly alluvium derived from metasedimentary rock
Permeability of soil profile: Rapid
Shrink-swell potential: Low
Surface layer texture: Muck
Potential for surface runoff: Low

Typical Profile of the Wesser Soil

0 to 8 centimeters; muck
8 to 15 centimeters; sandy loam
15 to 33 centimeters; loamy fine sand
33 to 49 centimeters; sand
49 to 158 centimeters; extremely gravelly sand

Interpretive Groups for the Wesser Soil

Prime farmland: Not prime farmland
Hydric soil: Yes

Use and Management

Permeability in the surface layer is influenced by the discontinuity in pore sizes relative to the thick organic mat and the underlying mineral material. Permeability is also influenced by the discontinuity in pore sizes between the upper part of the underlying material and the gravel/cobble beds. A discontinuity in pore sizes causes the layer on the top to become saturated before allowing the water to move into the lower layer. Permeability in the Wesser soil is moderately rapid in the surface layer and rapid in the gravel/cobble beds. The depth to the gravel/cobble beds is more than 100 centimeters in the Alarka soil and ranges from 25 to 50 centimeters in the Wesser soil. The seasonal high water table of these soils is less than 30 centimeters below the soil surface. This map unit is in landscape positions which are in shade much of the day. Because the map unit is shaded, a cooler, moister micro-climate is created. These soils stay frozen for long periods in winter and warm up later in spring than other soils at the same elevations. Flooding is occasional and of very brief duration for the Wesser soil. Ponding occurs in the depressions. In storm events, rainwater off the adjacent uplands is concentrated into surface runoff, which causes overland flow in concave areas. These soils occur in hanging coves.

Included in mapping with the Alarka and Wesser soils are small areas of contrasting Dellwood and Whiteside soils. Dellwood and Whiteside soils are moderately well drained. Dellwood soils compete with Wesser soils on the landscape. Whiteside soils compete with Alarka soils on the landscape. Also included are small areas of seeps and springs. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

The dominant vegetation is rhododendron with a sparse canopy made up of such species as eastern hemlock, white pine, red spruce, sugar maple, yellow birch, and/or northern red oak.

This map unit is not associated with a particular general soil map unit. It is associated with a landscape position and vegetative cover type.

AwC—Alarka-Whiteside complex, 8 to 15 percent slopes, stony

Setting

Elevation: 760 to 1,524 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Cove on mountains

Composition

Alarka soil and similar components: 60 percent
Whiteside soil and similar components: 20 percent
Minor soils: 20 percent

Properties and Qualities of the Alarka Soil

Available water capacity: High (about 30.0 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: 0.0 to 15.0 centimeters
Water table (kind): Apparent
Ponding: None
Drainage class: Poorly drained
Flooding: None
Organic matter content in the surface layer: 90.0 to 95.0 percent
Parent material: Loamy colluvium over gravelly alluvium derived from metasedimentary rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Moderately decomposed plant material
Potential for surface runoff: Low

Typical Profile of the Alarka Soil

0 to 8 centimeters; moderately decomposed plant material
8 to 18 centimeters; highly decomposed plant material
18 to 25 centimeters; highly decomposed plant material
25 to 33 centimeters; loam
33 to 53 centimeters; loam
53 to 91 centimeters; very fine sandy loam
91 to 152 centimeters; very gravelly sandy loam

Interpretive Groups for the Alarka Soil

Prime farmland: Not prime farmland
Hydric soil: Yes

Properties and Qualities of the Whiteside Soil

Available water capacity: High (about 24.4 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: 46.0 to 91.0 centimeters
Water table (kind): Apparent
Ponding: None
Drainage class: Moderately well drained
Flooding: None
Organic matter content in the surface layer: 2.0 to 8.0 percent
Parent material: Loamy colluvium derived from metasedimentary sandstone
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Fine sandy loam
Potential for surface runoff: Low

Typical Profile of the Whiteside Soil

0 to 36 centimeters; fine sandy loam
36 to 119 centimeters; sandy clay loam
119 to 135 centimeters; loamy sand
135 to 178 centimeters; sandy clay loam

Interpretive Groups for the Whiteside Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Permeability in the surface layer is influenced by the discontinuity in pore sizes between the organic mat and the underlying mineral material. Permeability is also influenced by the discontinuity in pore sizes between the upper part of the underlying material and the gravel/cobble beds. A discontinuity in pore sizes causes the layer on the top to become saturated before allowing the water to move into the lower layer. The Whiteside soil has moderately rapid permeability in the surface layer and moderate permeability in the subsoil and underlying material. The depth to the gravel/cobble beds is more than 100 centimeters in the Alarka soil and is more than 150 centimeters in the Whiteside soil. The seasonal high water table of the Alarka soil is less than 30 centimeters below the soil surface. The seasonal high water table of the Whiteside soil ranges from 60 to 120 centimeters below the soil surface. This map unit is in landscape positions which are in shade much of the day. Because the map unit is shaded, a cooler, moister micro-climate is created. These soils stay frozen for long periods in winter and warm up later in spring than other soils at the same elevations. In storm events, rainwater off the adjacent uplands is concentrated into surface runoff, which causes overland flow in concave areas. These soils occur in hanging coves.

Included in mapping with the Alarka and Whiteside soils are small areas of contrasting Nowhere soils. Nowhere soils have more than 35 percent coarse fragments, by volume, throughout the soil profile. These soils occur in drainageways. Also included are small areas of seeps and springs. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

The dominant vegetation is rhododendron with a sparse canopy made up of such species as eastern hemlock, white pine, red spruce, sugar maple, yellow birch, and/or northern red oak.

This map unit is not associated with a particular general soil map unit. It is associated with a landscape position and vegetative cover type.

AxB—Allegheny loam, 2 to 8 percent slopes

Setting

Elevation: 300 to 920 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Stream terrace in valley

Composition

Allegheny soil and similar components: 90 percent
Minor soils: 10 percent

Soil Properties and Qualities

Available water capacity: High (about 23.9 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 2.0 to 4.0 percent
Parent material: Loamy alluvium derived from sandstone and shale
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Loam
Potential for surface runoff: Low

Typical Profile

0 to 20 centimeters; loam
20 to 132 centimeters; clay loam
132 to 183 centimeters; clay

Interpretive Groups

Prime farmland: All areas are prime farmland
Hydric soil: No

Use and Management

This map unit has been in grassland for decades with low levels of traffic from livestock and machinery. Therefore, it has surface layers with low bulk densities. In storm events, rainwater off the higher adjacent map units is concentrated into surface runoff, which causes overland flow in concave areas.

Included in mapping with the Allegheny soil are small areas of contrasting Cotaco soils. Cotaco soils are moderately well drained and occur in depressions. Also included are small areas of seeps and springs in the drainageways and small areas of similar soils with redder subsoils below a depth of 127 centimeters. These contrasting soils and miscellaneous areas make up about 10 percent of the map unit.

This map unit has a dominant vegetative cover of introduced and maintained grasslands. In many areas, a thick fescue sod has developed. The fescue sod, over time, chokes out other grasses and forbs. This map unit would in time revert to hardwood forest. It is the manipulation of the map unit which maintains the grasslands.

This map unit is associated with general soil map unit 14 (Cades Cove: Lonon-Cades Soils).

BaE—Balsam-Tanasee complex, 30 to 50 percent slopes, stony

Setting

Elevation: 1,280 to 2,030 meters
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1 to 13 degrees C
Frost-free period: 162 to 176 days
Landform: Cove on mountains

Composition

Balsam soil and similar components: 50 percent
Tanasee soil and similar components: 30 percent
Minor soils: 20 percent

Properties and Qualities of the Balsam Soil

Available water capacity: Moderate (about 16.9 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 50.0 to 95.0 percent
Parent material: Cobbly colluvium derived from igneous and metamorphic rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Moderately decomposed plant material
Potential for surface runoff: Low

Typical Profile of the Balsam Soil

0 to 5 centimeters; moderately decomposed plant material
5 to 33 centimeters; cobbly sandy loam
33 to 122 centimeters; very cobbly sandy loam
122 to 165 centimeters; very cobbly loamy sand

Interpretive Groups for the Balsam Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Tanasee Soil

Available water capacity: Very high (about 33.7 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 50.0 to 95.0 percent

Parent material: Loamy colluvium derived from gneiss
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Moderately decomposed plant material
Potential for surface runoff: Low

Typical Profile of the Tanasee Soil

0 to 5 centimeters; moderately decomposed plant material
5 to 20 centimeters; clay loam
20 to 46 centimeters; loam
46 to 84 centimeters; clay loam
84 to 142 centimeters; loam
142 to 200 centimeters; cobbly sandy loam

Interpretive Groups for the Tanasee Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Due to the higher elevations, the climate is cold and icy in winter and rainy, foggy, and cool the rest of the year. However, this map unit is sheltered from high winds due to its landscape position. The seasonal high water table is more than 200 centimeters below the surface. In storm events, rainwater off the adjacent uplands is concentrated into surface runoff, which causes overland flow in concave areas. Small streams and springs are common in this map unit. The Balsam and Tanasee soils are well drained and do not have water tables in the soil profiles. However, the colluvial material beneath these soils is a good aquifer. The water in the colluvium moves laterally downslope. At some point downslope, the water reaches the soil surface and forms springs. The springs in turn add to the flow of the streams.

Included in mapping with the Tanasee and Balsam soils are small areas of contrasting Burton and Wayah soils. These included soils formed in saprolite on the adjacent uplands. Burton soils are moderately deep to hard bedrock. Also included are small areas of somewhat poorly drained and moderately well drained soils around seeps and springs. These contrasting soils make up about 20 percent of this map unit.

Soils similar to the Tanasee and Balsam soils are also included in this map unit. These soils have dark surface layers less than 25 centimeters thick or more than 50 centimeters thick. Soils with surface layers less than 25 centimeters thick are in convex areas facing south to west. Soils with surface layers more than 50 centimeters thick are in areas facing north to east.

This map unit normally has a dominant vegetative cover of northern hardwoods or a mix of spruce/fir and northern hardwoods. However, most map units at Purchase Knob are in grassland or planted Fraser fir. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. Spruce/fir refers to red spruce and Fraser fir. Northern hardwoods are dominant below 1,465 meters in elevation. The mixed spruce/fir and northern hardwoods are above 1,465 meters in elevation.

In the Purchase Knob area, the introduced and maintained habitat of grassland and planted Fraser fir will, over time, evolve into northern hardwoods. Much of the Purchase Knob area is in a thick fescue sod. The fescue sod, over time, chokes out other grasses and forbs.

This map unit is associated with general soil map unit 3 (Frigid Soft Sandstone: Oconaluftee Soils).

Bm—Biltmore sand, 0 to 3 percent slopes, frequently flooded

Setting

Elevation: 300 to 700 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Floodplain in valley

Composition

Biltmore soil and similar components: 80 percent
Minor soils: 20 percent

Soil Properties and Qualities

Available water capacity: Low (about 12.4 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: 120.0 to 183.0 centimeters
Water table (kind): Apparent
Ponding: None
Drainage class: Well drained
Flooding: Frequent
Organic matter content in the surface layer: 0.5 to 3.0 percent
Parent material: Sandy alluvium
Permeability of soil profile: Rapid
Shrink-swell potential: Low
Surface layer texture: Sand
Potential for surface runoff: Low

Typical Profile

0 to 25 centimeters; sand
25 to 203 centimeters; loamy fine sand

Interpretive Groups

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Included in mapping with the Biltmore soil are small areas of contrasting Reddies and Rosman soils. Reddies and Rosman soils have loamy surface layers and subsoils. Reddies soils are also moderately deep to strata of gravel, cobbles, and sand. Reddies soils are in areas scoured by floodwaters along large stream channels or where smaller streams cross this map unit. Rosman soils are away from the stream channels behind the Biltmore soil. Also included in mapping are some soils similar to the Biltmore soil. These soils have darker colored surface layers. The contrasting soils make up about 20 percent of this map unit.

This map unit has a dominant vegetative cover of floodplain hardwoods with some eastern hemlocks and pines. Floodplain hardwoods commonly have a very diverse tree cover type. However, some areas are dominated by a single species, such as river birch, sycamore, or yellow-poplar, depending on past management. Common tree species include basswood, beech, black birch, black cherry, black locust, black walnut, butternut, dogwood, elderberry, hawthorn, hemlock, honey locust, red mulberry, northern red oak, red maple, river birch, shortleaf pine, sweetgum, sycamore, white oak, white pine, witch hazel, yellow buckeye, and yellow-poplar. Rhododendron commonly is dominant in the understory vegetation and may form thickets in some areas.

This map unit is associated with general soil map unit 13 (Floodplains and Terraces: Rosman-Reddies-Dellwood Soils).

BpC—Breakneck-Pullback complex, 8 to 15 percent slopes, very rocky

Setting

Elevation: 1,280 to 2,030 meters
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1 to 13 degrees C
Frost-free period: 162 to 176 days
Landform: Ridge on mountains

Composition

Breakneck soil and similar components: 55 percent
Pullback soil and similar components: 25 percent
Minor soils: 20 percent

Properties and Qualities of the Breakneck Soil

Available water capacity: Low (about 9.9 centimeters to a depth of 71 centimeters)
Depth to restrictive features: 51 to 102 centimeters to lithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 3.0 to 5.0 percent
Parent material: Sandstone loamy residuum weathered from metasedimentary rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Channery loam
Potential for surface runoff: Low

Typical Profile of the Breakneck Soil

0 to 30 centimeters; channery loam
30 to 71 centimeters; channery sandy loam
71 to 200 centimeters; unweathered bedrock

Interpretive Groups for the Breakneck Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Pullback Soil

Available water capacity: Very low (about 5.9 centimeters to a depth of 41 centimeters)
Depth to restrictive features: 25 to 51 centimeters to lithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None

Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 80.0 to 95.0 percent
Parent material: Loamy residuum from metasedimentary sandstone
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Peat
Potential for surface runoff: Low

Typical Profile of the Pullback Soil

0 to 3 centimeters; peat
3 to 20 centimeters; sandy loam
20 to 41 centimeters; sandy loam
41 to 200 centimeters; unweathered bedrock

Interpretive Groups for the Pullback Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Due to the higher elevations, the climate in this map unit is severe compared to the region in general. It is cold, icy, and very windy in winter and rainy, foggy, and cool the rest of the year. The Breakneck and Pullback soils stay frozen for long periods in winter. These soils are well drained and allow water to move into and through the profile moderately rapidly. However, they have a limited water storage capacity due to the texture and the limited depth to bedrock. These soils occur in locations with high amounts of rainfall. During periods of prolonged rain or snowmelt, these soils have temporary water tables above the bedrock. These temporary water tables may last for a few hours or occasionally for a few days. The water tables are temporary because when the flow of water into the soils ends, the water tables drain in a short period of time. The water moves laterally over the bedrock downslope. At some point downslope, the water reaches the soil surface and forms seeps.

Included in mapping with the Breakneck and Pullback soils are small areas of contrasting Luftee and Anakeesta soils. Luftee and Anakeesta soils formed over Anakeesta Slate bedrock. The Thunderhead Sandstone is interbedded with the Anakeesta Slate. Also included are small areas of soils deeper than 100 centimeters to bedrock, small areas of seeps around the rock outcrops, and small areas which are extremely bouldery. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

Soils similar to the Breakneak and Pullback soils in use and management are included in this map unit. These soils have dark surface layers less than 25 centimeters or more than 50 centimeters thick. Soils with surface layers less than 25 centimeters thick are on spur ridges or shoulder slopes. Soils with surface layers more than 50 centimeters thick are in saddles.

This map unit has a dominant vegetative cover of spruce/fir, northern hardwoods, or a mix of the two. Spruce/fir refers to red spruce and Fraser fir. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. The spruce/fir cover type is dominant above 1,645 meters in elevation. Northern hardwoods are dominant below 1,465 meters in elevation. Mixing of the two cover types occurs between these elevations.

This map unit is associated with general soil map unit 2 (Frigid Hard Sandstone: Breakneck-Pullback Soils).

BpD—Breakneck-Pullback complex, 15 to 30 percent slopes, very rocky

Setting

Elevation: 1,280 to 2,030 meters
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1 to 13 degrees C
Frost-free period: 162 to 176 days
Landform: Ridge on mountains

Composition

Breakneck soil and similar components: 55 percent
Pullback soil and similar components: 25 percent
Minor soils: 20 percent

Properties and Qualities of the Breakneck Soil

Available water capacity: Low (about 9.9 centimeters to a depth of 71 centimeters)
Depth to restrictive features: 51 to 102 centimeters to lithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 3.0 to 5.0 percent
Parent material: Sandstone loamy residuum weathered from metasedimentary rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Channery loam
Potential for surface runoff: Low

Typical Profile of the Breakneck Soil

0 to 30 centimeters; channery loam
30 to 71 centimeters; channery sandy loam
71 to 200 centimeters; unweathered bedrock

Interpretive Groups for the Breakneck Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Pullback Soil

Available water capacity: Very low (about 5.9 centimeters to a depth of 41 centimeters)
Depth to restrictive features: 25 to 51 centimeters to lithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 80.0 to 95.0 percent
Parent material: Loamy residuum weathered from metasedimentary sandstone
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Peat
Potential for surface runoff: Low

Typical Profile of the Pullback Soil

0 to 3 centimeters; peat
3 to 20 centimeters; sandy loam
20 to 41 centimeters; sandy loam
41 to 200 centimeters; unweathered bedrock

Interpretive Groups for the Pullback Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Due to the higher elevations, the climate in this map unit is severe compared to the region in general. It is cold, icy, and very windy in winter and rainy, foggy, and cool the rest of the year. The Breakneck and Pullback soils stay frozen for long periods in winter. These soils are well drained and allow water to move into and through the profile moderately rapidly. However, these soils have a limited water storage capacity due to the texture and the limited depth to bedrock. These soils occur in locations with high amounts of rainfall. During periods of prolonged rain or snowmelt, these soils have temporary water tables above the bedrock. These temporary water tables may last for a few hours or occasionally for a few days. The water tables are temporary because when the flow of water into the soils ends, the water tables drain in a short period of time. The water moves laterally over the bedrock downslope. At some point downslope, the water reaches the soil surface and forms seeps.

Included in mapping with the Breakneck and Pullback soils are small areas of contrasting Luftee and Anakeesta soils. Luftee and Anakeesta soils formed over Anakeesta Slate bedrock. The Thunderhead Sandstone is interbedded with the Anakeesta Slate. Also included are small areas of soils deeper than 100 centimeters to bedrock, small areas of rock outcrop, the associated seeps around the rock outcrops, and small areas which are extremely bouldery. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

Soils similar to the Breakneak and Pullback soils in use and management are included in this map unit. These soils have dark surface layers less than 25 centimeters or more than 50 centimeters thick. Soils with surface layers less than 25 centimeters thick are on spur ridges or shoulder slopes. Soils with surface layers more than 50 centimeters thick are in saddles or on the lower part of the side slope.

This map unit has a dominant vegetative cover of spruce/fir, northern hardwoods, or a mix of the two. Spruce/fir refers to red spruce and Fraser fir. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. The spruce/fir cover type is dominant above 1,645 meters in elevation. Northern hardwoods are dominant below 1,465 meters in elevation. Mixing of the two cover types occurs between these elevations.

This map unit is associated with general soil map unit 2 (Frigid Hard Sandstone: Breakneck-Pullback Soils).

BpF—Breakneck-Pullback complex, 30 to 95 percent slopes, very rocky

Setting

Elevation: 1,280 to 2,030 meters
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1 to 13 degrees C

Frost-free period: 162 to 176 days
Landform: Mountainside on mountains

Composition

Breakneck soil and similar components: 55 percent
Pullback soil and similar components: 25 percent
Minor soils: 20 percent

Properties and Qualities of the Breakneck Soil

Available water capacity: Low (about 9.9 centimeters to a depth of 71 centimeters)
Depth to restrictive features: 51 to 102 centimeters to lithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 3.0 to 5.0 percent
Parent material: Loamy residuum and/or creep deposits derived from metasedimentary rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Channery loam
Potential for surface runoff: Low

Typical Profile of the Breakneck Soil

0 to 30 centimeters; channery loam
30 to 71 centimeters; channery sandy loam
71 to 200 centimeters; unweathered bedrock

Interpretive Groups for the Breakneck Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Pullback Soil

Available water capacity: Very low (about 5.9 centimeters to a depth of 41 centimeters)
Depth to restrictive features: 25 to 51 centimeters to lithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 80.0 to 95.0 percent
Parent material: Loamy residuum weathered from metasedimentary sandstone
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Peat
Potential for surface runoff: Low

Typical Profile of the Pullback Soil

0 to 3 centimeters; peat
3 to 20 centimeters; sandy loam
20 to 41 centimeters; sandy loam
41 to 200 centimeters; unweathered bedrock

Interpretive Groups for the Pullback Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Due to the higher elevations, the climate in this map unit is severe compared to the region in general. It is cold, icy, and very windy in winter and rainy, foggy, and cool the rest of the year. The Breakneck and Pullback soils stay frozen for long periods in winter. These soils are well drained and allow water to move into and through the profile moderately rapidly. However, they have a limited water storage capacity due to the texture and the limited depth to bedrock. These soils occur in locations with high amounts of rainfall. During periods of prolonged rain or snowmelt, these soils have temporary water tables above the bedrock. These temporary water tables may last for a few hours or occasionally for a few days. The water tables are temporary because when the flow of water into the soils ends, the water tables drain in a short period of time. The water moves laterally over the bedrock downslope. At some point downslope, the water reaches the soil surface and forms seeps.

Included in mapping with the Breakneck and Pullback soils are small areas of contrasting Luftee and Anakeesta soils. Luftee and Anakeesta soils formed over Anakeesta Slate bedrock. The Thunderhead Sandstone is interbedded with the Anakeesta Slate. Also included are boulder trains. The boulder trains have little or no fine-earth material on the surface but are covered in vegetation. The boulder trains are located in narrow drainageways. Also included are small areas of seeps around the rock outcrops and small areas which are extremely bouldery. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

Soils similar to the Breakneak and Pullback soils in use and management are included in this map unit. These soils have dark surface layers less than 25 centimeters or more than 50 centimeters thick. Soils with surface layers less than 25 centimeters thick are on spur ridges or shoulder slopes. Soils with surface layers more than 50 centimeters thick are in saddles or on the lower part of the side slope.

This map unit has a dominant vegetative cover of spruce/fir, northern hardwoods, or a mix of the two. Spruce/fir refers to red spruce and Fraser fir. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. The spruce/fir cover type is dominant above 1,645 meters in elevation. Northern hardwoods are dominant below 1,465 meters in elevation. Mixing of the two cover types occurs between these elevations.

This map unit is associated with general soil map unit 2 (Frigid Hard Sandstone: Breakneck-Pullback Soils). There is limited acreage of this map unit associated with general soil map unit 3 (Frigid Soft Sandstone: Oconaluftee Soils).

BrE—Breakneck-Luftee-Clingman-Pinnacle complex, 15 to 50 percent slopes, very stony

Setting

Elevation: 1,060 to 2,030 meters
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1 to 13 degrees C
Frost-free period: 162 to 176 days
Landform: Mountainside on mountains

Composition

Breakneck soil and similar components: 31 percent

Luftee soil and similar components: 29 percent
Clingman soil and similar components: 21 percent
Pinnacle soil and similar components: 19 percent

Properties and Qualities of the Breakneck Soil

Available water capacity: Low (about 9.9 centimeters to a depth of 71 centimeters)
Depth to restrictive features: 51 to 102 centimeters to lithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 3.0 to 5.0 percent
Parent material: Loamy residuum weathered from metasedimentary rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Channery loam
Potential for surface runoff: Low

Typical Profile of the Breakneck Soil

0 to 30 centimeters; channery loam
30 to 71 centimeters; channery sandy loam
71 to 200 centimeters; unweathered bedrock

Interpretive Groups for the Breakneck Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Luftee Soil

Available water capacity: Low (about 14.1 centimeters to a depth of 86 centimeters)
Depth to restrictive features: 51 to 102 centimeters to lithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 10.0 to 15.0 percent
Parent material: Loamy residuum weathered from metasedimentary slate and phyllite
Permeability of soil profile: Rapid
Shrink-swell potential: Low
Surface layer texture: Very channery loam
Potential for surface runoff: Low

Typical Profile of the Luftee Soil

0 to 28 centimeters; very channery loam
28 to 51 centimeters; extremely channery loam
51 to 86 centimeters; extremely channery sandy loam
86 to 200 centimeters; unweathered bedrock

Interpretive Groups for the Luftee Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Clingman Soil

Available water capacity: Moderate (about 22.4 centimeters to a depth of 48 centimeters)

Depth to restrictive features: 8 to 51 centimeters to lithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 20.0 to 90.0 percent
Parent material: Organic material over thin layers weathered from metasedimentary rock
Permeability of soil profile: Rapid
Shrink-swell potential: Low
Surface layer texture: Peat
Potential for surface runoff: Low

Typical Profile of the Clingman Soil

0 to 38 centimeters; peat
38 to 48 centimeters; loamy sand
48 to 200 centimeters; unweathered bedrock

Interpretive Groups for the Clingman Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Pinnacle Soil

Available water capacity: Very high (about 33.2 centimeters to a depth of 92 centimeters)
Depth to restrictive features: 51 to 102 centimeters to lithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 90.0 to 100.0 percent
Parent material: Organic material over thin layers weathered from metasedimentary rock
Permeability of soil profile: Rapid
Shrink-swell potential: Low
Surface layer texture: Peat
Potential for surface runoff: Low

Typical Profile of the Pinnacle Soil

0 to 48 centimeters; peat
48 to 66 centimeters; muck
66 to 92 centimeters; muck
92 to 200 centimeters; unweathered bedrock

Interpretive Groups for the Pinnacle Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

This map unit is not associated with a particular general soil map unit. It is associated with a landscape position and vegetative cover type.

BrF—Breakneck-Luftee-Clingman-Pinnacle complex, 50 to 95 percent slopes, rocky

Setting

Elevation: 1,060 to 2,030 meters
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1 to 13 degrees C
Frost-free period: 162 to 176 days
Landform: Mountainside on mountains

Composition

Breakneck soil and similar components: 31 percent
Luftee soil and similar components: 29 percent
Clingman soil and similar components: 21 percent
Pinnacle soil and similar components: 19 percent

Properties and Qualities of the Breakneck Soil

Available water capacity: Low (about 9.9 centimeters to a depth of 71 centimeters)
Depth to restrictive features: 51 to 102 centimeters to lithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 3.0 to 5.0 percent
Parent material: Loamy residuum weathered from metasedimentary rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Channery loam
Potential for surface runoff: Low

Typical Profile of the Breakneck Soil

0 to 30 centimeters; channery loam
30 to 71 centimeters; channery sandy loam
71 to 200 centimeters; unweathered bedrock

Interpretive Groups for the Breakneck Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Luftee Soil

Available water capacity: Low (about 14.1 centimeters to a depth of 86 centimeters)
Depth to restrictive features: 51 to 102 centimeters to lithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 10.0 to 15.0 percent
Parent material: Loamy residuum weathered from metasedimentary slate and phyllite
Permeability of soil profile: Rapid
Shrink-swell potential: Low
Surface layer texture: Very channery loam
Potential for surface runoff: Low

Typical Profile of the Luftee Soil

0 to 28 centimeters; very channery loam
28 to 51 centimeters; extremely channery loam
51 to 86 centimeters; extremely channery sandy loam
86 to 200 centimeters; unweathered bedrock

Interpretive Groups for the Luftee Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Clingman Soil

Available water capacity: Moderate (about 22.4 centimeters to a depth of 48 centimeters)
Depth to restrictive features: 8 to 51 centimeters to lithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 20.0 to 90.0 percent
Parent material: Organic material over thin layers weathered from metasedimentary rock
Permeability of soil profile: Rapid
Shrink-swell potential: Low
Surface layer texture: Peat
Potential for surface runoff: Low

Typical Profile of the Clingman Soil

0 to 38 centimeters; peat
38 to 48 centimeters; loamy sand
48 to 200 centimeters; unweathered bedrock

Interpretive Groups for the Clingman Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Pinnacle Soil

Available water capacity: Very high (about 33.2 centimeters to a depth of 92 centimeters)
Depth to restrictive features: 51 to 102 centimeters to lithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 90.0 to 100.0 percent
Parent material: Organic material over thin layers weathered from metasedimentary rock
Permeability of soil profile: Rapid
Shrink-swell potential: Low
Surface layer texture: Peat
Potential for surface runoff: Low

Typical Profile of the Pinnacle Soil

0 to 48 centimeters; peat
48 to 66 centimeters; muck

66 to 92 centimeters; muck
92 to 200 centimeters; unweathered bedrock

Interpretive Groups for the Pinnacle Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

This map unit is not associated with a particular general soil map unit. It is associated with a landscape position and vegetative cover type.

BuF—Burton-Craggey-Rock outcrop complex, 30 to 95 percent slopes, very stony

Setting

Elevation: 1,280 to 1,951 meters
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1 to 13 degrees C
Frost-free period: 162 to 176 days
Landform: Ridge on mountains and mountain slope on mountains

Composition

Burton soil and similar components: 45 percent
Craggey soil and similar components: 35 percent
Rock outcrop: 15 percent
Minor soils: 5 percent

Properties and Qualities of the Burton Soil

Available water capacity: Low (about 13.2 centimeters to a depth of 91 centimeters)
Depth to restrictive features: 51 to 102 centimeters to lithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 8.0 to 15.0 percent
Parent material: Loamy residuum weathered from igneous and metamorphic rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Cobbly sandy loam
Potential for surface runoff: Low

Typical Profile of the Burton Soil

0 to 46 centimeters; cobbly sandy loam
46 to 91 centimeters; cobbly sandy loam
91 to 200 centimeters; unweathered bedrock

Interpretive Groups for the Burton Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Craggey Soil

Available water capacity: Low (about 8.2 centimeters to a depth of 28 centimeters)

Depth to restrictive features: 25 to 51 centimeters to lithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Somewhat excessively drained
Flooding: None
Organic matter content in the surface layer: 20.0 to 90.0 percent
Parent material: Loamy residuum and/or creep deposits derived from igneous and metamorphic rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Muck
Potential for surface runoff: Low

Typical Profile of the Craggey Soil

0 to 10 centimeters; muck
10 to 28 centimeters; cobbly mucky loam
28 to 200 centimeters; unweathered bedrock

Interpretive Groups for the Craggey Soil

Prime farmland: Not prime farmland
Hydric soil: No

Interpretive Groups for Rock Outcrop

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management of the Burton and Craggey Soils

Due to the higher elevations, the climate in this map unit is severe compared to the region in general. It is cold, icy, and very windy in winter and rainy, foggy, and cool the rest of the year. The Burton and Craggey soils stay frozen for long periods in winter. These soils are well drained and allow water to move into and through the profile moderately rapidly. However, they have a limited water storage capacity due to the texture and the limited depth to bedrock. These soils occur in locations with high amounts of rainfall. During periods of prolonged rain or snowmelt, these soils have temporary water tables above the bedrock. These temporary water tables may last for a few hours or occasionally for a few days. The water tables are temporary because when the flow of water into the soils ends, the water tables drain in a short period of time. The water moves laterally over the bedrock downslope. At some point downslope, the water reaches the soil surface and forms seeps. Landslides are common during periods of intense and prolonged rainfall.

Included in mapping with the Burton and Craggey soils are small areas of contrasting Balsam and Wayah soils. Balsam and Wayah soils are very deep to bedrock. Balsam soils are in drainageways, and Wayah soils are on footslopes. Balsam soils have more than 35 percent rock fragments in the subsoil. Also included are boulder trains. The boulder trains have little or no fine-earth material on the surface but are covered in vegetation. Areas are located in narrow drainageways. Also included are small areas of seeps around the rock outcrops. These contrasting soils and miscellaneous areas make up about 5 percent of this map unit.

Soils similar to the Burton and Craggey soils in use and management are included in this map unit. These soils have dark surface layers less than 25 centimeters or more than 50 centimeters thick. Soils with surface layers less than 25 centimeters thick are on spur ridges or shoulder slopes. Soils with surface layers more than 50 centimeters thick are in saddles or on the lower part of the side slope.

This map unit has a dominant vegetative cover of spruce/fir, northern hardwoods or a mix of the two. Spruce/fir refers to red spruce and Fraser fir. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. The spruce/fir cover type is dominant above 1,645 meters in elevation. Northern hardwoods are dominant below 1,465 meters in elevation. Mixing of the two cover types occurs between these elevations.

This map unit is associated with general soil map unit 4 (Frigid Gneiss: Wayah Soils).

CaB—Cades silt loam, 2 to 8 percent slopes

Setting

Elevation: 300 to 1,000 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Fan in valley

Composition

Cades soil and similar components: 80 percent
Minor soils: 20 percent

Soil Properties and Qualities

Available water capacity: High (about 25.4 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 2.0 to 5.0 percent
Parent material: Loamy alluvium derived from metasedimentary rock
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Silt loam
Potential for surface runoff: Low

Typical Profile

0 to 10 centimeters; silt loam
10 to 26 centimeters; silty clay loam
26 to 69 centimeters; silty clay loam
69 to 182 centimeters; extremely channery sandy clay loam

Interpretive Groups

Prime farmland: All areas are prime farmland
Hydric soil: No

Use and Management

Included in mapping with the Cades soil are small areas of dissimilar soils with gravelly loam above a depth of 50 centimeters, similar soils with no gravelly loam within a depth of 150 centimeters, soils with no appreciable clay increase in the subsoil, and soils with a thick, dark surface layer. Similar inclusions make up about 20 percent of the map unit, and dissimilar inclusions make up about 20 percent.

This map unit has a dominant vegetative cover of introduced and maintained grasslands. In many areas, a thick fescue sod has developed. The fescue sod, over time, chokes out other grasses and forbs. This map unit would in time revert to a yellow-poplar cover type. It is the manipulation of the map unit which maintains the grasslands. Common trees in fence rows include yellow-poplar, honeylocust, black walnut, and black cherry.

This map unit is associated with general soil map unit 14 (Cades Cove: Lonon-Cades Soils).

CcF—Cataska-Sylco complex, 30 to 95 percent slopes, very rocky

Setting

Elevation: 301 to 1,280 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Mountainside on mountains and ridge on mountains

Composition

Cataska soil and similar components: 45 percent
Sylco soil and similar components: 35 percent
Minor soils: 20 percent

Properties and Qualities of the Cataska Soil

Available water capacity: Very low (about 3.9 centimeters to a depth of 46 centimeters)
Depth to restrictive features: 25 to 51 centimeters to paralithic bedrock and 51 to 122 centimeters to lithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Excessively drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 3.0 percent
Parent material: Channery residuum weathered from metamorphic and sedimentary rock
Permeability of soil profile: Very slow
Shrink-swell potential: Low
Surface layer texture: Channery silt loam
Potential for surface runoff: Low

Typical Profile of the Cataska Soil

0 to 13 centimeters; channery silt loam
13 to 46 centimeters; very channery silt loam
46 to 86 centimeters; weathered bedrock
86 to 200 centimeters; unweathered bedrock

Interpretive Groups for the Cataska Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Sylco Soil

Available water capacity: Low (about 9.9 centimeters to a depth of 84 centimeters)
Depth to restrictive features: 51 to 102 centimeters to lithic bedrock

Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 5.0 percent
Parent material: Channery residuum weathered from metasedimentary rock
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Channery silt loam
Potential for surface runoff: Low

Typical Profile of the Sylco Soil

0 to 13 centimeters; channery silt loam
13 to 61 centimeters; very channery silt loam
61 to 84 centimeters; very channery silt loam
84 to 200 centimeters; unweathered bedrock

Interpretive Groups for the Sylco Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

The Cataska and Sylco soils are well drained and allow water to move into and through the profile moderately rapidly. However, these soils have a limited water storage capacity due to the texture and the limited depth to bedrock. These soils occur in locations with high amounts of rainfall. During periods of prolonged rain or snowmelt, these soils have temporary water tables above the bedrock. These temporary water tables may last for a few hours or occasionally for a few days. The water tables are temporary because when the flow of water into the soils ends, the water tables drain in a short period of time. The water moves laterally over the bedrock downslope. At some point downslope, the water reaches the soil surface and forms seeps. Landslides are common during periods of intense and prolonged rainfall. Large amounts of ultra acid, sulfur-bearing rock may be exposed by road building. Water seeping through these materials and surface runoff may flow into nearby streams and kill aquatic life. Landslides occur when the mantle slides off the rock contact or shears along planes of weakness in the rock during the wet season.

Included with the Cataska and Sylco soils in mapping are small areas of Junaluska, Soco, and Spivey soils. Junaluska soils have more clay in the subsoil than the Cataska and Sylco soils. Junaluska and Soco soils have less than 35 percent rock fragments in the subsoil. Spivey soils have a surface layer that is thicker and darker than that of the Cataska and Sylco soils. Junaluska and Soco soils are on footslopes. Spivey soils are in drainageways. An exposed rock face and the subsequent talus caused by catastrophic landslides occur on some of the steep and very steep mountain slopes. Naturally occurring landslides are largely confined to areas underlain by the Anakeesta Slate. Induced landslides may occur on any of the formations where construction has removed the footslope support. The contrasting soils and miscellaneous areas make up about 20 percent of the map unit.

Also included are some areas of soils similar to the Cataska and Sylco soils. These soils have fewer rock fragments and/or redder subsoils.

This map unit has a dominant vegetative cover of oak, hickory, and yellow pine. Included are black oak, scarlet oak, chestnut oak, bitternut hickory, mockernut hickory, pignut hickory, shortleaf pine, Virginia pine, and pitch pine. Stands on north- and east-facing head slopes are mixed with cooler trees species such as yellow-poplar, black birch, and/or hemlock. The understory vegetation is often sparse, except where laurel forms small thickets. This map unit has a high number of downed trees due to the shallow soils.

This map unit is most commonly associated with general soil map units 5 (Mesic Anakeesta Slate: Cataska-Sylco Soils) and 9 (Mesic Wehutty Schist: Cataska-Sylco Soils). This map unit is also associated, to a limited extent, with general soil map unit 15 (Mesic Copperhill Sandstone/Slate Rolling Hill Phase: Junaluska-Brasstown-Soco Soils).

ChF—Cheoah channery loam, 30 to 95 percent slopes, stony

Setting

Elevation: 600 to 1,280 meters
Mean annual precipitation: 1,219 to 1651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Mountainside on mountains

Composition

Cheoah soil and similar components: 80 percent
Minor soils: 20 percent

Soil Properties and Qualities

Available water capacity: Low (about 14.2 centimeters to a depth of 142 centimeters)
Depth to restrictive features: 102 to 152 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 2.0 to 7.0 percent
Parent material: Loamy residuum and/or creep deposits derived from metasedimentary rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Channery loam
Potential for surface runoff: Low

Typical Profile

0 to 33 centimeters; channery loam
33 to 114 centimeters; channery sandy clay loam
114 to 142 centimeters; channery sandy loam
142 to 162 centimeters; weathered bedrock

Interpretive Groups

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Included in mapping with the Cheoah soil are small areas of contrasting Santeetlah, Soco, Spivey, and Stecoah soils. Soco and Stecoah soils are on the upper part of the head slopes and on south- to west-facing slopes. Soco and Stecoah soils have thinner and lighter colored surface soils. Soco soils are also moderately deep. Santeetlah and

Spivey soils are in drainageways. Santeetlah and Spivey soils formed in colluvium and are very deep. Spivey soils also have more than 35 percent rock fragments in the subsoil. Also included are small areas of rock outcrop, the associated seeps around the rock outcrops, and small areas which are very bouldery in drainageways. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

This map unit has a dominant vegetative cover of yellow-poplar mixed with a variety of other tree species, such as basswood, black birch, black cherry, eastern hemlock, northern red oak, sugar maple, white pine, and/or yellow buckeye. The yellow-poplar cover type gives way to northern hardwoods above 1,150 meters in elevation. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. Rhododendron commonly is dominant in the understory vegetation and may form thickets in some areas.

This map unit is associated with general soil map unit 7 (Mesic Soft Sandstone: Soco-Stecoah Soils). This map unit is also associated, to a limited extent, with general soil map unit 10 (Mesic Siltstone and Phyllite: Junaluska-Tsali Soils).

CkF—Chestnut-Cleveland-Rock outcrop complex, 30 to 95 percent slopes, very stony

Setting

Elevation: 301 to 1,280 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Mountain slope on mountains and ridge on mountains

Composition

Chestnut soil and similar components: 40 percent
Cleveland soil and similar components: 30 percent
Rock outcrop: 15 percent
Minor soils: 15 percent

Properties and Qualities of the Chestnut Soil

Available water capacity: Low (about 9.3 centimeters to a depth of 81 centimeters)
Depth to restrictive features: 51 to 102 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 8.0 percent
Parent material: Loamy residuum weathered from igneous and metamorphic rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Fine sandy loam
Potential for surface runoff: Low

Typical Profile of the Chestnut Soil

0 to 41 centimeters; fine sandy loam
41 to 81 centimeters; loam
81 to 102 centimeters; weathered bedrock

Interpretive Groups for the Chestnut Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Cleveland Soil

Available water capacity: Very low (about 3.0 centimeters to a depth of 38 centimeters)
Depth to restrictive features: 25 to 51 centimeters to lithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Somewhat excessively drained
Flooding: None
Organic matter content in the surface layer: 0.5 to 8.0 percent
Parent material: Loamy residuum weathered from igneous and metamorphic rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Gravelly fine sandy loam
Potential for surface runoff: Low

Typical Profile of the Cleveland Soil

0 to 38 centimeters; gravelly fine sandy loam
38 to 200 centimeters; unweathered bedrock

Interpretive Groups for the Cleveland Soil

Prime farmland: Not prime farmland
Hydric soil: No

Interpretive Groups for Rock Outcrop

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management of the Chestnut and Cleveland Soils

The Chestnut and Cleveland soils are well drained and allow water to move into and through the profile moderately rapidly. However, these soils have a limited water storage capacity due to the texture and the limited depth to bedrock. These soils occur in locations with high amounts of rainfall. During periods of prolonged rain or snowmelt, these soils have temporary water tables above the bedrock. These temporary water tables may last for a few hours or occasionally for a few days. The water tables are temporary because when the flow of water into the soils ends, the water tables drain in a short period of time. The water moves laterally over the bedrock downslope. At some point downslope, the water reaches the soil surface and forms seeps. Landslides are common during periods of intense and prolonged rainfall.

Included in mapping with the Chestnut and Cleveland soils are small areas of contrasting Cullasaja and Edneyville soils. Cullasaja and Edneyville soils are very deep to bedrock. Cullasaga soils are in drainageways, and Edneyville soils are on footslopes. Cullasaja soils also have more than 35 percent rock fragments in the subsoil. Also included are boulder trains. The boulder trains have little or no fine-earth material on the surface but are covered in vegetation. Areas are located in narrow drainageways. These included soils and miscellaneous areas make up about 15 percent of this map unit.

Soils similar to the Chestnut and Cleveland soils in use and management are included in this map unit. These soils have dark surface layers less than 25 centimeters or more than 50 centimeters thick. Soils with surface layers less than 25 centimeters thick are on spur ridges or shoulder slopes. Soils with surface layers more than 50 centimeters thick are in saddles or on the lower part of the side slope.

This map unit has a dominant vegetative cover of oak, hickory, and yellow pine. Oak, hickory, and yellow pine refer to such trees as black oak, scarlet oak, chestnut oak, bitternut hickory, mockernut hickory, pignut hickory, shortleaf pine, Virginia pine, and pitch pine. Stands on north- and east-facing head slopes are mixed with cooler tree species, such as yellow-poplar, black birch, and/or hemlock.

The understory vegetation is often sparse, except where laurel forms small thickets. This map unit has a high number of downed trees due to the shallow soils. The rock outcrops are in a micro-climate which is commonly very wet part of the time and dry other times.

This map unit is associated with general soil map unit 8 (Mesic Gneiss: Evard-Cowee Soils).

CmC—Chiltoskie-Heintooga-Horsetrough complex, 8 to 15 percent slopes, stony

Setting

Elevation: 1,280 to 2,030 meters
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1 to 13 degrees C
Frost-free period: 162 to 176 days
Landform: Drainageway on mountains

Composition

Chiltoskie soil and similar components: 40 percent
Heintooga soil and similar components: 25 percent
Horsetrough soil and similar components: 15 percent
Minor soils: 20 percent

Properties and Qualities of the Chiltoskie Soil

Available water capacity: High (about 26.4 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 60.0 to 90.0 percent
Parent material: Loamy colluvium derived from soft metasedimentary sandstone
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Peat
Potential for surface runoff: Low

Typical Profile of the Chiltoskie Soil

0 to 5 centimeters; peat
5 to 20 centimeters; loam
20 to 36 centimeters; channery loam
36 to 66 centimeters; loam
66 to 104 centimeters; loam
104 to 155 centimeters; very gravelly sandy loam

Interpretive Groups for the Chiltoskie Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Heintooga Soil

Available water capacity: Low (about 14.3 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 30.0 to 50.0 percent
Parent material: Loamy colluvium derived from soft metasedimentary sandstone
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Peat
Potential for surface runoff: Low

Typical Profile of the Heintooga Soil

0 to 3 centimeters; peat
3 to 10 centimeters; very flaggy loam
10 to 31 centimeters; very flaggy loam
31 to 64 centimeters; extremely channery fine sandy loam
64 to 155 centimeters; extremely flaggy coarse sandy loam

Interpretive Groups for the Heintooga Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Horsetrough Soil

Available water capacity: Moderate (about 19.2 centimeters to a depth of 117 centimeters)
Depth to restrictive features: 102 to 152 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: 15.0 to 40.0 centimeters
Water table (kind): Apparent
Ponding: None
Drainage class: Poorly drained
Flooding: None
Organic matter content in the surface layer: 2.0 to 10.0 percent
Parent material: Sandy colluvium over residuum weathered from metasedimentary rock
Permeability of soil profile: Rapid
Shrink-swell potential: Low
Surface layer texture: Flaggy fine sandy loam
Potential for surface runoff: Low

Typical Profile of the Horsetrough Soil

0 to 18 centimeters; flaggy fine sandy loam
18 to 33 centimeters; extremely channery loamy coarse sand
33 to 71 centimeters; extremely channery loamy coarse sand
71 to 84 centimeters; channery loamy sand
84 to 102 centimeters; fine sandy loam
102 to 117 centimeters; loamy coarse sand
117 to 158 centimeters; weathered bedrock

Interpretive Groups for the Horsetrough Soil

Prime farmland: Not prime farmland
Hydric soil: Yes

Use and Management

Due to the higher elevations, the climate is cold and icy in winter and rainy, foggy, and cool the rest of the year. However, this map unit is sheltered from high winds due to its landscape position. The seasonal high water table is below a depth of 200 centimeters in the Chiltoskie and Heintooga soils and is at a depth of approximately 30 centimeters in the Horsetrough soil. In storm events, rainwater off the adjacent uplands is concentrated into surface runoff, which causes overland flow in concave areas. Small streams and springs are common in this map unit. The colluvial material beneath these soils is a good aquifer. The water in the colluvium moves laterally downslope. At some point downslope, the water reaches the soil surface and forms springs. The springs in turn add to the flow of the streams. The Horsetrough soil is located near the springs.

Included in mapping with the Chiltoskie, Heintooga, and Horsetrough soils are small areas of contrasting Alarka soils. Alarka soils formed under rhododendron vegetation and have organic surface layers. Also included are small areas of seeps and springs and small areas which are very stony or extremely stony. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

This map unit has a dominant vegetative cover of spruce/fir, northern hardwoods or a mix of the two. Spruce/fir refers to red spruce and Fraser fir. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. The spruce/fir cover type is dominant above 1,645 meters in elevation. Northern hardwoods are dominant below 1,465 meters in elevation. Mixing of the two cover types occurs between these elevations.

This map unit is associated with general soil map unit 3 (Frigid Soft Sandstone: Oconaluftee Soils).

CmD—Chiltoskie-Heintooga complex, 15 to 30 percent slopes, stony

Setting

Elevation: 1,280 to 2,030 meters
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1 to 13 degrees C
Frost-free period: 162 to 176 days
Landform: Drainageway on mountains

Composition

Chiltoskie soil and similar components: 40 percent
Heintooga soil and similar components: 35 percent
Minor soils: 25 percent

Properties and Qualities of the Chiltoskie Soil

Available water capacity: High (about 26.4 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None

Organic matter content in the surface layer: 60.0 to 90.0 percent
Parent material: Loamy colluvium derived from soft metasedimentary sandstone
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Peat
Potential for surface runoff: Low

Typical Profile of the Chiltoskie Soil

0 to 5 centimeters; peat
5 to 20 centimeters; loam
20 to 36 centimeters; channery loam
36 to 66 centimeters; loam
66 to 104 centimeters; loam
104 to 155 centimeters; very gravelly sandy loam

Interpretive Groups for the Chiltoskie Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Heintooga Soil

Available water capacity: Low (about 14.3 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 30.0 to 50.0 percent
Parent material: Loamy colluvium derived from soft metasedimentary sandstone
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Peat
Potential for surface runoff: Low

Typical Profile of the Heintooga Soil

0 to 3 centimeters; peat
3 to 10 centimeters; very flaggy loam
10 to 31 centimeters; very flaggy loam
31 to 64 centimeters; extremely channery fine sandy loam
64 to 155 centimeters; extremely flaggy coarse sandy loam

Interpretive Groups for the Heintooga Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Due to the higher elevations, the climate is cold and icy in winter and rainy, foggy, and cool the rest of the year. However, this map unit is sheltered from high winds due to its landscape position. The seasonal high water table is below a depth of 200 centimeters. In storm events, rainwater off the adjacent uplands is concentrated into surface runoff, which causes overland flow in concave areas. Small streams and springs are common in this map unit. These soils are well drained and do not have water tables in the soil profiles. However, the colluvial material beneath these soils is a good aquifer. The water in the colluvium moves laterally downslope. At some point downslope, the water reaches the soil surface and forms springs. The springs in turn add to the flow of the streams.

Included in mapping with the Chiltoskie and Heintooga soils are small areas of contrasting Horsetrough soils. Horsetrough soils are poorly drained or very poorly drained. Horsetrough soils are in drainageways on slopes of less than 15 percent. Also included are soils similar to the Chiltoskie and Heintooga soils which formed under rhododendron vegetation and have organic surface layers, small areas of seeps and springs, and small areas which are very stony or extremely stony. These contrasting soils and miscellaneous areas make up about 25 percent of this map unit.

This map unit has a dominant vegetative cover of spruce/fir, northern hardwoods or a mix of the two. Spruce/fir refers to red spruce and Fraser fir. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. The spruce/fir cover type is dominant above 1,645 meters in elevation. Northern hardwoods are dominant below 1,465 meters in elevation. Mixing of the two cover types occurs between these elevations.

This map unit is associated with general soil map unit 3 (Frigid Soft Sandstone: Oconaluftee Soils) and, to a limited extent, general soil map unit 2 (Frigid Hard Sandstone: Breakneck-Pullback Soils).

CnF—Clifton clay loam, 50 to 95 percent slopes

Setting

Elevation: 458 to 1,280 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Mountain slope on mountains and ridge on mountains

Composition

Clifton soil and similar components: 80 percent
Minor soils: 20 percent

Soil Properties and Qualities

Available water capacity: High (about 24.9 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 0.5 to 4.0 percent
Parent material: Creep deposits over residuum weathered from igneous and metamorphic rock
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Clay loam
Potential for surface runoff: High

Typical Profile

0 to 20 centimeters; clay loam
20 to 102 centimeters; clay
102 to 201 centimeters; fine sandy loam

Interpretive Groups

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

This map unit is in landscape positions which are in shade much of the day. Because the map unit is shaded, a cooler, moister micro-climate is created. The soil stays frozen for long periods in winter and warms up later in spring than other soils at the same elevations.

Included in mapping with the Clifton soil are small areas of contrasting Evard, Leatherwood, and Tuckasegee soils. Evard soils are on hotter, drier south- to west-facing side slopes. Leatherwood soils have surface layers that are thicker and darker than those of the Clifton soil. They are on head slopes. Tuckasegee soils formed in colluvium and are in drainageways and on toeslopes. Also included are soils similar to the Clifton soil which formed under rhododendron vegetation and have organic surface layers and areas which are stony or very stony. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

Soils similar to the Clifton soil are also included in this map unit. These soils have browner subsoils.

This map unit has a dominant vegetative cover of yellow-poplar mixed with a variety of other tree species such as basswood, black birch, black cherry, eastern hemlock, northern red oak, sugar maple, white pine, and/or yellow buckeye. The yellow-poplar cover type gives way to northern hardwoods above 1,150 meters in elevation. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. Rhododendron commonly is dominant in the understory vegetation and may form thickets in some areas.

This map unit is associated with general soil map unit 8 (Mesic Gneiss: Evard-Cowee Soils).

CoB—Cotaco silty clay loam, 2 to 8 percent slopes

Setting

Elevation: 300 to 920 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Terrace in valley

Composition

Cotaco soil and similar components: 85 percent
Minor soils: 15 percent

Soil Properties and Qualities

Available water capacity: Very high (about 33.7 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: 45.0 to 76.0 centimeters
Water table (kind): Apparent
Ponding: None
Drainage class: Moderately well drained
Flooding: None
Organic matter content in the surface layer: 2.0 to 7.0 percent

Parent material: Loamy alluvium derived from metasedimentary rock
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Silty clay loam
Potential for surface runoff: Low

Typical Profile

0 to 20 centimeters; silty clay loam
20 to 80 centimeters; silt loam
80 to 132 centimeters; loam
132 to 172 centimeters; silt loam

Interpretive Groups

Prime farmland: All areas are prime farmland
Hydric soil: No

Use and Management

Included in this map unit are small areas of dissimilar soils with a water table above a depth of 100 centimeters and small areas of dissimilar soils that are well drained. These inclusions make up approximately 15 percent of the map unit.

This map unit has a dominant vegetative cover of introduced and maintained grasslands. In many areas, a thick fescue sod has developed. The fescue sod, over time, chokes out other grasses and forbs. This map unit would in time revert to hardwood forest. It is the manipulation of the map unit which maintains the grasslands. Common trees in the fence rows include yellow-poplar, honeylocust, black walnut, and black cherry.

This map unit is associated with general soil map unit 14 (Cades Cove: Lonon-Cades Soils).

CuD—Cullasaja-Tuckasegee complex, 15 to 30 percent slopes, very stony

Setting

Elevation: 301 to 1,280 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Cove on mountains, drainageway on mountains, fan on mountains, and mountain slope on mountains

Composition

Cullasaja soil and similar components: 50 percent
Tuckasegee soil and similar components: 30 percent
Minor soils: 20 percent

Properties and Qualities of the Cullasaja Soil

Available water capacity: Low (about 14.3 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None

Organic matter content in the surface layer: 5.0 to 15.0 percent
Parent material: Cobbly and stony colluvium derived from igneous and metamorphic rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Cobbly loam
Potential for surface runoff: Low

Typical Profile of the Cullasaja Soil

0 to 46 centimeters; cobbly loam
46 to 122 centimeters; very cobbly fine sandy loam
122 to 157 centimeters; extremely cobbly sandy loam

Interpretive Groups for the Cullasaja Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Tuckasegee Soil

Available water capacity: Moderate (about 22.6 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 4.0 to 15.0 percent
Parent material: Loamy colluvium derived from igneous and metamorphic rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Fine sandy loam
Potential for surface runoff: Low

Typical Profile of the Tuckasegee Soil

0 to 33 centimeters; fine sandy loam
33 to 66 centimeters; loam
66 to 119 centimeters; gravelly sandy clay loam
119 to 165 centimeters; cobbly sandy loam

Interpretive Groups for the Tuckasegee Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

This map unit is in landscape positions which are in shade much of the day. Because the map unit is shaded, a cooler, moister micro-climate is created. The Cullasaja and Tanasee soils stay frozen for long periods in winter and warm up later in spring than other soils at the same elevations. The seasonal high water table is more than 200 centimeters below the surface. In storm events, rainwater off the adjacent uplands is concentrated into surface runoff, which causes overland flow in concave areas. Small streams and springs are common in this map unit. These soils are well drained and do not have water tables in the soil profiles. However, the colluvial material beneath these soils is a good aquifer. The water in the colluvium moves laterally downslope. At some point downslope, the water reaches the soil surface and forms springs. The springs in turn add to the flow of the streams.

Included in mapping with the Cullasaja and Tuckasegee soils are small areas of contrasting Cowee, Evard, and Clifton soils. Cowee and Evard soils formed in saprolite on south- to west-facing slopes and have thinner or lighter colored surface layers and red subsoils. Cowee soils are also moderately deep to weathered bedrock. Clifton soils formed in saprolite on north- to east-facing slopes. Also included are small areas of rubble land and areas of moderately well drained or somewhat poorly drained soils around the seeps and springs. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

Soils similar to the Cullasaja and Tuckasegee soils are also included in this map unit. These soils have dark surface layers less than 25 centimeters or more than 50 centimeters thick. Soils with surface layers less than 25 centimeters thick are in convex areas commonly facing south to west. Soils with surface layers more than 50 centimeters thick are commonly in areas facing north to east. Some soils have a seasonal high water table 100 to 200 centimeters below the surface.

This map unit has a dominant vegetative cover of yellow-poplar mixed with a variety of other tree species, such as basswood, black birch, black cherry, eastern hemlock, northern red oak, sugar maple, white pine, and/or yellow buckeye. The yellow-poplar cover type gives way to northern hardwoods above 1,150 meters in elevation. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. Rhododendron commonly is dominant in the understory vegetation and may form thickets in some areas.

This map unit is associated with general soil map unit 8 (Mesic Gneiss: Evard-Cowee Soils).

CuE—Cullasaja-Tuckasegee complex, 30 to 50 percent slopes, very stony

Setting

Elevation: 301 to 1,280 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Cove on mountains, fan on mountains, mountain slope on mountains, and drainageway on mountains

Composition

Cullasaja soil and similar components: 50 percent
Tuckasegee soil and similar components: 30 percent
Minor soils: 20 percent

Properties and Qualities of the Cullasaja Soil

Available water capacity: Low (about 14.3 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 5.0 to 15.0 percent
Parent material: Cobbly and stony colluvium derived from igneous and metamorphic rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low

Surface layer texture: Cobbly loam
Potential for surface runoff: Low

Typical Profile of the Cullasaja Soil

0 to 46 centimeters; cobbly loam
46 to 122 centimeters; very cobbly fine sandy loam
122 to 157 centimeters; extremely cobbly sandy loam

Interpretive Groups for the Cullasaja Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Tuckasegee Soil

Available water capacity: Moderate (about 22.6 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 4.0 to 15.0 percent
Parent material: Loamy colluvium derived from igneous and metamorphic rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Fine sandy loam
Potential for surface runoff: Low

Typical Profile of the Tuckasegee Soil

0 to 33 centimeters; fine sandy loam
33 to 66 centimeters; loam
66 to 119 centimeters; gravelly sandy clay loam
119 to 165 centimeters; cobbly sandy loam

Interpretive Groups for the Tuckasegee Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

This map unit is in landscape positions which are in shade much of the day. Because the map unit is shaded, a cooler, moister micro-climate is created. The Cullasaja and Tuckasegee soils stay frozen for long periods in winter and warm up later in spring than other soils at the same elevations. The seasonal high water table is more than 200 centimeters below the surface. In storm events, rainwater off the adjacent uplands is concentrated into surface runoff, which causes overland flow in concave areas. Small streams and springs are common in this map unit. These soils are well drained and do not have water tables in the soil profiles. However, the colluvial material beneath these soils is a good aquifer. The water in the colluvium moves laterally downslope. At some point downslope, the water reaches the soil surface and forms springs. The springs in turn add to the flow of the streams.

Included in mapping with the Cullasaja and Tuckasegee soils are small areas of contrasting Cowee, Evard, and Clifton soils. Cowee and Evard soils formed in saprolite on south- to west-facing slopes and have thinner or lighter colored surface layers and red subsoils. Cowee soils are also moderately deep to weathered bedrock. Clifton soils formed in saprolite on north- to east-facing slopes. Also included are small areas of rubble land, areas of moderately well drained or somewhat poorly drained soils around the seeps and springs, and soils similar to Heintooga soils which formed under rhododendron vegetation and have organic surface layers. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

Soils similar to the Cullasaja and Tuckasegee soils are also included in this map unit. These soils have dark surface layers less than 25 centimeters or more than 50 centimeters thick. Soils with surface layers less than 25 centimeters thick are in convex areas commonly facing south to west. Soils with surface layers more than 50 centimeters thick are commonly in areas facing north to east. Some soils have a seasonal high water table 100 to 200 centimeters below the surface.

This map unit has a dominant vegetative cover of yellow-poplar mixed with a variety of other tree species, such as basswood, black birch, black cherry, eastern hemlock, northern red oak, sugar maple, white pine, and/or yellow buckeye. The yellow-poplar cover type gives way to northern hardwoods above 1,150 meters in elevation. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. Rhododendron commonly is dominant in the understory vegetation and may form thickets in some areas.

This map unit is associated with general soil map unit 8 (Mesic Gneiss: Evard-Cowee Soils).

CuF—Cullasaja-Rubble land complex, 50 to 95 percent slopes, extremely stony

Setting

Elevation: 301 to 1,280 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Cove on mountains, drainageway on mountains, fan on mountains, and mountain slope on mountains

Composition

Cullasaja soil and similar components: 50 percent
Rubble land: 30 percent
Minor soils: 20 percent

Properties and Qualities of the Cullasaja Soil

Available water capacity: Low (about 14.3 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 5.0 to 15.0 percent
Parent material: Cobbly and stony colluvium derived from igneous and metamorphic rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Cobbly loam
Potential for surface runoff: Low

Typical Profile of the Cullasaja Soil

0 to 46 centimeters; cobbly loam
46 to 122 centimeters; very cobbly fine sandy loam
122 to 157 centimeters; extremely cobbly sandy loam

Interpretive Groups for the Cullasaja Soil

Prime farmland: Not prime farmland
Hydric soil: No

Interpretive Groups for Rubble Land

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Rubble land has little or no fine-earth material on the surface but is covered in vegetation. Most of these areas are located below 1,280 meters in elevation, and the dominant cover type is yellow-poplar.

Permeability of the Cullasaja soil is moderately rapid. Surface runoff is slow where forest litter has not been disturbed and is rapid where litter has been removed. This map unit is in landscape positions which are in shade much of the day. Because the map unit is shaded, a cooler, moister micro-climate is created. The soils and miscellaneous areas in this map unit stay frozen for long periods in winter and warm up later in spring than other soils at the same elevations. The seasonal high water table is more than 200 centimeters below the surface. In storm events, rainwater off the adjacent uplands is concentrated into surface runoff, which causes overland flow in concave areas. Small streams and springs are common in this map unit. The Cullasaja soil is well drained and does not have a water table in the soil profile. However, the colluvial material beneath the soil is a good aquifer. The water in the colluvium moves laterally downslope. At some point downslope, the water reaches the soil surface and forms springs. The springs in turn add to the flow of the streams.

Included in mapping with the Cullasaja soil and Rubble land are small areas of contrasting miscellaneous areas. Also included are small areas of seeps and springs and soils similar to the Cullasaja soil which formed under rhododendron vegetation and have organic surface layers. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

Soils similar to the Cullasaja soil are also included in this map unit. These soils have dark surface layers less than 25 centimeters or more than 50 centimeters thick. Soils with surface layers less than 25 centimeters thick are in convex areas commonly facing south to west. Soils with surface layers more than 50 centimeters thick are commonly in areas facing north to east. Some soils have a seasonal high water table 100 to 200 centimeters below the surface.

This map unit has a dominant vegetative cover of yellow-poplar mixed with a variety of other tree species such as basswood, black birch, black cherry, eastern hemlock, northern red oak, sugar maple, white pine, and/or yellow buckeye. The yellow-poplar cover type gives way to northern hardwoods above 1,150 meters in elevation. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. Rhododendron commonly is dominant in the understory vegetation and may form thickets in some areas.

This map unit is associated with general soil map unit 8 (Mesic Gneiss: Evard-Cowee Soils).

Cw—Cullowhee-Ela complex, 0 to 2 percent slopes, frequently flooded

Setting

Elevation: 300 to 920 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Floodplain in valley

Composition

Cullowhee soil and similar components: 50 percent
Ela soil and similar components: 30 percent
Minor soils: 20 percent

Properties and Qualities of the Cullowhee Soil

Available water capacity: Low (about 11.0 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: 46.0 to 61.0 centimeters
Water table (kind): Apparent
Ponding: None
Drainage class: Somewhat poorly drained
Flooding: Frequent
Organic matter content in the surface layer: 3.0 to 10.0 percent
Parent material: Loamy alluvium over sandy and gravelly alluvium
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Sandy loam
Potential for surface runoff: Very low

Typical Profile of the Cullowhee Soil

0 to 25 centimeters; sandy loam
25 to 79 centimeters; loamy sand
79 to 152 centimeters; extremely gravelly sand

Interpretive Groups for the Cullowhee Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Ela Soil

Available water capacity: Very high (about 32.5 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: 0.0 to 15.0 centimeters
Water table (kind): Apparent
Ponding: None
Drainage class: Very poorly drained
Flooding: Frequent
Organic matter content in the surface layer: 3.0 to 10.0 percent
Parent material: Loamy alluvium over cobbly or gravelly alluvium
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low

Surface layer texture: Loam
Potential for surface runoff: Low

Typical Profile of the Ela Soil

0 to 41 centimeters; loam
41 to 81 centimeters; fine sandy loam
81 to 155 centimeters; extremely cobbly sandy loam

Interpretive Groups for the Ela Soil

Prime farmland: Not prime farmland
Hydric soil: Yes

Use and Management

This map unit is in landscape positions which are in shade much of the day. Because the map unit is shaded, a cooler, moister micro-climate is created. The Cullowhee and Ela soils stay frozen for long periods in winter and warm up later in spring than other soils at the same elevations. Flooding is frequent and of very brief duration. Ponding occurs in the depressions which are commonly adjacent to upland or high terrace areas. The seasonal high water table is 45 to 60 centimeters below the surface in the Cullowhee soil and is less than 30 centimeters below the surface in the Ela soil. In storm events, rainwater off the higher adjacent map units is concentrated into surface runoff, which causes overland flow in concave areas. This map unit is associated with streams. The gravel/cobble beds beneath these soils are good aquifers.

Included in mapping with the Cullowhee and Ela soils are small areas of contrasting Dellwood, Reddies, and Wesser soils. Dellwood and Wesser soils are shallow to strata containing more than 35 percent, by volume, gravel, cobbles, and stones. Reddies soils are well drained and occur on small knolls on the floodplain. Also included are soils similar to the Cullowhee and Ela soils which formed under rhododendron vegetation and have organic surface layers. These contrasting soils make up about 20 percent of this map unit.

This map unit has a dominant vegetative cover of yellow-poplar mixed with a variety of other species, such as basswood, black birch, black cherry, eastern hemlock, northern red oak, sugar maple, white pine, and/or yellow buckeye. Rhododendron commonly is dominant in the understory vegetation and may form thickets in some areas.

The Ela soil is hydric. The Cullowhee soil is not. However, both soils commonly support wetland vegetation. Flooding and ponding are frequent.

This map unit is associated with general soil map units 7 (Mesic Soft Metasandstone: Soco-Stecoah Soils) and 13 (Floodplains and Terraces: Rosman-Reddies-Dellwood Soils).

Dd—Dellwood-Smokemont-Urban land complex, 0 to 5 percent slopes, occasionally flooded

Setting

Elevation: 300 to 920 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Floodplain on mountains

Composition

Dellwood soil and similar components: 40 percent
Smokemont soil and similar components: 25 percent
Urban land: 15 percent
Minor soils: 20 percent

Properties and Qualities of the Dellwood Soil

Available water capacity: Very low (about 7.3 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: 60.0 to 120.0 centimeters
Water table (kind): Apparent
Ponding: None
Drainage class: Moderately well drained
Flooding: Occasional
Organic matter content in the surface layer: 3.0 to 8.0 percent
Parent material: Sandy and gravelly alluvium
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Cobbly loam
Potential for surface runoff: Low

Typical Profile of the Dellwood Soil

0 to 20 centimeters; cobbly loam
20 to 36 centimeters; extremely gravelly sand
36 to 152 centimeters; extremely gravelly coarse sand

Interpretive Groups for the Dellwood Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Smokemont Soil

Available water capacity: Low (about 7.8 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: 122.0 to 183.0 centimeters
Water table (kind): Apparent
Ponding: None
Drainage class: Excessively drained
Flooding: Occasional
Organic matter content in the surface layer: 5.0 to 7.3 percent
Parent material: Cobbly alluvium derived from metasedimentary rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Gravelly sandy loam
Potential for surface runoff: Low

Typical Profile of the Smokemont Soil

0 to 28 centimeters; gravelly sandy loam
28 to 69 centimeters; extremely gravelly sandy loam
69 to 158 centimeters; extremely gravelly loamy coarse sand

Interpretive Groups for the Smokemont Soil

Prime farmland: Not prime farmland
Hydric soil: No

Interpretive Groups for Urban Land

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management of the Dellwood and Smokemont Soils

This map unit is in landscape positions which are in shade much of the day. Because the map unit is shaded, a cooler, moister micro-climate is created. The Dellwood and Smokemont soils stay frozen for long periods in winter and warm up later in spring than other soils at the same elevations. Flooding is occasional and of very brief duration. The seasonal high water table ranges from 60 to 120 centimeters below the soil surface in the Dellwood soil and is more than 122 centimeters below the surface in the Smokemont soil. In storm events, rainwater off the higher adjacent map units is concentrated into surface runoff, which causes overland flow in concave areas. This map unit is associated with streams. The gravel/cobble beds beneath these soils are good aquifers.

Included in mapping with Dellwood and Smokemont soils are small areas of contrasting Cullowhee, Reddies, and Wesser soils. Cullowhee and Reddies soils are moderately deep to strata containing more than 35 percent, by volume, gravel, cobbles, and stones. Reddies soils also are well drained. Wesser soils are poorly drained or very poorly drained. Cullowhee and Reddies soils compete with Dellwood and Smokemont soils on the same parts of the landscape. Wesser soils are in some of the lower secondary channels. Also included are soils similar to the Dellwood and Smokemont soils which formed under rhododendron vegetation and have organic surface layers and small areas which are very stony or extremely stony. The contrasting soils make up about 20 percent of the map unit.

This map unit has a dominant vegetative cover of yellow-poplar mixed with a variety of other species, such as basswood, black birch, black cherry, eastern hemlock, northern red oak, sugar maple, white pine, and/or yellow buckeye. Rhododendron commonly is dominant in the understory vegetation and may form thickets in some areas.

This map unit is associated with general soil map units 7 (Mesic Soft Metasandstone: Soco-Stecoah Soils) and 13 (Floodplains and Terraces: Rosman-Reddies-Dellwood Soils).

Dg—Dellwood-Smokemont complex, 0 to 5 percent slopes, frequently flooded

Setting

Elevation: 300 to 920 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Floodplain on mountains

Composition

Dellwood soil and similar components: 50 percent
Smokemont soil and similar components: 30 percent
Minor soils: 20 percent

Properties and Qualities of the Dellwood Soil

Available water capacity: Very low (about 7.3 centimeters to a depth of 152 centimeters)

Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: 60.0 to 120.0 centimeters
Water table (kind): Apparent
Ponding: None
Drainage class: Moderately well drained
Flooding: Frequent
Organic matter content in the surface layer: 3.0 to 8.0 percent
Parent material: Sandy and gravelly alluvium
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Cobbly loam
Potential for surface runoff: Low

Typical Profile of the Dellwood Soil

0 to 20 centimeters; cobbly loam
20 to 36 centimeters; extremely gravelly sand
36 to 152 centimeters; extremely gravelly coarse sand

Interpretive Groups for the Dellwood Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Smokemont Soil

Available water capacity: Low (about 7.8 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: 122.0 to 183.0 centimeters
Water table (kind): Apparent
Ponding: None
Drainage class: Well drained
Flooding: Frequent
Organic matter content in the surface layer: 5.0 to 7.3 percent
Parent material: Cobbly alluvium derived from metasedimentary rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Gravelly sandy loam
Potential for surface runoff: Low

Typical Profile of the Smokemont Soil

0 to 28 centimeters; gravelly sandy loam
28 to 69 centimeters; extremely gravelly sandy loam
69 to 158 centimeters; extremely gravelly loamy coarse sand

Interpretive Groups for the Smokemont Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

This map unit is in landscape positions which are in shade much of the day. Because the map unit is shaded, a cooler, moister micro-climate is created. The Dellwood and Smokemont soils stay frozen for long periods in winter and warm up later in spring than other soils at the same elevations. Flooding is frequent and of very brief duration. The seasonal high water table ranges from 60 to 120 centimeters below the surface in the Dellwood soil and is more than 122 centimeters below the surface in the Smokemont soil. In storm events, rainwater off the higher adjacent map units is concentrated into surface runoff, which causes overland flow in concave areas. This map unit is associated with streams. The gravel/cobble beds beneath these soils are good aquifers.

Included in mapping with the Dellwood and Smokemont soils are small areas of contrasting Cullowhee, Reddies, and Wesser soils. Cullowhee and Reddies soils are moderately deep to strata containing more than 35 percent, by volume, gravel, cobbles, and stones. Reddies soils are also well drained. Wesser soils are poorly drained or very poorly drained. Cullowhee and Reddies soils compete with the Dellwood and Smokemont soils on the same parts of the landscape. Wesser soils are in some of the lower secondary channels. Also included are soils similar to the Dellwood and Smokemont soils which formed under rhododendron vegetation and have organic surface layers and small areas which are very stony or extremely stony. The contrasting soils make up about 20 percent of the map unit.

This map unit has a dominant vegetative cover of yellow-poplar mixed with a variety of other species, such as basswood, black birch, black cherry, eastern hemlock, northern red oak, sugar maple, white pine, and/or yellow buckeye. Rhododendron commonly is dominant in the understory vegetation and may form thickets in some areas. Some map units, in the Cataloochee and Cades Cove areas, have a dominant vegetative cover of introduced and maintained grasslands. In many of these map units, a thick fescue sod has developed for the most part.

The fescue sod, over time, chokes out other grasses and forbs. In the wetter secondary channels, rushes and sedges are common.

This map unit is associated with general soil map units 7 (Mesic Soft Metasandstone: Soco-Stecoah Soils) and 13 (Floodplains and Terraces: Rosman-Reddies-Dellwood Soils).

DhB—Dellwood-Wesser complex, 0 to 5 percent slopes, frequently flooded

Setting

Elevation: 366 to 1,524 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Floodplain in valley

Composition

Dellwood soil and similar components: 60 percent
Wesser soil and similar components: 20 percent
Minor soils: 20 percent

Properties and Qualities of the Dellwood Soil

Available water capacity: Very low (about 7.3 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: 61.0 to 122.0 centimeters
Water table (kind): Apparent
Ponding: None
Drainage class: Moderately well drained
Flooding: Frequent
Organic matter content in the surface layer: 3.0 to 8.0 percent
Parent material: Sandy and gravelly alluvium derived from metasedimentary rock

Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Cobbly loam
Potential for surface runoff: Low

Typical Profile of the Dellwood Soil

0 to 20 centimeters; cobbly loam
20 to 36 centimeters; extremely gravelly sand
36 to 152 centimeters; extremely gravelly coarse sand

Interpretive Groups for the Dellwood Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Wesser Soil

Available water capacity: Very high (about 43.1 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: 0.0 to 15.0 centimeters
Water table (kind): Apparent
Ponding: Long
Depth of ponding: 8.0 to 23.0 centimeters
Drainage class: Poorly drained
Flooding: Frequent
Organic matter content in the surface layer: 70.0 to 80.0 percent
Parent material: Sandy and gravelly alluvium derived from metasedimentary rock
Permeability of soil profile: Rapid
Shrink-swell potential: Low
Surface layer texture: Muck
Potential for surface runoff: Low

Typical Profile of the Wesser Soil

0 to 8 centimeters; muck
8 to 15 centimeters; sandy loam
15 to 33 centimeters; loamy fine sand
33 to 49 centimeters; sand
49 to 158 centimeters; extremely gravelly sand

Interpretive Groups for the Wesser Soil

Prime farmland: Not prime farmland
Hydric soil: Yes

Use and Management

Included in mapping with the Dellwood and Wesser soils are small areas of contrasting Cullowhee, Ela, and Smokemont soils. Cullowhee, Ela, and Smokemont soils are moderately deep to strata containing more than 35 percent, by volume, gravel, cobbles, and stones. Smokemont soils also are well drained. Cullowhee and Ela soils compete with the Dellwood and Wesser soils on the same parts of the landscape. Smokemont soils are on the higher knolls. Also included are soils similar to the Dellwood and Wesser soils which formed under rhododendron vegetation and have organic surface layers and small areas which are extremely bouldery. The contrasting soils make up about 20 percent of the map unit.

This map unit has a dominant vegetative cover of yellow-poplar mixed with a variety of other species, such as basswood, black birch, black cherry, eastern hemlock, northern red oak, sugar maple, white pine, and/or yellow buckeye. Rhododendron commonly is dominant in the understory vegetation and may form thickets in some areas. Some map units, in the Cataloochee area, have a dominant vegetative cover of introduced and maintained grasslands. In many of these map units, a thick fescue sod has developed for the most part. The fescue sod, over time, chokes out other grasses and forbs. In the wetter secondary channels, rushes and sedges are common.

The Wesser soil is hydric. This soil commonly has a water table at or near the soil surface and supports wetland vegetation. Flooding and ponding are frequent.

This map unit is associated with general soil map units 7 (Mesic Soft Metasandstone: Soco-Stecoah Soils) and 13 (Floodplains and Terraces: Rosman-Reddies-Dellwood Soils).

DtD—Ditney-Unicoi complex, 15 to 30 percent slopes, very rocky

Setting

Elevation: 301 to 1,280 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Ridge on mountains

Composition

Ditney soil and similar components: 50 percent
Unicoi soil and similar components: 30 percent
Minor soils: 20 percent

Properties and Qualities of the Ditney Soil

Available water capacity: Low (about 13.6 centimeters to a depth of 82 centimeters)
Depth to restrictive features: 51 to 102 centimeters to paralithic bedrock and 51 to 102 centimeters to lithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 3.0 to 10.0 percent
Parent material: Loamy residuum and/or creep deposits derived from metasedimentary rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Loam
Potential for surface runoff: Low

Typical Profile of the Ditney Soil

0 to 10 centimeters; loam
10 to 25 centimeters; loam
25 to 52 centimeters; gravelly loam
52 to 82 centimeters; gravelly loam
82 to 91 centimeters; weathered bedrock
91 to 200 centimeters; unweathered bedrock

Interpretive Groups for the Ditney Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Unicoi Soil

Available water capacity: Very low (about 7.4 centimeters to a depth of 38 centimeters)
Depth to restrictive features: 18 to 51 centimeters to lithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Somewhat excessively drained
Flooding: None
Organic matter content in the surface layer: 3.0 to 10.0 percent
Parent material: Cobbly residuum and/or creep deposits derived from metasedimentary rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Loam
Potential for surface runoff: Low

Typical Profile of the Unicoi Soil

0 to 10 centimeters; loam
10 to 38 centimeters; cobbly loam
38 to 200 centimeters; unweathered bedrock

Interpretive Groups for the Unicoi Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

The Ditney and Unicoi soils have a limited water storage capacity due to the texture and the limited depth to bedrock. These soils occur in locations with high amounts of rainfall. During periods of prolonged rain or snowmelt, they have temporary water tables above the bedrock. These temporary water tables may last for a few hours or occasionally for a few days. The water tables are temporary because when the flow of water into the soils ends, the water tables drain in a short period of time. The water moves laterally over the bedrock downslope. At some point downslope, the water reaches the soil surface and forms seeps.

Included in mapping with the Ditney and Unicoi soils are small areas of contrasting Soco and Spivey soils. Soco soils have paralithic contacts at a depth of 50 to 100 centimeters. They occur randomly over seams of more weatherable metasandstone. Spivey soils are very deep and have more than 35 percent rock fragments in the subsoil. They are in narrow drainageways. Also included is an unnamed soil similar to the Ditney soil but deeper than 100 centimeters to bedrock and small areas of seeps around rock outcrops. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

This map unit has a dominant vegetative cover of oak, hickory, and yellow pine. Oak, hickory, and yellow pine refer to such trees as black oak, scarlet oak, chestnut oak, bitternut hickory, mockernut hickory, pignut hickory, shortleaf pine, Virginia pine, and pitch pine. Stands on north- and east-facing head slopes are mixed with cooler trees species such as yellow-poplar, black birch, and/or hemlock.

This map unit is among the poorest for producing wildlife food. The limited vigor of trees in this map unit sets an upper limit on the food supply, which is very low when compared to that of more desirable map units. The understory vegetation is often sparse, except where laurel forms small thickets. The diversity of tree species is limited when compared to that of more desirable map units.

The rock outcrops provide rare/unique habitats. These rock outcrops are in a microclimate which is commonly very wet part of the time and dry other times. This map unit has a high number of downed trees due to the shallow soils.

This map unit is associated with general soil map unit 6 (Mesic Hard Metasandstone: Ditney-Unicoi Soils) and, to a limited extent, general soil map unit 7 (Mesic Soft Metasandstone: Soco-Stecoah Soils).

DtF—Ditney-Unicoi complex, 30 to 95 percent slopes, very rocky

Setting

Elevation: 301 to 1,280 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Mountainside on mountains

Composition

Ditney soil and similar components: 50 percent
Unicoi soil and similar components: 30 percent
Minor soils: 20 percent

Properties and Qualities of the Ditney Soil

Available water capacity: Low (about 13.6 centimeters to a depth of 82 centimeters)
Depth to restrictive features: 51 to 102 centimeters to paralithic bedrock and 51 to 102 centimeters to lithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 3.0 to 10.0 percent
Parent material: Loamy residuum and/or creep deposits derived from metasedimentary rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Loam
Potential for surface runoff: Low

Typical Profile of the Ditney Soil

0 to 10 centimeters; loam
10 to 25 centimeters; loam
25 to 52 centimeters; gravelly loam
52 to 82 centimeters; gravelly loam
82 to 91 centimeters; weathered bedrock
91 to 200 centimeters; unweathered bedrock

Interpretive Groups for the Ditney Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Unicoi Soil

Available water capacity: Very low (about 7.4 centimeters to a depth of 38 centimeters)
Depth to restrictive features: 18 to 51 centimeters to lithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Somewhat excessively drained
Flooding: None
Organic matter content in the surface layer: 3.0 to 10.0 percent
Parent material: Cobbly residuum and/or creep deposits derived from metasedimentary rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Loam
Potential for surface runoff: Low

Typical Profile of the Unicoi Soil

0 to 10 centimeters; loam
10 to 38 centimeters; cobbly loam
38 to 200 centimeters; unweathered bedrock

Interpretive Groups for the Unicoi Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

The Ditney and Unicoi soils have a limited water storage capacity due to the texture and the limited depth to bedrock. These soils occur in locations with high amounts of rainfall. During periods of prolonged rain or snowmelt, they have temporary water tables above the bedrock. These temporary water tables may last for a few hours or occasionally for a few days. The water tables are temporary because when the flow of water into the soils ends, the water tables drain in a short period of time. The water moves laterally over the bedrock downslope. At some point downslope, the water reaches the soil surface and forms seeps.

Included in mapping with the Ditney and Unicoi soils are small areas of contrasting Soco and Spivey soils. Soco soils have paralithic contacts at a depth of 50 to 100 centimeters. They occur randomly over seams of more weatherable metasandstone. Spivey soils are very deep and have more than 35 percent rock fragments in the subsoil. They are in narrow drainageways. Also included is an unnamed soil similar to the Ditney soil but deeper than 100 centimeters to bedrock, small areas of seeps around rock outcrops, and boulder trains. The boulder trains have little or no fine-earth material on the surface but are covered in vegetation. The boulder trains are located in narrow drainageways. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

This map unit has a dominant vegetative cover of oak, hickory, and yellow pine. Oak, hickory, and yellow pine refer to such trees as black oak, scarlet oak, chestnut oak, bitternut hickory, mockernut hickory, pignut hickory, shortleaf pine, Virginia pine, and pitch pine. Stands on north- and east-facing head slopes are mixed with cooler trees species, such as yellow-poplar, black birch, and/or hemlock.

The rock outcrops provide rare/unique habitats. These rock outcrops are in a micro-climate which is commonly very wet part of the time and dry other times. This map unit has a high number of downed trees due to the shallow soils.

This map unit is associated with general soil map unit 6 (Mesic Hard

Metasandstone: Ditney-Unicoi Soils) and, to a limited extent, general soil map unit 7 (Mesic Soft Metasandstone: Soco-Stecoah Soils).

EpD—Evard-Cowee complex, 15 to 30 percent slopes, stony, windswept

Setting

Elevation: 301 to 1,280 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Mountain slope on mountains and ridge on mountains

Composition

Evard soil and similar components: 55 percent
Cowee soil and similar components: 25 percent
Minor soils: 20 percent

Properties and Qualities of the Evard Soil

Available water capacity: Moderate (about 20.5 centimeters to a depth of 152 centimeters)
Depth to restrictive features: 152 to 183 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 5.0 percent
Parent material: Loamy residuum weathered from igneous and metamorphic rock
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Fine sandy loam
Potential for surface runoff: Low

Typical Profile of the Evard Soil

0 to 13 centimeters; fine sandy loam
13 to 89 centimeters; sandy clay loam
89 to 114 centimeters; sandy clay loam
114 to 155 centimeters; sandy loam
155 to 168 centimeters; weathered bedrock

Interpretive Groups for the Evard Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Cowee Soil

Available water capacity: Low (about 14.8 centimeters to a depth of 97 centimeters)
Depth to restrictive features: 51 to 102 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 5.0 percent

Parent material: Loamy residuum weathered from igneous and metamorphic rock
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Sandy loam
Potential for surface runoff: Low

Typical Profile of the Cowee Soil

0 to 25 centimeters; sandy loam
25 to 97 centimeters; sandy clay loam
97 to 114 centimeters; weathered bedrock

Interpretive Groups for the Cowee Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

This map unit is in landscape positions that receive high winds. The high winds combine with ice to cause damage to the tops of the trees. This micro-climate produces a forest cover which is stunted by the wind and ice damage.

Included in mapping with the Evard and Cowee soils are small areas of contrasting Fannin soils. Fannin soils have more mica than the Evard and Cowee soils. Also included are soils similar to the Evard and Cowee soils which formed under laurel vegetation and have organic surface layers, small areas of seeps and springs, and small areas which are very stony or extremely stony. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

Soils similar to the Evard and Cowee soils are also included in this map unit. These soils have more clay in the subsoil. Some soils are also browner.

This map unit has a dominant vegetative cover of oak, hickory, and yellow pine. Oak, hickory, and yellow pine generally refer to such trees as black oak, scarlet oak, chestnut oak, bitternut hickory, mockernut hickory, pignut hickory, shortleaf pine, Virginia pine, and pitch pine. Some map units may also have tree species such as yellow-poplar, northern red oak, white oak, shagbark hickory, white ash, and/or white pine.

This map unit has a high amount of downed tree tops because of the ice and wind damage. The poor tree growth is a function of climate and not related to the soils. Native plants unaffected by ice and wind damage, such as blueberries, huckleberries, and high bush raspberries, provide an alternative vegetative cover.

This map unit is associated with general soil map unit 8 (Mesic Gneiss: Evard-Cowee Soils).

EpE—Evard-Cowee complex, 30 to 50 percent slopes, stony, windswept

Setting

Elevation: 301 to 1,280 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Ridge on mountains and mountain slope on mountains

Composition

Evard soil and similar components: 55 percent

Cowee soil and similar components: 25 percent
Minor soils: 20 percent

Properties and Qualities of the Evard Soil

Available water capacity: Moderate (about 20.5 centimeters to a depth of 152 centimeters)
Depth to restrictive features: 152 to 183 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 5.0 percent
Parent material: Loamy residuum weathered from igneous and metamorphic rock
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Fine sandy loam
Potential for surface runoff: Low

Typical Profile of the Evard Soil

0 to 13 centimeters; fine sandy loam
13 to 89 centimeters; sandy clay loam
89 to 114 centimeters; sandy clay loam
114 to 155 centimeters; sandy loam
155 to 168 centimeters; weathered bedrock

Interpretive Groups for the Evard Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Cowee Soil

Available water capacity: Low (about 14.8 centimeters to a depth of 97 centimeters)
Depth to restrictive features: 51 to 102 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 5.0 percent
Parent material: Loamy residuum weathered from igneous and metamorphic rock
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Sandy loam
Potential for surface runoff: Low

Typical Profile of the Cowee Soil

0 to 25 centimeters; sandy loam
25 to 97 centimeters; sandy clay loam
97 to 114 centimeters; weathered bedrock

Interpretive Groups for the Cowee Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

This map unit is in landscape positions that receive high winds. The high winds combine with ice to cause damage to the tops of the trees. This micro-climate produces a forest cover which is stunted by the wind and ice damage.

Included in mapping with the Evard and Cowee soils are small areas of contrasting Fannin soils. Fannin soils have more mica than the Evard and Cowee soils. Also included are soils similar to the Evard and Cowee soils which formed under laurel vegetation and have organic surface layers, small areas of seeps and springs, and small areas which are very stony or extremely stony. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

Soils similar to the Evard and Cowee soils are also included in this map unit. These soils have more clay in the subsoil. Some soils are also browner.

This map unit has a dominant vegetative cover of oak, hickory, and yellow pine. Oak, hickory, and yellow pine generally refer to such trees as black oak, scarlet oak, chestnut oak, bitternut hickory, mockernut hickory, pignut hickory, shortleaf pine, Virginia pine, and pitch pine. Some map units may also have tree species such as yellow-poplar, northern red oak, white oak, shagbark hickory, white ash, and/or white pine.

This map unit has a high amount of downed tree tops because of the ice and wind damage. The poor tree growth is a function of climate and not related to the soils. Native plants unaffected by ice and wind damage, such as blueberries, huckleberries, and high bush raspberries, provide an alternative vegetative cover.

This map unit is associated with general soil map unit 8 (Mesic Gneiss: Evard-Cowee Soils).

EvD—Evard-Cowee complex, 15 to 30 percent slopes, stony

Setting

Elevation: 301 to 1,280 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Ridge on mountains and mountain slope on mountains

Composition

Evard soil and similar components: 55 percent
Cowee soil and similar components: 25 percent
Minor soils: 20 percent

Properties and Qualities of the Evard Soil

Available water capacity: Moderate (about 20.5 centimeters to a depth of 152 centimeters)
Depth to restrictive features: 152 to 183 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 5.0 percent
Parent material: Loamy residuum weathered from igneous and metamorphic rock
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Fine sandy loam
Potential for surface runoff: Low

Typical Profile of the Evard Soil

0 to 13 centimeters; fine sandy loam
13 to 89 centimeters; sandy clay loam
89 to 114 centimeters; sandy clay loam
114 to 155 centimeters; sandy loam
155 to 168 centimeters; weathered bedrock

Interpretive Groups for the Evard Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Cowee Soil

Available water capacity: Low (about 14.8 centimeters to a depth of 97 centimeters)
Depth to restrictive features: 51 to 102 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 5.0 percent
Parent material: Loamy residuum weathered from igneous and metamorphic rock
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Sandy loam
Potential for surface runoff: Low

Typical Profile of the Cowee Soil

0 to 25 centimeters; sandy loam
25 to 97 centimeters; sandy clay loam
97 to 114 centimeters; weathered bedrock

Interpretive Groups for the Cowee Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Included in mapping with the Evard and Cowee soils are small areas of contrasting Fannin and Saunook soils. Fannin soils have more mica than the Evard and Cowee soils. Saunook soils are along drainageways and have dark surface layers. These contrasting soils make up about 20 percent of this map unit.

Soils similar to the Evard and Cowee soils are also included in this map unit. These soils have more clay in the subsoil. Some soils are also browner.

This map unit has a dominant vegetative cover of oak, hickory, and yellow pine. Oak, hickory, and yellow pine refer to such trees as black oak, scarlet oak, chestnut oak, bitternut hickory, mockernut hickory, pignut hickory, shortleaf pine, Virginia pine, and pitch pine. Areas that are shaded part of the day may also have tree species such as yellow-poplar, northern red oak, white oak, shagbark hickory, white ash, and/or white pine.

This map unit is associated with general soil map unit 8 (Mesic Gneiss: Evard-Cowee Soils).

EvE—Evard-Cowee complex, 30 to 50 percent slopes, stony

Setting

Elevation: 301 to 1,280 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Mountain slope on mountains and ridge on mountains

Composition

Evard soil and similar components: 55 percent
Cowee soil and similar components: 25 percent
Minor soils: 20 percent

Properties and Qualities of the Evard Soil

Available water capacity: Moderate (about 20.5 centimeters to a depth of 152 centimeters)
Depth to restrictive features: 152 to 183 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 5.0 percent
Parent material: Loamy residuum weathered from igneous and metamorphic rock
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Fine sandy loam
Potential for surface runoff: Low

Typical Profile of the Evard Soil

0 to 13 centimeters; fine sandy loam
13 to 89 centimeters; sandy clay loam
89 to 114 centimeters; sandy clay loam
114 to 155 centimeters; sandy loam
155 to 168 centimeters; weathered bedrock

Interpretive Groups for the Evard Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Cowee Soil

Available water capacity: Low (about 14.8 centimeters to a depth of 97 centimeters)
Depth to restrictive features: 51 to 102 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 5.0 percent
Parent material: Loamy residuum weathered from igneous and metamorphic rock
Permeability of soil profile: Moderate
Shrink-swell potential: Low

Surface layer texture: Sandy loam
Potential for surface runoff: Low

Typical Profile of the Cowee Soil

0 to 25 centimeters; sandy loam
25 to 97 centimeters; sandy clay loam
97 to 114 centimeters; weathered bedrock

Interpretive Groups for the Cowee Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Included in mapping with the Evard and Cowee soils are small areas of contrasting Fannin and Saunook soils. Fannin soils have more mica than the Evard and Cowee soils. Saunook soils are along drainageways and have dark surface layers. These included soils make up about 20 percent of this map unit.

Soils similar to the Evard and Cowee soils are also included in this map unit. These soils have more clay in the subsoil. Some soils are also browner.

This map unit has a dominant vegetative cover of oak, hickory, and yellow pine. Oak, hickory, and yellow pine refer to such trees as black oak, scarlet oak, chestnut oak, bitternut hickory, mockernut hickory, pignut hickory, shortleaf pine, Virginia pine, and pitch pine. Map units which are shaded part of the day may also have tree species such as yellow-poplar, northern red oak, white oak, shagbark hickory, white ash, and/or white pine.

This map unit is associated with general soil map unit 8 (Mesic Gneiss: Evard-Cowee Soils).

EvF—Evard-Cowee complex, 50 to 95 percent slopes, stony

Setting

Elevation: 301 to 1,280 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Mountain slope on mountains and ridge on mountains

Composition

Evard soil and similar components: 55 percent
Cowee soil and similar components: 25 percent
Minor soils: 20 percent

Properties and Qualities of the Evard Soil

Available water capacity: Moderate (about 20.5 centimeters to a depth of 152 centimeters)
Depth to restrictive features: 152 to 183 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 5.0 percent

Parent material: Loamy residuum weathered from igneous and metamorphic rock
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Fine sandy loam
Potential for surface runoff: Low

Typical Profile of the Evard Soil

0 to 13 centimeters; fine sandy loam
13 to 89 centimeters; sandy clay loam
89 to 114 centimeters; sandy clay loam
114 to 155 centimeters; sandy loam
155 to 168 centimeters; weathered bedrock

Interpretive Groups for the Evard Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Cowee Soil

Available water capacity: Low (about 14.8 centimeters to a depth of 97 centimeters)
Depth to restrictive features: 51 to 102 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 5.0 percent
Parent material: Loamy residuum weathered from igneous and metamorphic rock
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Sandy loam
Potential for surface runoff: Low

Typical Profile of the Cowee Soil

0 to 25 centimeters; sandy loam
25 to 97 centimeters; sandy clay loam
97 to 114 centimeters; weathered bedrock

Interpretive Groups for the Cowee Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Included in mapping with the Evard and Cowee soils are small areas of contrasting Cullasaja, Fannin, and Tuckasegee soils. Cullasaja and Tuckasegee soils formed in colluvium and are in drainageways. Cullasaja soils also have more than 35 percent rock fragments in the subsoil. Fannin soils have more mica than the Evard and Cowee soils. Also included are soils similar to the Evard and Cowee soils which formed under rhododendron vegetation and have organic surface layers, areas with extremely stony surfaces, areas of moderately well drained or somewhat poorly drained soils around the seeps and springs, and small areas of boulder trains. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

Soils similar to the Evard and Cowee soils are also included in this map unit. These soils have more clay in the subsoil. Some soils are also browner.

This map unit has a dominant vegetative cover of oak, hickory, and yellow pine. Oak, hickory, and yellow pine refer to such trees as black oak, scarlet oak, chestnut oak, bitternut hickory, mockernut hickory, pignut hickory, shortleaf pine, Virginia pine, and pitch pine. Map units which are shaded part of the day may also have tree species such as yellow-poplar, northern red oak, white oak, shagbark hickory, white ash, and/or white pine.

This map unit is associated with general soil map unit 8 (Mesic Gneiss: Evard-Cowee Soils).

HcE—Heintooga-Chiltoskie complex, 30 to 50 percent slopes, stony

Setting

Elevation: 1,280 to 2,030 meters
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1 to 13 degrees C
Frost-free period: 162 to 176 days
Landform: Drainageway on mountains

Composition

Heintooga soil and similar components: 45 percent
Chiltoskie soil and similar components: 35 percent
Minor soils: 20 percent

Properties and Qualities of the Heintooga Soil

Available water capacity: Low (about 14.3 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 30.0 to 50.0 percent
Parent material: Loamy colluvium derived from soft metasedimentary sandstone
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Peat
Potential for surface runoff: Low

Typical Profile of the Heintooga Soil

0 to 3 centimeters; peat
3 to 10 centimeters; very flaggy loam
10 to 31 centimeters; very flaggy loam
31 to 64 centimeters; extremely channery fine sandy loam
64 to 155 centimeters; extremely flaggy coarse sandy loam

Interpretive Groups for the Heintooga Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Chiltoskie Soil

Available water capacity: High (about 26.4 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained

Flooding: None
Organic matter content in the surface layer: 60.0 to 90.0 percent
Parent material: Loamy colluvium derived from soft metasedimentary sandstone
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Peat
Potential for surface runoff: Low

Typical Profile of the Chiltoskie Soil

0 to 5 centimeters; peat
5 to 20 centimeters; loam
20 to 36 centimeters; channery loam
36 to 66 centimeters; loam
66 to 104 centimeters; loam
104 to 155 centimeters; very gravelly sandy loam

Interpretive Groups for the Chiltoskie Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Due to the higher elevations, the climate is cold and icy in winter and rainy, foggy, and cool the rest of the year. However, this map unit is sheltered from high winds due to its landscape position. The seasonal high water table is below a depth of 150 centimeters in the Heintooga and Chiltoskie soils. In storm events, rainwater off the adjacent uplands is concentrated into surface runoff, which causes overland flow in concave areas. Small streams and springs are common in this map unit. The Heintooga and Chiltoskie soils are well drained and do not have water tables in the soil profiles. However, the colluvial material beneath these soils is a good aquifer. The water in the colluvium moves laterally downslope. At some point downslope, the water reaches the soil surface and forms springs. The springs in turn add to the flow of the streams.

Included in mapping with the Heintooga and Chiltoskie soils are small areas of contrasting Oconaluftee soils. Oconaluftee soils formed in saprolite. They are on the upslope parts of the map unit. Also included are soils similar to the Heintooga and Chiltoskie soils which formed under rhododendron vegetation and have organic surface layers, small areas of seeps and springs, small areas which are very stony or extremely stony, and small areas of boulder trains in some of the narrow drainageways. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

This map unit has a dominant vegetative cover of spruce/fir, northern hardwoods, or a mix of the two. Spruce/fir refers to red spruce and Fraser fir. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. The spruce/fir cover type is dominant above 1,645 meters in elevation. Northern hardwoods are dominant below 1,465 meters in elevation. Mixing of the two cover types occurs between these elevations.

This map unit occurs in the colder climate of the higher elevations. Therefore, the growing season is shorter and less food is produced that at the lower elevations. Tree damage is limited to minor top breakage in this map unit. This is because this map unit is out of the high winds.

This map unit is associated with general soil map unit 3 (Frigid Soft Sandstone: Oconaluftee Soils) and, to a limited extent, general soil map units 1 (Frigid Anakeesta Slate: Luftee-Anakeesta Soils) and 2 (Frigid Hard Sandstone: Breakneck-Pullback Soils).

HrF—Heintooga-Rubble land complex, 50 to 95 percent slopes, extremely bouldery

Setting

Elevation: 1,280 to 2,030 meters
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1 to 13 degrees C
Frost-free period: 162 to 176 days
Landform: Drainageway on mountains

Composition

Heintooga soil and similar components: 60 percent
Rubble land: 20 percent
Minor soils: 20 percent

Properties and Qualities of the Heintooga Soil

Available water capacity: Low (about 14.3 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 30.0 to 50.0 percent
Parent material: Loamy colluvium derived from soft metasedimentary sandstone
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Peat
Potential for surface runoff: Low

Typical Profile of the Heintooga Soil

0 to 3 centimeters; peat
3 to 10 centimeters; very flaggy loam
10 to 31 centimeters; very flaggy loam
31 to 64 centimeters; extremely channery fine sandy loam
64 to 155 centimeters; extremely flaggy coarse sandy loam

Interpretive Groups for the Heintooga Soil

Prime farmland: Not prime farmland
Hydric soil: No

Interpretive Groups for Rubble Land

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Due to the higher elevations, the climate is cold and icy in winter and rainy, foggy, and cool the rest of the year. However, this map unit is sheltered from high winds due to its landscape position. The seasonal high water table is below a depth of 150 centimeters in the Heintooga soil. In storm events, rainwater off the adjacent uplands is concentrated into surface runoff, which causes overland flow in concave areas. Small streams and springs are common in this map unit. The Heintooga soil is well drained and does not have a water table in the soil profile. However, the colluvial material beneath the soil is a good aquifer. The water in the colluvium moves laterally downslope. At some point downslope, the water reaches the soil surface and forms springs. The springs in turn add to the flow of the streams.

Included in mapping with the Heintooga soil and Rubble land are small areas of contrasting miscellaneous areas. Also included are soils similar to the Heintooga soil which formed under rhododendron vegetation and have organic surface layers and small areas of seeps and springs. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

This map unit has a dominant vegetative cover of spruce/fir, northern hardwoods, or a mix of the two. Spruce/fir refers to red spruce and Fraser fir. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. The spruce/fir cover type is dominant above 1,645 meters in elevation. Northern hardwoods are dominant below 1,465 meters in elevation. Mixing of the two cover types occurs between these elevations.

This map unit occurs in the colder climate of the higher elevations. Therefore, the growing season is shorter and less food is produced that at the lower elevations. Tree damage is limited to minor top breakage in this map unit. This is because this map unit is out of the high winds.

This map unit is associated with general soil map unit 3 (Frigid Soft Sandstone: Oconaluftee Soils) and, to a limited extent, general soil map units 1 (Frigid Anakeesta Slate: Luftee-Anakeesta Soils) and 2 (Frigid Hard Sandstone: Breakneck-Pullback Soils).

JbD—Junaluska-Brasstown complex, 15 to 30 percent slopes, stony

Setting

Elevation: 301 to 1,280 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Ridge on mountains

Composition

Junaluska soil and similar components: 45 percent
Brasstown soil and similar components: 35 percent
Minor soils: 20 percent

Properties and Qualities of the Junaluska Soil

Available water capacity: Low (about 9.9 centimeters to a depth of 66 centimeters)
Depth to restrictive features: 51 to 102 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 5.0 percent
Parent material: Loamy residuum weathered from metasedimentary rock
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Loam
Potential for surface runoff: Low

Typical Profile of the Junaluska Soil

0 to 28 centimeters; loam

28 to 53 centimeters; sandy clay loam
53 to 66 centimeters; sandy loam
66 to 79 centimeters; weathered bedrock

Interpretive Groups for the Junaluska Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Brasstown Soil

Available water capacity: Moderate (about 16.7 centimeters to a depth of 117 centimeters)
Depth to restrictive features: 102 to 152 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 5.0 percent
Parent material: Loamy residuum weathered from metasedimentary rock
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Channery loam
Potential for surface runoff: Low

Typical Profile of the Brasstown Soil

0 to 15 centimeters; channery loam
15 to 74 centimeters; channery sandy clay loam
74 to 117 centimeters; channery fine sandy loam
117 to 152 centimeters; weathered bedrock

Interpretive Groups for the Brasstown Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Included in mapping with the Junaluska and Brasstown soils are small areas of contrasting Santeetlah, Spivey, and Tsali soils. Santeetlah and Spivey soils are along drainageways and have dark surface layers. Spivey soils have more than 35 percent rock fragments in the subsoil. Santeetlah and Spivey soils also are very deep to weathered bedrock. Tsali soils are in highly dissected areas and are shallow to weathered bedrock. These contrasting soils make up about 20 percent of this map unit.

Soils similar to the Junaluska and Brasstown soils are also included in this map unit. These soils have browner subsoils or more rocks on the surface.

This map unit has a dominant vegetative cover of oak, hickory, and yellow pine. Oak, hickory, and yellow pine generally refer to such trees as black oak, scarlet oak, chestnut oak, bitternut hickory, mockernut hickory, pignut hickory, shortleaf pine, Virginia pine, and pitch pine. Some map units may also have tree species such as yellow-poplar, northern red oak, white oak, shagbark hickory, white ash, and/or white pine.

This map unit is associated with general soil map unit 15 (Mesic Copperhill Sandstone/Slate Rolling Hill Phase: Junaluska-Brasstown-Soco Soils) and, to a limited extent, general soil map units 7 (Mesic Soft Metasandstone: Soco-Stecoah Soils) and 10 (Mesic Siltstone and Phyllite: Junaluska-Tsali Soils).

JbE—Junaluska-Brasstown complex, 30 to 50 percent slopes, stony

Setting

Elevation: 301 to 1,280 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Mountainside on mountains

Composition

Junaluska soil and similar components: 45 percent
Brasstown soil and similar components: 35 percent
Minor soils: 20 percent

Properties and Qualities of the Junaluska Soil

Available water capacity: Low (about 9.9 centimeters to a depth of 66 centimeters)
Depth to restrictive features: 51 to 102 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 5.0 percent
Parent material: Loamy residuum weathered from metasedimentary rock
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Loam
Potential for surface runoff: Low

Typical Profile of the Junaluska Soil

0 to 28 centimeters; loam
28 to 53 centimeters; sandy clay loam
53 to 66 centimeters; sandy loam
66 to 79 centimeters; weathered bedrock

Interpretive Groups for the Junaluska Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Brasstown Soil

Available water capacity: Moderate (about 16.7 centimeters to a depth of 117 centimeters)
Depth to restrictive features: 102 to 152 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 5.0 percent
Parent material: Loamy residuum weathered from metasedimentary rock
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Channery loam
Potential for surface runoff: Low

Typical Profile of the Brasstown Soil

0 to 15 centimeters; channery loam
15 to 74 centimeters; channery sandy clay loam
74 to 117 centimeters; channery fine sandy loam
117 to 152 centimeters; weathered bedrock

Interpretive Groups for the Brasstown Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Included in mapping with the Junaluska and Brasstown soils are small areas of contrasting Santeetlah, Spivey, and Tsali soils. Santeetlah and Spivey soils are along drainageways and have dark surface layers. Spivey soils have more than 35 percent rock fragments in the subsoil. Santeetlah and Spivey soils also are very deep to weathered bedrock. Tsali soils are in highly dissected areas and are shallow to weathered bedrock. These contrasting soils make up about 20 percent of this map unit.

Soils similar to the Junaluska and Brasstown soils are also included in this map unit. These soils have browner subsoils or more rocks on the surface.

This map unit has a dominant vegetative cover of oak, hickory, and yellow pine. Oak, hickory, and yellow pine generally refer to such trees as black oak, scarlet oak, chestnut oak, bitternut hickory, mockernut hickory, pignut hickory, shortleaf pine, Virginia pine, and pitch pine. Some map units may also have tree species such as yellow-poplar, northern red oak, white oak, shagbark hickory, white ash, and/or white pine.

This map unit is associated with general soil map unit 15 (Mesic Copperhill Sandstone/Slate Rolling Hill Phase: Junaluska-Brasstown-Soco Soils) and, to a limited extent, general soil map units 7 (Mesic Soft Metasandstone: Soco-Stecoah Soils) and 10 (Mesic Siltstone and Phyllite: Junaluska-Tsali Soils).

JtC—Junaluska-Tsali complex, 8 to 15 percent slopes

Setting

Elevation: 301 to 1,280 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Ridge on mountains

Composition

Junaluska soil and similar components: 60 percent
Tsali soil and similar components: 20 percent
Minor soils: 20 percent

Properties and Qualities of the Junaluska Soil

Available water capacity: Low (about 9.1 centimeters to a depth of 66 centimeters)
Depth to restrictive features: 51 to 102 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None

Organic matter content in the surface layer: 1.0 to 5.0 percent
Parent material: Loamy residuum weathered from metasedimentary rock
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Loam
Potential for surface runoff: Low

Typical Profile of the Junaluska Soil

0 to 28 centimeters; loam
28 to 53 centimeters; sandy clay loam
53 to 66 centimeters; sandy loam
66 to 79 centimeters; weathered bedrock

Interpretive Groups for the Junaluska Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Tsali Soil

Available water capacity: Very low (about 6.5 centimeters to a depth of 46 centimeters)
Depth to restrictive features: 25 to 51 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 5.0 percent
Parent material: Loamy residuum weathered from metasedimentary rock
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Channery loam
Potential for surface runoff: Low

Typical Profile of the Tsali Soil

0 to 20 centimeters; channery loam
20 to 46 centimeters; channery loam
46 to 152 centimeters; weathered bedrock

Interpretive Groups for the Tsali Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

The Junaluska and Tsali soils have a limited water storage capacity due to the limited depth to bedrock. Wet weather seeps occur in this map unit.

Included in mapping with the Junaluska and Tsali soils are small areas of contrasting Brasstown soils. Brasstown soils are deep to weathered bedrock and are on the widest part of ridgetops. Also included are areas of soils that have more than 35 percent rock fragments and weathered bedrock less than 10 centimeters below the surface. These contrasting soils make up about 20 percent of this map unit.

Soils similar to the Junaluska and Tsali soils are also included in this map unit. These soils have browner subsoils. A few areas have more rocks on the surface.

This map unit has a dominant vegetative cover of oak, hickory, and yellow pine. Oak, hickory, and yellow pine refer to such trees as black oak, scarlet oak, chestnut oak, bitternut hickory, mockernut hickory, pignut hickory, shortleaf pine, Virginia pine, and pitch pine.

The understory vegetation is often sparse, except where laurel forms small thickets. This map unit has a high number of downed trees due to the shallow soils.

This map unit is associated with general soil map unit 10 (Mesic Siltstone and Phyllite: Junaluska-Tsali Soils).

JtD—Junaluska-Tsali complex, 15 to 30 percent slopes

Setting

Elevation: 301 to 1,280 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Ridge on mountains

Composition

Junaluska soil and similar components: 60 percent
Tsali soil and similar components: 20 percent
Minor soils: 20 percent

Properties and Qualities of the Junaluska Soil

Available water capacity: Low (about 9.1 centimeters to a depth of 66 centimeters)
Depth to restrictive features: 51 to 102 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 5.0 percent
Parent material: Loamy residuum weathered from metasedimentary rock
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Loam
Potential for surface runoff: Low

Typical Profile of the Junaluska Soil

0 to 28 centimeters; loam
28 to 53 centimeters; sandy clay loam
53 to 66 centimeters; sandy loam
66 to 79 centimeters; weathered bedrock

Interpretive Groups for the Junaluska Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Tsali Soil

Available water capacity: Very low (about 6.5 centimeters to a depth of 46 centimeters)
Depth to restrictive features: 25 to 51 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None

Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 5.0 percent
Parent material: Loamy residuum weathered from metasedimentary rock
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Channery loam
Potential for surface runoff: Low

Typical Profile of the Tsali Soil

0 to 20 centimeters; channery loam
20 to 46 centimeters; channery loam
46 to 152 centimeters; weathered bedrock

Interpretive Groups for the Tsali Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

The Junaluska and Tsali soils have a limited water storage capacity due to the limited depth to bedrock. Wet weather seeps occur in this map unit.

Included in mapping with the Junaluska and Tsali soils are small areas of contrasting Brasstown soils. Brasstown soils are deep to weathered bedrock and are on the widest part of ridgetops. Also included are areas of soils that have more than 35 percent rock fragments in the subsoil. These contrasting soils make up about 20 percent of this map unit.

Soils similar to the Junaluska and Tsali soils are also included in this map unit. These soils have browner subsoils. A few areas have more rocks on the surface.

This map unit has a dominant vegetative cover of oak, hickory, and yellow pine. Oak, hickory, and yellow pine refer to such trees as black oak, scarlet oak, chestnut oak, bitternut hickory, mockernut hickory, pignut hickory, shortleaf pine, Virginia pine, and pitch pine.

The understory vegetation is often sparse, except where laurel forms small thickets. This map unit has a high number of downed trees due to the shallow soils.

This map unit is associated with general soil map unit 10 (Mesic Siltstone and Phyllite: Junaluska-Tsali Soils).

JtF—Junaluska-Tsali complex, 30 to 95 percent slopes

Setting

Elevation: 301 to 1,280 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Mountainside on mountains

Composition

Junaluska soil and similar components: 55 percent
Tsali soil and similar components: 25 percent
Minor soils: 20 percent

Properties and Qualities of the Junaluska Soil

Available water capacity: Low (about 9.1 centimeters to a depth of 66 centimeters)

Depth to restrictive features: 51 to 102 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 5.0 percent
Parent material: Loamy residuum weathered from metasedimentary rock
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Loam
Potential for surface runoff: Low

Typical Profile of the Junaluska Soil

0 to 28 centimeters; loam
28 to 53 centimeters; sandy clay loam
53 to 66 centimeters; sandy loam
66 to 79 centimeters; weathered bedrock

Interpretive Groups for the Junaluska Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Tsali Soil

Available water capacity: Very low (about 6.5 centimeters to a depth of 46 centimeters)
Depth to restrictive features: 25 to 51 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 5.0 percent
Parent material: Loamy residuum weathered from metasedimentary rock
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Channery loam
Potential for surface runoff: Low

Typical Profile of the Tsali Soil

0 to 20 centimeters; channery loam
20 to 46 centimeters; channery loam
46 to 152 centimeters; weathered bedrock

Interpretive Groups for the Tsali Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

The Junaluska and Tsali soils have a limited water storage capacity due to the limited depth to bedrock. Wet weather seeps occur in this map unit.

Included in mapping with the Junaluska and Tsali soils are small areas of contrasting Brasstown soils. Brasstown soils are deep to weathered bedrock and are on the footslope part of side slopes. Also included are areas of soils that have more than 35 percent rock fragments and weathered bedrock less than 10 centimeters below the surface. These contrasting soils make up about 20 percent of this map unit.

Soils similar to the Junaluska and Tsali soils are also included in this map unit. These soils have browner subsoils. A few areas have more rocks on the surface.

This map unit has a dominant vegetative cover of oak, hickory, and yellow pine. Oak, hickory, and yellow pine refer to such trees as black oak, scarlet oak, chestnut oak, bitternut hickory, mockernut hickory, pignut hickory, shortleaf pine, Virginia pine, and pitch pine.

The understory vegetation is often sparse, except where laurel forms small thickets. This map unit has a high number of downed trees due to the shallow soils.

This map unit is associated with general soil map unit 10 (Mesic Siltstone and Phyllite: Junaluska-Tsali Soils).

LeD—Lauada-Fannin complex, 15 to 30 percent slopes

Setting

Elevation: 458 to 1,280 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Mountain slope on mountains and ridge on mountains

Composition

Lauada soil and similar components: 45 percent
Fannin soil and similar components: 35 percent
Minor soils: 20 percent

Properties and Qualities of the Lauada Soil

Available water capacity: Low (about 13.8 centimeters to a depth of 86 centimeters)
Depth to restrictive features: 51 to 102 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 70.0 to 90.0 percent
Parent material: Loamy residuum and/or loamy creep deposits derived from metamorphic rock
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Moderately decomposed plant material
Potential for surface runoff: Low

Typical Profile of the Lauada Soil

0 to 3 centimeters; moderately decomposed plant material
3 to 20 centimeters; sandy loam
20 to 64 centimeters; sandy clay loam
64 to 86 centimeters; fine sandy loam
86 to 158 centimeters; weathered bedrock

Interpretive Groups for the Lauada Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Fannin Soil

Available water capacity: Moderate (about 19.1 centimeters to a depth of 152 centimeters)
Depth to restrictive features: 153 to 203 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 70.0 to 90.0 percent
Parent material: Loamy residuum weathered from metamorphic rock and/or loamy creep deposits derived from metamorphic rock
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Moderately decomposed plant material
Potential for surface runoff: Low

Typical Profile of the Fannin Soil

0 to 3 centimeters; moderately decomposed plant material
3 to 18 centimeters; sandy loam
18 to 75 centimeters; gravelly sandy clay loam
75 to 145 centimeters; sandy loam
145 to 190 centimeters; sandy loam
190 to 200 centimeters; weathered bedrock

Interpretive Groups for the Fannin Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Included in mapping with the Lauada and Fannin soils are small areas of contrasting Junaluska, Santeetlah, and Spivey soils. Junaluska, Santeetlah, and Spivey soils have a lower mica content. Junaluska soils formed over sandstone bedrock with a low mica content. The mica-rich bedrock of this formation is interbedded with low mica sandstones. Santeetlah and Spivey soils are along drainageways and have dark surface layers. Spivey soils have more than 35 percent rock fragments in the subsoil. These contrasting soils make up about 20 percent of this map unit.

Soils similar to the Lauada and Fannin soils are also included in this map unit. These soils have browner subsoils and/or more rock fragments on the surface.

This map unit has a dominant vegetative cover of oak, hickory, and yellow pine. Oak, hickory, and yellow pine refer to such trees as black oak, scarlet oak, chestnut oak, bitternut hickory, mockernut hickory, pignut hickory, shortleaf pine, Virginia pine, and pitch pine. Some map units may also have tree species such as northern red oak, white oak, shagbark hickory, white ash, and/or white pine. Stands on north- and east-facing head slopes are mixed with cooler trees species such as yellow-poplar, black birch, and/or hemlock. The understory vegetation is often sparse, except where laurel forms small thickets.

This map unit is associated with general soil map unit 12 (Mesic Interbedded Mica Schist and Mica Metasandstone: Lauada-Fannin Soils).

LeE—Lauada-Fannin complex, 30 to 50 percent slopes

Setting

Elevation: 458 to 1,280 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Mountain slope on mountains and ridge on mountains

Composition

Lauada soil and similar components: 45 percent
Fannin soil and similar components: 35 percent
Minor soils: 20 percent

Properties and Qualities of the Lauada Soil

Available water capacity: Low (about 13.8 centimeters to a depth of 86 centimeters)
Depth to restrictive features: 51 to 102 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 70.0 to 90.0 percent
Parent material: Loamy residuum and/or loamy creep deposits derived from metamorphic rock
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Moderately decomposed plant material
Potential for surface runoff: Low

Typical Profile of the Lauada Soil

0 to 3 centimeters; moderately decomposed plant material
3 to 20 centimeters; sandy loam
20 to 64 centimeters; sandy clay loam
64 to 86 centimeters; fine sandy loam
86 to 158 centimeters; weathered bedrock

Interpretive Groups for the Lauada Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Fannin Soil

Available water capacity: Moderate (about 19.1 centimeters to a depth of 152 centimeters)
Depth to restrictive features: 153 to 203 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 70.0 to 90.0 percent
Parent material: Loamy residuum weathered from metamorphic rock, loamy creep deposits derived from metamorphic rock, and/or loamy creep deposits over residuum weathered from metamorphic rock
Permeability of soil profile: Moderate

Shrink-swell potential: Low
Surface layer texture: Moderately decomposed plant material
Potential for surface runoff: Low

Typical Profile of the Fannin Soil

0 to 3 centimeters; moderately decomposed plant material
3 to 18 centimeters; sandy loam
18 to 75 centimeters; gravelly sandy clay loam
75 to 145 centimeters; sandy loam
145 to 190 centimeters; sandy loam
190 to 200 centimeters; weathered bedrock

Interpretive Groups for the Fannin Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Included in mapping with the Lauada and Fannin soils are small areas of contrasting Junaluska, Santeetlah, and Spivey soils. Junaluska, Santeetlah, and Spivey soils have a lower mica content. Junaluska soils formed over sandstone bedrock with a low mica content. The mica-rich bedrock of this formation is interbedded with low mica sandstones. Santeetlah and Spivey soils are along drainageways and have dark surface layers. Spivey soils have more than 35 percent rock fragments in the subsoil. These contrasting soils make up about 20 percent of this map unit.

Soils similar to the Lauada and Fannin soils are also included in this map unit. These soils have browner subsoils and/or more rock fragments on the surface.

This map unit has a dominant vegetative cover of oak, hickory, and yellow pine. Oak, hickory, and yellow pine refer to such trees as black oak, scarlet oak, chestnut oak, bitternut hickory, mockernut hickory, pignut hickory, shortleaf pine, Virginia pine, and pitch pine. Some map units may also have tree species such as northern red oak, white oak, shagbark hickory, white ash, and/or white pine. Stands on north- and east-facing head slopes are mixed with cooler trees species such as yellow-poplar, black birch, and/or hemlock. The understory vegetation is often sparse, except where laurel forms small thickets.

This map unit is associated with general soil map unit 12 (Mesic Interbedded Mica Schist and Mica Metasandstone: Lauada-Fannin Soils) and, to a limited extent, general soil map unit 7 (Mesic Soft Metasandstone: Soco-Stecoah Soils).

LeF—Lauada-Fannin complex, 50 to 95 percent slopes

Setting

Elevation: 458 to 1,280 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Mountain slope on mountains and ridge on mountains

Composition

Lauada soil and similar components: 45 percent
Fannin soil and similar components: 35 percent
Minor soils: 20 percent

Properties and Qualities of the Lauada Soil

Available water capacity: Low (about 13.8 centimeters to a depth of 86 centimeters)
Depth to restrictive features: 51 to 102 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 70.0 to 90.0 percent
Parent material: Loamy residuum and/or loamy creep deposits derived from metamorphic rock
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Moderately decomposed plant material
Potential for surface runoff: Low

Typical Profile of the Lauada Soil

0 to 3 centimeters; moderately decomposed plant material
3 to 20 centimeters; sandy loam
20 to 64 centimeters; sandy clay loam
64 to 86 centimeters; fine sandy loam
86 to 158 centimeters; weathered bedrock

Interpretive Groups for the Lauada Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Fannin Soil

Available water capacity: Moderate (about 19.1 centimeters to a depth of 152 centimeters)
Depth to restrictive features: 153 to 203 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 70.0 to 90.0 percent
Parent material: Loamy residuum weathered from metamorphic rock and/or loamy creep deposits derived from metamorphic rock
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Moderately decomposed plant material
Potential for surface runoff: Low

Typical Profile of the Fannin Soil

0 to 3 centimeters; moderately decomposed plant material
3 to 18 centimeters; sandy loam
18 to 75 centimeters; gravelly sandy clay loam
75 to 145 centimeters; sandy loam
145 to 190 centimeters; sandy loam
190 to 200 centimeters; weathered bedrock

Interpretive Groups for the Fannin Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Included in mapping with the Lauada and Fannin soils are small areas of contrasting Junaluska, Santeetlah, and Spivey soils. Junaluska, Santeetlah, and Spivey soils have a lower mica content. Junaluska soils formed over sandstone bedrock with a low mica content. The mica-rich bedrock of this formation is interbedded with low mica sandstones. Santeetlah and Spivey soils are along drainageways and have dark surface layers. Spivey soils have more than 35 percent rock fragments in the subsoil. These contrasting soils make up about 20 percent of this map unit.

Soils similar to the Lauada and Fannin soils are also included in this map unit. These soils have browner subsoils and/or more rock fragments on the surface.

This map unit has a dominant vegetative cover of oak, hickory, and yellow pine. Oak, hickory, and yellow pine refer to such trees as black oak, scarlet oak, chestnut oak, bitternut hickory, mockernut hickory, pignut hickory, shortleaf pine, Virginia pine, and pitch pine. Some map units may also have tree species such as northern red oak, white oak, shagbark hickory, white ash, and/or white pine. Stands on north- and east-facing head slopes are mixed with cooler trees species such as yellow-poplar, black birch, and/or hemlock. The understory vegetation is often sparse, except where laurel forms small thickets.

This map unit is associated with general soil map unit 12 (Mesic Interbedded Mica Schist and Mica Metasandstone: Lauada-Fannin Soils) and, to a limited extent, general soil map unit 7 (Mesic Soft Metasandstone: Soco-Stecoah Soils).

LfD—Leatherwood cobbly clay, 15 to 30 percent slopes, stony

Setting

Elevation: 975 to 1,463 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Ridge on mountains and mountain slope on mountains

Composition

Leatherwood soil and similar components: 80 percent
Minor soils: 20 percent

Soil Properties and Qualities

Available water capacity: High (about 25.2 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 5.0 to 15.0 percent
Parent material: Creep deposits and residuum weathered from igneous and metamorphic rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Cobbly clay
Potential for surface runoff: Medium

Typical Profile

0 to 18 centimeters; cobbly clay
18 to 39 centimeters; clay
39 to 98 centimeters; clay
98 to 139 centimeters; clay loam
139 to 200 centimeters; stony sandy clay loam

Interpretive Groups

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

This map unit is in landscape positions which are in shade much of the day. Because the map unit is shaded, a cooler, moister micro-climate is created. The Leatherwood soil stays frozen for long periods in winter and warms up later in spring than other soils at the same elevations.

Included in mapping with the Leatherwood soil are small areas of contrasting Cullasaja, Evard, and Tuckasegee soils. Cullasaja and Tuckasegee soils formed in colluvium and are in drainageways. Cullasaja soils also have more than 35 percent rock fragments in the subsoil. Evard soils formed in saprolite on south- to west-facing side slopes. Also included are soils similar to the Leatherwood soil which formed under rhododendron vegetation and have organic surface layers, areas with extremely stony surfaces, and areas of moderately well drained or somewhat poorly drained soils around the seeps and springs. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

Soils similar to the Leatherwood soil are also included in this map unit. These soils have dark surface layers less than 25 centimeters or more than 50 centimeters thick. Soils with surface layers less than 25 centimeters thick are commonly in convex areas. Soils with surface layers more than 50 centimeters thick are commonly on toeslopes. Some soils have a seasonal high water table 100 to 200 centimeters below the surface.

This map unit has a dominant vegetative cover of yellow-poplar mixed with a variety of other species such as basswood, black birch, black cherry, eastern hemlock, northern red oak, white pine, and/or yellow buckeye. The yellow-poplar cover type gives way to northern hardwoods above 1,150 meters in elevation. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. Rhododendron commonly is dominant in the understory vegetation and may form thickets in some areas.

This map unit is associated with general soil map unit 4 (Frigid Gneiss: Wayah Soils).

LfE—Leatherwood cobbly clay, 30 to 50 percent slopes, stony

Setting

Elevation: 975 to 1,463 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Ridge on mountains and mountain slope on mountains

Composition

Leatherwood soil and similar components: 80 percent
Minor soils: 20 percent

Soil Properties and Qualities

Available water capacity: High (about 25.2 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 5.0 to 15.0 percent
Parent material: Creep deposits and residuum weathered from igneous and metamorphic rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Cobbly clay
Potential for surface runoff: Medium

Typical Profile

0 to 18 centimeters; cobbly clay
18 to 39 centimeters; clay
39 to 98 centimeters; clay
98 to 139 centimeters; clay loam
139 to 200 centimeters; stony sandy clay loam

Interpretive Groups

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

This map unit commonly occurs in head slope positions. Head slopes are concave, perpendicular, and parallel to the slope. Because of the shape, this map unit concentrates the flow of water to drainageways. The drainageways are small areas of colluvial material within the map unit. These areas are good aquifers. The water in the colluvium moves laterally downslope. At some point downslope, the water reaches the soil surface and forms springs. These springs often form small streams.

Included in mapping with the Leatherwood soil are small areas of contrasting Cullasaja, Evard, and Tuckasegee soils. Cullasaja and Tuckasegee soils formed in colluvium and are in drainageways. Cullasaja soils also have more than 35 percent rock fragments in the subsoil. Evard soils formed in saprolite on south- to west-facing side slopes. Also included are soils similar to the Leatherwood soil which formed under rhododendron vegetation and have organic surface layers, areas with extremely stony surfaces, and areas of moderately well drained or somewhat poorly drained soils around the seeps and springs. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

Soils similar to the Leatherwood soil are also included in this map unit. These soils have dark surface layers less than 25 centimeters or more than 50 centimeters thick. Soils with surface layers less than 25 centimeters thick are commonly in convex areas. Soils with surface layers more than 50 centimeters thick are commonly on toeslopes. Some soils have a seasonal high water table 100 to 200 centimeters below the surface.

This map unit has a dominant vegetative cover of yellow-poplar mixed with a variety of other species such as basswood, black birch, black cherry, eastern hemlock, northern red oak, white pine, and/or yellow buckeye. The yellow-poplar cover type gives way to northern hardwoods above 1,150 meters in elevation. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. Rhododendron commonly is dominant in the understory vegetation and may form thickets in some areas.

This map unit is associated with general soil map unit 8 (Mesic Gneiss: Evard-Cowee Soils).

LfF—Leatherwood cobbly clay, 50 to 95 percent slopes, stony

Setting

Elevation: 975 to 1,463 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Mountain slope on mountains and ridge on mountains

Composition

Leatherwood soil and similar components: 80 percent
Minor soils: 20 percent

Soil Properties and Qualities

Available water capacity: High (about 25.2 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 5.0 to 15.0 percent
Parent material: Creep deposits and residuum weathered from igneous and metamorphic rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Cobbly clay
Potential for surface runoff: Medium

Typical Profile

0 to 18 centimeters; cobbly clay
18 to 39 centimeters; clay
39 to 98 centimeters; clay
98 to 139 centimeters; clay loam
139 to 200 centimeters; stony sandy clay loam

Interpretive Groups

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

This map unit is in landscape positions which are in shade much of the day. Because the map unit is shaded, a cooler, moister micro-climate is created. The

Leatherwood soil stays frozen for long periods in winter and warms up later in spring than other soils at the same elevations. This map unit commonly occurs in head slope positions. Head slopes are concave, perpendicular, and parallel to the slope. Because of the shape, this map unit concentrates the flow of water to drainageways. The drainageways are small areas of colluvial material within the map unit. These areas are good aquifers. The water in the colluvium moves laterally downslope. At some point downslope, the water reaches the soil surface and forms springs. These springs often form small streams.

Included in mapping with the Leatherwood soil are small areas of contrasting Cullasaja, Evard, and Tuckasegee soils. Cullasaja and Tuckasegee soils formed in colluvium and are in drainageways. Cullasaja soils also have more than 35 percent rock fragments in the subsoil. Evard soils formed in saprolite on south- to west-facing side slopes. Also included are soils similar to the Leatherwood soils which formed under rhododendron vegetation and have organic surface layers, small areas of boulder trains, areas with extremely stony surfaces, and areas of moderately well drained or somewhat poorly drained soils around the seeps and springs. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

Soils similar to the Leatherwood soil are also included in this map unit. These soils have dark surface layers less than 25 centimeters or more than 50 centimeters thick. Soils with surface layers less than 25 centimeters thick are commonly in convex areas. Soils with surface layers more than 50 centimeters thick are commonly on toeslopes. Some soils have a seasonal high water table 100 to 200 centimeters below the surface.

This map unit has a dominant vegetative cover of yellow-poplar mixed with a variety of other species such as basswood, black birch, black cherry, eastern hemlock, northern red oak, white pine, and/or yellow buckeye. The yellow-poplar cover type gives way to northern hardwoods above 1,150 meters in elevation. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. Rhododendron commonly is dominant in the understory vegetation and may form thickets in some areas.

This map unit is associated with general soil map unit 8 (Mesic Gneiss: Evard-Cowee Soils).

LoB—Lonon silty clay loam, 2 to 8 percent slopes

Setting

Elevation: 300 to 920 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Foothill in valley and terrace in valley

Composition

Lonon soil and similar components: 70 percent
Minor soils: 30 percent

Soil Properties and Qualities

Available water capacity: High (about 24.5 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None

Organic matter content in the surface layer: 0.5 to 2.0 percent
Parent material: Loamy colluvium and/or alluvium derived from metasedimentary rock
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Silty clay loam
Potential for surface runoff: Low

Typical Profile

0 to 21 centimeters; silty clay loam
21 to 152 centimeters; clay
152 to 170 centimeters; clay loam

Interpretive Groups

Prime farmland: All areas are prime farmland
Hydric soil: No

Use and Management

Included in mapping with the Lonon soil are small areas of limestone and sandstone rock outcrop and small areas of bisequal soils consisting of loamy colluvium over limestone and shale residuum. Also included are similar soils with a thick dark surface layer and soils with a clayey subsoil. These inclusions make up 30 percent of the map unit. The limestone influence is only present in Cades Cove.

This map unit has a dominant vegetative cover of introduced and maintained grasslands. In many areas, a thick fescue sod has developed. The fescue sod, over time, chokes out other grasses and forbs. This map unit would in time revert to hardwood and yellow pine cover type. It is the manipulation of the map unit which maintains the grasslands. The areas that are forested consist of a dominant vegetative cover of oak, hickory, and yellow pine. Oak, hickory, and yellow pine generally refer to such trees as black oak, scarlet oak, chestnut oak, bitternut hickory, mockernut hickory, pignut hickory, shortleaf pine, Virginia pine, and pitch pine. Some map units may also have tree species such as yellow-poplar, northern red oak, white oak, shagbark hickory, white ash, and/or white pine.

This map unit is associated with general soil map unit 14 (Cades Cove: Lonon-Cades Soils).

LoC—Lonon silty clay loam, 8 to 15 percent slopes

Setting

Elevation: 300 to 920 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Terrace in valley and foothill in valley

Composition

Lonon soil and similar components: 70 percent
Minor soils: 30 percent

Soil Properties and Qualities

Available water capacity: High (about 24.5 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None

Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 0.5 to 2.0 percent
Parent material: Loamy colluvium and/or alluvium derived from metasedimentary rock
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Silty clay loam
Potential for surface runoff: Low

Typical Profile

0 to 21 centimeters; silty clay loam
21 to 152 centimeters; clay
152 to 170 centimeters; clay loam

Interpretive Groups

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Included in mapping with Lonon soils are small areas of limestone and sandstone rock outcrop and small areas of bisequal soils consisting of loamy colluvium over limestone and shale residuum. Also included with the Lonon soil are similar soils with a thick dark surface layer and soils with a clayey subsoil. These inclusions make up 30 percent of the map unit. The limestone influence is only present in Cades Cove.

This map unit has a dominant vegetative cover of introduced and maintained grasslands. In many areas, a thick fescue sod has developed. The fescue sod, over time, chokes out other grasses and forbs. This map unit would in time revert to hardwood and yellow pine cover type. It is the manipulation of the map unit which maintains the grasslands. The areas that are forested consist of a dominant vegetative cover of oak, hickory, and yellow pine. Oak, hickory, and yellow pine generally refer to such trees as black oak, scarlet oak, chestnut oak, bitternut hickory, mockernut hickory, pignut hickory, shortleaf pine, Virginia pine, and pitch pine. Some map units may also have tree species such as yellow-poplar, northern red oak, white oak, shagbark hickory, white ash, and/or white pine.

This map unit is associated with general soil map unit 14 (Cades Cove: Lonon-Cades Soils).

LoD—Lonon silty clay loam, 15 to 30 percent slopes

Setting

Elevation: 300 to 920 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Foothill in valley and terrace in valley

Composition

Lonon soil and similar components: 90 percent
Minor soils: 10 percent

Soil Properties and Qualities

Available water capacity: High (about 24.5 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters

Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 0.5 to 2.0 percent
Parent material: Loamy colluvium and/or alluvium derived from metasedimentary rock
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Silty clay loam
Potential for surface runoff: Low

Typical Profile

0 to 21 centimeters; silty clay loam
21 to 152 centimeters; clay
152 to 170 centimeters; clay loam

Interpretive Groups

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Included in mapping with the Lonon soil are small areas of limestone and sandstone rock outcrop and small areas of bisequal soils consisting of loamy colluvium over limestone and shale residuum. Also included with the Lonon soil are similar soils with a thick dark surface layer and soils with a clayey subsoil. These inclusions make up 10 percent of the map unit. The limestone influence is only present in Cades Cove.

This map unit has a dominant vegetative cover of introduced and maintained grasslands. In many areas, a thick fescue sod has developed. The fescue sod, over time, chokes out other grasses and forbs. This map unit would in time revert to hardwood and yellow pine cover type. It is the manipulation of the map unit which maintains the grasslands. The areas that are forested consist of a dominant vegetative cover of oak, hickory, and yellow pine. Oak, hickory, and yellow pine generally refer to such trees as black oak, scarlet oak, chestnut oak, bitternut hickory, mockernut hickory, pignut hickory, shortleaf pine, Virginia pine, and pitch pine. Some map units may also have tree species such as yellow-poplar, northern red oak, white oak, shagbark hickory, white ash, and/or white pine.

This map unit is associated with general soil map unit 14 (Cades Cove: Lonon-Cades Soils).

LoE—Lonon-Rock outcrop complex, 30 to 50 percent slopes

Setting

Elevation: 300 to 920 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Terrace in valley and foothills in valley

Composition

Lonon soil and similar components: 65 percent

Rock outcrop: 25 percent
Minor soils: 10 percent

Properties and Qualities of the Lonon Soil

Available water capacity: High (about 24.5 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 0.5 to 2.0 percent
Parent material: Loamy colluvium and/or alluvium derived from metasedimentary rock
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Silty clay loam
Potential for surface runoff: Low

Typical Profile of the Lonon Soil

0 to 21 centimeters; silty clay loam
21 to 152 centimeters; clay
152 to 170 centimeters; clay loam

Interpretive Groups for the Lonon Soil

Prime farmland: Not prime farmland
Hydric soil: No

Interpretive Groups for Rock Outcrop

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management of the Lonon Soil

Included in mapping with the Lonon soil are small areas of bisequal soils consisting of loamy colluvium over limestone and shale residuum. Also included with the Lonon soil are similar soils with a thick dark surface layer and soils with a clayey subsoil. These inclusions make up 10 percent of the map unit. The limestone influence is only present in Cades Cove, Whiteoak Sink, and Bull Cave.

This map unit has a dominant vegetative cover of oak, hickory, and yellow pine. Oak, hickory, and yellow pine generally refer to such trees as black oak, scarlet oak, chestnut oak, bitternut hickory, mockernut hickory, pignut hickory, shortleaf pine, Virginia pine, and pitch pine. Some map units may also have tree species such as yellow-poplar, northern red oak, white oak, shagbark hickory, white ash, and/or white pine.

This map unit is associated with general soil map unit 14 (Cades Cove: Lonon-Cades Soils).

LrD—Luftee-Anakeesta complex, 15 to 30 percent slopes, very rocky

Setting

Elevation: 1,280 to 2,030 meters
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1 to 13 degrees C

Frost-free period: 162 to 176 days
Landform: Ridge on mountains

Composition

Luftee soil and similar components: 50 percent
Anakeesta soil and similar components: 30 percent
Minor soils: 20 percent

Properties and Qualities of the Luftee Soil

Available water capacity: Low (about 14.1 centimeters to a depth of 86 centimeters)
Depth to restrictive features: 51 to 102 centimeters to lithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 10.0 to 15.0 percent
Parent material: Loamy residuum weathered from metasedimentary slate and phyllite
Permeability of soil profile: Rapid
Shrink-swell potential: Low
Surface layer texture: Very channery loam
Potential for surface runoff: Low

Typical Profile of the Luftee Soil

0 to 28 centimeters; very channery loam
28 to 51 centimeters; extremely channery loam
51 to 86 centimeters; extremely channery sandy loam
86 to 200 centimeters; unweathered bedrock

Interpretive Groups for the Luftee Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Anakeesta Soil

Available water capacity: Moderate (about 21.0 centimeters to a depth of 114 centimeters)
Depth to restrictive features: 102 to 152 centimeters to lithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 10.0 to 15.0 percent
Parent material: Channery residuum weathered from metasedimentary rock
Permeability of soil profile: Rapid
Shrink-swell potential: Low
Surface layer texture: Channery loam
Potential for surface runoff: Low

Typical Profile of the Anakeesta Soil

0 to 10 centimeters; channery loam
10 to 20 centimeters; channery loam
20 to 36 centimeters; extremely channery loam
36 to 75 centimeters; extremely channery loam
75 to 114 centimeters; extremely channery coarse sandy loam
114 to 200 centimeters; unweathered bedrock

Interpretive Groups for the Anakeesta Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Due to the higher elevations, the climate in this map unit is severe compared to the region in general. It is cold, icy, and very windy in winter and rainy, foggy, and cool the rest of the year. The Luftee and Anakeesta soils stay frozen for long periods in winter. These soils are well drained and allow water to move into and through the profile moderately rapidly. However, they have a limited water storage capacity due to the limited depth to bedrock. These soils occur in locations with high amounts of rainfall. During periods of prolonged rain or snowmelt, these soils have temporary water tables above the bedrock. These temporary water tables may last for a few hours or occasionally for a few days. The water tables are temporary because when the flow of water into the soils ends, the water tables drain in a short period of time. The water moves laterally over the bedrock downslope. At some point downslope, the water reaches the soil surface and forms seeps. Landslides are common during intense and prolonged rainfall.

Surface runoff is slow where forest litter has not been disturbed and is rapid where litter has been removed. Permeability is moderately rapid.

Included in mapping with the Luftee and Anakeesta soils are small areas of contrasting Breakneck and Pullback soils. Breakneck and Pullback soils formed over Thunderhead Sandstone bedrock. The Anakeesta Slate is interbedded with Thunderhead Sandstone. Also included in this map unit are small areas of shallow soils that are similar in physical characteristics to the Luftee soil, small areas of seeps around the rock outcrops, small areas which are extremely bouldery, and boulder trains. The boulder trains have little or no fine-earth material on the surface but are covered in vegetation. The boulder trains are located in narrow drainageways. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

This map unit has a dominant vegetative cover of spruce/fir, northern hardwoods, or a mix of the two. Spruce/fir refers to red spruce and Fraser fir. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. The spruce/fir cover type is dominant above 1,645 meters in elevation. Northern hardwoods are dominant below 1,465 meters in elevation. Mixing of the two cover types occurs between these elevations.

This map unit is associated with general soil map unit 1 (Frigid Anakeesta Slate: Luftee-Anakeesta Soils).

LrF—Luftee-Anakeesta complex, 30 to 95 percent slopes, very rocky

Setting

Elevation: 1,280 to 2,030 meters
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1 to 13 degrees C
Frost-free period: 162 to 176 days
Landform: Mountainside on mountains

Composition

Luftee soil and similar components: 50 percent
Anakeesta soil and similar components: 30 percent
Minor soils: 20 percent

Properties and Qualities of the Luftee Soil

Available water capacity: Low (about 14.1 centimeters to a depth of 86 centimeters)
Depth to restrictive features: 52 to 102 centimeters to lithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 10.0 to 15.0 percent
Parent material: Loamy residuum weathered from metasedimentary slate and phyllite
Permeability of soil profile: Rapid
Shrink-swell potential: Low
Surface layer texture: Very channery loam
Potential for surface runoff: Low

Typical Profile of the Luftee Soil

0 to 28 centimeters; very channery loam
28 to 51 centimeters; extremely channery loam
51 to 86 centimeters; extremely channery sandy loam
86 to 200 centimeters; unweathered bedrock

Interpretive Groups for the Luftee Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Anakeesta Soil

Available water capacity: Moderate (about 21.0 centimeters to a depth of 114 centimeters)
Depth to restrictive features: 102 to 152 centimeters to lithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 10.0 to 15.0 percent
Parent material: Channery residuum weathered from metasedimentary rock
Permeability of soil profile: Rapid
Shrink-swell potential: Low
Surface layer texture: Channery loam
Potential for surface runoff: Low

Typical Profile of the Anakeesta Soil

0 to 10 centimeters; channery loam
10 to 20 centimeters; channery loam
20 to 36 centimeters; extremely channery loam
36 to 75 centimeters; extremely channery loam
75 to 114 centimeters; extremely channery coarse sandy loam
114 to 200 centimeters; unweathered bedrock

Interpretive Groups for the Anakeesta Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Due to the higher elevations, the climate of this map unit is severe compared to the region in general. It is cold, icy, and very windy in winter and rainy, foggy, and cool the rest of the year. The Luftee and Anakeesta soils stay frozen for long periods in winter. These soils are well drained and allow water to move into and through the profile moderately rapidly. However, they have a limited water storage capacity due to the limited depth to bedrock. These soils occur in locations with high amounts of rainfall. During periods of prolonged rain or snowmelt, these soils have temporary water tables above the bedrock. These temporary water tables last for a few hours or occasionally for a few days. The water tables are temporary because when the flow of water into the soils ends, the water tables drain in a short period of time. The water moves laterally over the bedrock downslope. At some point downslope, the water reaches the soil surface and forms seeps. Landslides are common during periods of intense and prolonged rainfall.

Included in mapping with the Luftee and Anakeesta soils are small areas of contrasting Breakneck and Pullback soils. Breakneck and Pullback soils formed over Thunderhead Sandstone bedrock. The Anakeesta Slate is interbedded with the Thunderhead Sandstone. Also included in this map unit are small areas of shallow soils that are similar in physical characteristics to the Luftee soil, small areas of seeps around the rock outcrops, small areas which are extremely bouldery, and boulder trains. The boulder trains have little or no fine-earth material on the surface but are covered in vegetation. The boulder trains are located in narrow drainageways. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

This map unit has a dominant vegetative cover of spruce/fir, northern hardwoods, or a mix of the two. Spruce/fir refers to red spruce and Fraser fir. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. The spruce/fir cover type is dominant above 1,645 meters in elevation. Northern hardwoods are dominant below 1,465 meters in elevation. Mixing of the two cover types occurs between these elevations.

This map unit is associated with general soil map unit 1 (Frigid Anakeesta Slate: Luftee-Anakeesta Soils).

NtC—Northcove-Maymead-Nowhere complex, 8 to 15 percent slopes, very stony

Setting

Elevation: 458 to 1,280 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Drainageway on mountains

Composition

Northcove soil and similar components: 45 percent
Maymead soil and similar components: 25 percent
Nowhere soil and similar components: 15 percent
Minor soils: 15 percent

Properties and Qualities of the Northcove Soil

Available water capacity: Low (about 13.7 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None

Organic matter content in the surface layer: 0.5 to 2.0 percent
Parent material: Cobbly colluvium derived from metasedimentary rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Very cobbly sandy loam
Potential for surface runoff: Low

Typical Profile of the Northcove Soil

0 to 7 centimeters; very cobbly sandy loam
7 to 152 centimeters; very cobbly loam
152 to 203 centimeters; very cobbly sandy loam

Interpretive Groups for the Northcove Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Maymead Soil

Available water capacity: High (about 24.3 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 3.0 percent
Parent material: Loamy colluvium derived from metasedimentary rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Loam
Potential for surface runoff: Low

Typical Profile of the Maymead Soil

0 to 13 centimeters; loam
13 to 168 centimeters; cobbly loam

Interpretive Groups for the Maymead Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Nowhere Soil

Available water capacity: Moderate (about 16.0 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: 15.0 to 40.0 centimeters
Water table (kind): Apparent
Ponding: Brief
Depth of ponding: 2.0 to 6.0 centimeters
Drainage class: Poorly drained
Flooding: None
Organic matter content in the surface layer: 2.0 to 10.0 percent
Parent material: Cobbly colluvium derived from metasedimentary rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Very cobbly fine sandy loam
Potential for surface runoff: Low

Typical Profile of the Nowhere Soil

0 to 41 centimeters; very cobbly fine sandy loam
41 to 71 centimeters; extremely cobbly fine sandy loam
71 to 158 centimeters; extremely cobbly fine sandy loam

Interpretive Groups for the Nowhere Soil

Prime farmland: Not prime farmland
Hydric soil: Yes

Use and Management

In storm events, rainwater off the adjacent uplands is concentrated into surface runoff, which causes overland flow in concave areas. Small streams and springs are common in this map unit. The colluvial material beneath the soils is a good aquifer. The water in the colluvium moves laterally downslope. At some point downslope, the water reaches the soil surface and forms springs. The Nowhere soil is located near the springs. The springs in turn add to the flow of the streams.

Included in mapping with the Northcove, Maymead, and Nowhere soils are small areas of contrasting Ditney, Junaluska, and Soco soils. Ditney, Junaluska, and Soco soils formed in saprolite on south- to west-facing slopes. Ditney soils also are moderately deep to bedrock. Junaluska and Soco soils are moderately deep to weathered bedrock. Also included are similar soils which formed under rhododendron and/or laurel vegetation and have organic surface layers and small areas of rubble land. Springs and seeps are also common in some map units. These contrasting soils and miscellaneous areas make up about 15 percent of this map unit.

Soils similar to the Northcove and Maymead soils are also included in this map unit. These soils have dark surface layers which range from 18 to 30 centimeters in thickness. They are in areas facing north to east.

The dominant vegetative cover is mixed cool and hot micro-climate tree species. Some of the cool micro-climate trees are yellow-poplar, basswood, black birch, black cherry, eastern hemlock, northern red oak, white pine, and yellow buckeye. Some of the hot micro-climate trees are shortleaf pine, Virginia pine, black oak, scarlet oak, chestnut oak, bitternut hickory, mockernut hickory, and pignut hickory. Rhododendron and/or laurel may dominate the understory vegetation and may form thickets in some areas.

This map unit is associated with general soil map units 7 (Mesic Soft Metasandstone: Soco-Stecoah Soils), 10 (Mesic Siltstone and Phyllite: Junaluska-Tsali Soils), 11 (Large Basins of Colluvium: Spivey-Santeetlah Soils), and 14 (Cades Cove: Lonon-Cades Soils).

NtD—Northcove-Maymead complex, 15 to 30 percent slopes, very stony

Setting

Elevation: 458 to 1,280 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Drainageway on mountains

Composition

Northcove soil and similar components: 50 percent

Maymead soil and similar components: 30 percent
Minor soils: 20 percent

Properties and Qualities of the Northcove Soil

Available water capacity: Low (about 13.7 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 0.5 to 2.0 percent
Parent material: Cobbly colluvium derived from metasedimentary rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Very cobbly sandy loam
Potential for surface runoff: Low

Typical Profile of the Northcove Soil

0 to 7 centimeters; very cobbly sandy loam
7 to 152 centimeters; very cobbly loam
152 to 203 centimeters; very cobbly sandy loam

Interpretive Groups for the Northcove Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Maymead Soil

Available water capacity: High (about 24.3 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 3.0 percent
Parent material: Loamy colluvium derived from metasedimentary rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Loam
Potential for surface runoff: Low

Typical Profile of the Maymead Soil

0 to 13 centimeters; loam
13 to 168 centimeters; cobbly loam

Interpretive Groups for the Maymead Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

In storm events, rainwater off the adjacent uplands is concentrated into surface runoff, which causes overland flow in concave areas. Small streams and springs are common in this map unit. The colluvial material beneath the soils is a good aquifer. The water in the colluvium moves laterally downslope. At some point downslope, the water reaches the soil surface and forms springs. The springs in turn add to the flow of the streams.

Included in mapping with the Northcove and Maymead soils are small areas of contrasting Ditney, Junaluska, Nowhere, and Soco soils. Ditney, Junaluska, and Soco soils formed in saprolite on south- to west-facing slopes. Ditney soils also are moderately deep to bedrock. Junaluska and Soco soils are moderately deep to weathered bedrock. Nowhere soils formed in small depressions around springs and seeps. Also included are similar soils which formed under rhododendron and/or laurel vegetation and have organic surface layers and small areas of rubble land. Springs and seeps are also common in some map units. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

Soils similar to the Northcove and Maymead soils are also included in this map unit. These soils have dark surface layers which range from 18 to 30 centimeters in thickness. They are in areas facing north to east.

The dominant vegetative cover is mixed cool and hot micro-climate tree species. Some of the cool micro-climate trees are yellow-poplar, basswood, black birch, black cherry, eastern hemlock, northern red oak, white pine, and yellow buckeye. Some of the hot micro-climate trees are shortleaf pine, Virginia pine, black oak, scarlet oak, chestnut oak, bitternut hickory, mockernut hickory, and pignut hickory. Rhododendron and/or laurel may dominate the understory vegetation and may form thickets in some areas.

This map unit is associated with general soil map units 7 (Mesic Soft Metasandstone: Soco-Stecoah Soils), 10 (Mesic Siltstone and Phyllite: Junaluska-Tsali Soils) and 11 (Large Basins of Colluvium: Spivey-Santeetlah Soils).

NtE—Northcove-Maymead complex, 30 to 50 percent slopes, very stony

Setting

Elevation: 458 to 1,280 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Drainageway on mountains

Composition

Northcove soil and similar components: 50 percent
Maymead soil and similar components: 30 percent
Minor soils: 20 percent

Properties and Qualities of the Northcove Soil

Available water capacity: Low (about 13.7 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 0.5 to 2.0 percent
Parent material: Cobbly colluvium derived from metasedimentary rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low

Surface layer texture: Very cobbly sandy loam
Potential for surface runoff: Low

Typical Profile of the Northcove Soil

0 to 7 centimeters; very cobbly sandy loam
7 to 152 centimeters; very cobbly loam
152 to 203 centimeters; very cobbly sandy loam

Interpretive Groups for the Northcove Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Maymead Soil

Available water capacity: High (about 24.3 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 3.0 percent
Parent material: Loamy colluvium derived from metasedimentary rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Loam
Potential for surface runoff: Low

Typical Profile of the Maymead Soil

0 to 13 centimeters; loam
13 to 168 centimeters; cobbly loam

Interpretive Groups for the Maymead Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

In storm events, rainwater off the adjacent uplands is concentrated into surface runoff, which causes overland flow in concave areas. Small streams and springs are common in this map unit. The colluvial material beneath the soils is a good aquifer. The water in the colluvium moves laterally downslope. At some point downslope, the water reaches the soil surface and forms springs. The springs in turn add to the flow of the streams.

Included in mapping with the Northcove and Maymead soils are small areas of contrasting Ditney, Junaluska, Nowhere, and Soco soils. Ditney, Junaluska, and Soco soils formed in saprolite on south- to west-facing slopes. Ditney soils are also moderately deep to bedrock. Junaluska and Soco soils are moderately deep to weathered bedrock. Nowhere soils formed in small depressions around springs and seeps. Also included are similar soils which formed under rhododendron and/or laurel vegetation and have organic surface layers and small areas of rubble land. Springs and seeps are also common in some map units. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

Soils similar to the Northcove and Maymead soils are also included in this map unit. These soils have dark surface layers which range from 18 to 30 centimeters thick. They are in areas facing north to east.

The dominant vegetative cover is mixed cool and hot micro-climate tree species. Some of the cool micro-climate trees are yellow-poplar, basswood, black birch, black cherry, eastern hemlock, northern red oak, white pine, and yellow buckeye. Some of the hot micro-climate trees are shortleaf pine, Virginia pine, black oak, scarlet oak, chestnut oak, bitternut hickory, mockernut hickory, and pignut hickory. Rhododendron and/or laurel may dominate the understory vegetation and may form thickets in some areas.

This map unit is associated with general soil map unit 7 (Mesic Soft Metasandstone: Soco-Stecoah Soils).

OcD—Oconaluftee-Guyot-Heintooga complex, 15 to 30 percent slopes, stony

Setting

Elevation: 1,280 to 2,030 meters
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1 to 13 degrees C
Frost-free period: 162 to 176 days
Landform: Mountain slope on mountains and ridge on mountains

Composition

Oconaluftee soil and similar components: 45 percent
Guyot soil and similar components: 20 percent
Heintooga soil and similar components: 15 percent
Minor soils: 20 percent

Properties and Qualities of the Oconaluftee Soil

Available water capacity: Moderate (about 21.9 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 8.0 to 15.0 percent
Parent material: Creep deposits over residuum weathered from sandstone and/or metaquartzite
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Channery loam
Potential for surface runoff: Low

Typical Profile of the Oconaluftee Soil

0 to 31 centimeters; channery loam
31 to 125 centimeters; channery loam
125 to 185 centimeters; loam
185 to 200 centimeters; weathered bedrock

Interpretive Groups for the Oconaluftee Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Guyot Soil

Available water capacity: High (about 29.5 centimeters to a depth of 150 centimeters)
Depth to restrictive features: 102 to 152 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 11.0 to 23.5 percent
Parent material: Creep deposits over residuum weathered from sandstone and/or metaquartzite
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Clay loam
Potential for surface runoff: Low

Typical Profile of the Guyot Soil

0 to 28 centimeters; clay loam
28 to 72 centimeters; loam
72 to 150 centimeters; fine sandy loam
150 to 183 centimeters; weathered bedrock

Interpretive Groups for the Guyot Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Heintooga Soil

Available water capacity: Low (about 14.3 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 30.0 to 50.0 percent
Parent material: Loamy colluvium derived from metasedimentary rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Peat
Potential for surface runoff: Low

Typical Profile of the Heintooga Soil

0 to 3 centimeters; peat
3 to 10 centimeters; very flaggy loam
10 to 31 centimeters; very flaggy loam
31 to 64 centimeters; extremely channery fine sandy loam
64 to 155 centimeters; extremely flaggy coarse sandy loam

Interpretive Groups for the Heintooga Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Due to the higher elevations, the climate in this map unit is severe compared to the region in general. It is cold, icy, and very windy in winter and rainy, foggy, and cool the rest of the year. The soils stay frozen for long periods in winter. This map unit is in landscape positions that are protected from high winds.

Included in mapping with the Oconaluftee, Guyot, and Heintooga soils are small areas of contrasting Chiltoskie and Horsetrough soils. Chiltoskie and Horsetrough soils formed in colluvium. They are in drainageways and on head slopes. Also included are similar soils which formed under rhododendron vegetation and have organic surface layers, small areas of seeps and springs, and small areas which are very stony or extremely stony. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

Soils similar to the Oconaluftee, Guyot, and Heintooga soils are also included in this map unit. These soils have dark surface layers less than 25 centimeters thick or more than 50 centimeters thick. Soils with surface layers less than 25 centimeters thick are on spur ridges or shoulder slopes. Soils with surface layers more than 50 centimeters thick are on the lower part of the side slope or in saddles.

This map unit has a dominant vegetative cover of spruce/fir, northern hardwoods or a mix of the two. Spruce/fir refers to red spruce and Fraser fir. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. The spruce/fir cover type is dominant above 1,650 meters in elevation. Northern hardwoods are dominant below 1,525 meters in elevation. Mixing of the two cover types occurs between these elevations.

This map unit occurs in the colder climate of the higher elevations. Tree damage is limited to minor top breakage. This is because this map unit is out of the high winds.

This map unit is associated with general soil map unit 3 (Frigid Soft Sandstone: Oconaluftee Soils).

OcF—Oconaluftee-Heintooga-Rubble land complex, 30 to 95 percent slopes, stony

Setting

Elevation: 1,280 to 2,030 meters
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1 to 13 degrees C
Frost-free period: 162 to 176 days
Landform: Mountain slope on mountains and ridge on mountains

Composition

Oconaluftee soil and similar components: 50 percent
Heintooga soil and similar components: 15 percent
Rubble land: 15 percent
Minor soils: 20 percent

Properties and Qualities of the Oconaluftee Soil

Available water capacity: Moderate (about 21.9 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 8.0 to 15.0 percent
Parent material: Creep deposits over residuum weathered from sandstone and/or metaquartzite

Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Channery loam
Potential for surface runoff: Low

Typical Profile of the Oconaluftee Soil

0 to 31 centimeters; channery loam
31 to 125 centimeters; channery loam
125 to 185 centimeters; loam
185 to 200 centimeters; weathered bedrock

Interpretive Groups for the Oconaluftee Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Heintooga Soil

Available water capacity: Low (about 14.3 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 30.0 to 50.0 percent
Parent material: Loamy colluvium derived from metasedimentary rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Peat
Potential for surface runoff: Low

Typical Profile of the Heintooga Soil

0 to 3 centimeters; peat
3 to 10 centimeters; very flaggy loam
10 to 31 centimeters; very flaggy loam
31 to 64 centimeters; extremely channery fine sandy loam
64 to 155 centimeters; extremely flaggy coarse sandy loam

Interpretive Groups for the Heintooga Soil

Prime farmland: Not prime farmland
Hydric soil: No

Interpretive Groups for Rubble Land

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Due to the higher elevations, the climate in this map unit is severe compared to the region in general. It is cold, icy, and very windy in winter and rainy, foggy, and cool the rest of the year. The soils stay frozen for long periods in winter. This map unit is in landscape positions that are protected from high winds.

Included in mapping with the Oconaluftee and Heintooga soils and Rubble land are small areas of contrasting Breakneak and Pullback soils. Breakneak soils are moderately deep to bedrock. Pullback soils are shallow to bedrock. Breakneak and Pullback soils commonly occur on slopes of more than 80 percent. Also included are similar soils which formed under rhododendron vegetation and have organic surface layers, small areas of seeps and springs, small areas which are very stony or extremely stony, and small areas of rock outcrops. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

Soils similar to the Oconaluftee and Heintooga soils are also included in this map unit. These soils have dark surface layers less than 25 centimeters or more than 50 centimeters thick. Soils with surface layers less than 25 centimeters thick are on spur ridges or shoulder slopes. Soils with surface layers more than 50 centimeters thick are on the lower part of the side slope or in saddles.

This map unit has a dominant vegetative cover of spruce/fir, northern hardwoods or a mix of the two. Spruce/fir refers to red spruce and Fraser fir. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. The spruce/fir cover type is dominant above 1,650 meters in elevation. Northern hardwoods are dominant below 1,525 meters in elevation. Mixing of the two cover types occurs between these elevations.

This map unit occurs in the colder climate of the higher elevations. Tree damage is limited to minor top breakage. This is because this map unit is out of the high winds.

This map unit is associated with general soil map unit 3 (Frigid Soft Sandstone: Oconaluftee Soils).

OwC—Oconaluftee-Guyot-Cataloochee complex, 8 to 15 percent slopes, stony, windswept

Setting

Elevation: 1,280 to 2,030 meters
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1 to 13 degrees C
Frost-free period: 162 to 176 days
Landform: Ridge on mountains and mountain slope on mountains

Composition

Oconaluftee soil and similar components: 50 percent
Guyot soil and similar components: 15 percent
Cataloochee soil and similar components: 15 percent
Minor soils: 20 percent

Properties and Qualities of the Oconaluftee Soil

Available water capacity: Moderate (about 21.9 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 8.0 to 15.0 percent
Parent material: Creep deposits over residuum weathered from sandstone and/or metaquartzite
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Channery loam
Potential for surface runoff: Low

Typical Profile of the Oconaluftee Soil

0 to 30 centimeters; channery loam
30 to 112 centimeters; channery loam
112 to 152 centimeters; loam

Interpretive Groups for the Oconaluftee Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Guyot Soil

Available water capacity: High (about 29.5 centimeters to a depth of 150 centimeters)
Depth to restrictive features: 102 to 152 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 11.0 to 23.5 percent
Parent material: Creep deposits over residuum weathered from sandstone and/or metaquartzite
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Clay loam
Potential for surface runoff: Low

Typical Profile of the Guyot Soil

0 to 28 centimeters; clay loam
28 to 72 centimeters; loam
72 to 150 centimeters; fine sandy loam
150 to 183 centimeters; weathered bedrock

Interpretive Groups for the Guyot Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Cataloochee Soil

Available water capacity: Low (about 12.2 centimeters to a depth of 79 centimeters)
Depth to restrictive features: 51 to 102 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 13.5 to 31.0 percent
Parent material: Creep deposits over residuum weathered from sandstone and/or metaquartzite
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Clay loam
Potential for surface runoff: Low

Typical Profile of the Cataloochee Soil

0 to 23 centimeters; clay loam
23 to 48 centimeters; channery loam
48 to 64 centimeters; channery sandy loam

64 to 79 centimeters; channery fine sandy loam
79 to 153 centimeters; weathered bedrock

Interpretive Groups for the Cataloochee Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Due to the higher elevations, the climate in this map unit is severe compared to the region in general. It is cold, icy, and very windy in winter and rainy, foggy, and cool the rest of the year. The soils stay frozen for long periods in winter. This map unit is in landscape positions that receive high winds. The high winds combine with ice to cause damage to the tops of the trees. This micro-climate produces a forest cover which is stunted by the wind and ice damage.

Included in mapping with the Oconaluftee, Guyot, and Cataloochee soils are small areas of contrasting Chiltoskie, Heintooga, and Horsetrough soils. Chiltoskie, Heintooga, and Horsetrough soils formed in colluvium. They are on head slopes. Also included are similar soils which formed under rhododendron vegetation and have organic surface layers, small areas of seeps and springs, and small areas which are very stony or extremely stony. Map areas near the hard metasandstone/soft metasandstone geologic break may have small areas of Breakneak and Pullback soils and rock outcrops. The depth to bedrock ranges from 50 to 100 centimeters for Breakneak soils and from 25 to 50 centimeters for Pullback soils. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

Soils similar to the Oconaluftee, Guyot, and Cataloochee soils are also included in this map unit. These soils have dark surface layers less than 25 centimeters thick or more than 50 centimeters thick. Soils with surface layers less than 25 centimeters thick are on spur ridges or shoulder slopes. Soils with surface layers more than 50 centimeters thick are on the lower part of the side slope or in saddles.

This map unit has a dominant vegetative cover of spruce/fir, northern hardwoods, or a mix of the two. Spruce/fir refers to red spruce and Fraser fir. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. The spruce/fir cover type is dominant above 1,645 meters in elevation. Northern hardwoods are dominant below 1,465 meters in elevation. Mixing of the two cover types occurs between these elevations.

The tree growth is stunted by the high winds and ice damage. The poor tree growth is a function of climate. The understory vegetation is often sparse, except where laurel forms small thickets. Low-growing shrubs, such as blueberries, huckleberries, and high bush raspberries, are not stunted by the high winds and ice. The diversity of the cover types ranges from very limited for spruce/fir to very good for northern hardwoods. This map unit has a high amount of downed tree tops because of the ice and wind damage. Native plants unaffected by ice and wind damage, such as blueberries, huckleberries, and high bush raspberries, provide an alternative vegetative cover.

This map unit is associated with general soil map unit 3 (Frigid Soft Sandstone: Oconaluftee Soils).

OwD—Oconaluftee-Guyot-Cataloochee complex, 15 to 30 percent slopes, stony, windswept

Setting

Elevation: 1,280 to 2,030 meters
Mean annual precipitation: 2,032 to 2,540 millimeters

Mean annual air temperature: 1 to 13 degrees C
Frost-free period: 162 to 176 days
Landform: Mountain slope on mountains and ridge on mountains

Composition

Oconaluftee soil and similar components: 50 percent
Guyot soil and similar components: 15 percent
Cataloochee soil and similar components: 15 percent
Minor soils: 20 percent

Properties and Qualities of the Oconaluftee Soil

Available water capacity: Moderate (about 21.9 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 8.0 to 15.0 percent
Parent material: Creep deposits over residuum weathered from sandstone and/or metaquartzite
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Channery loam
Potential for surface runoff: Low

Typical Profile of the Oconaluftee Soil

0 to 30 centimeters; channery loam
30 to 112 centimeters; channery loam
112 to 152 centimeters; loam

Interpretive Groups for the Oconaluftee Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Guyot Soil

Available water capacity: High (about 29.5 centimeters to a depth of 150 centimeters)
Depth to restrictive features: 102 to 152 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 11.0 to 23.5 percent
Parent material: Creep deposits over residuum weathered from sandstone and/or metaquartzite
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Clay loam
Potential for surface runoff: Low

Typical Profile of the Guyot Soil

0 to 28 centimeters; clay loam
28 to 72 centimeters; loam

72 to 150 centimeters; fine sandy loam
150 to 183 centimeters; weathered bedrock

Interpretive Groups for the Guyot Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Cataloochee Soil

Available water capacity: Low (about 12.2 centimeters to a depth of 79 centimeters)
Depth to restrictive features: 51 to 102 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 13.5 to 31.0 percent
Parent material: Creep deposits over residuum weathered from sandstone and/or metaquartzite
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Clay loam
Potential for surface runoff: Low

Typical Profile of the Cataloochee Soil

0 to 23 centimeters; clay loam
23 to 48 centimeters; channery loam
48 to 64 centimeters; channery sandy loam
64 to 79 centimeters; channery fine sandy loam
79 to 153 centimeters; weathered bedrock

Interpretive Groups for the Cataloochee Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Due to the higher elevations, the climate in this map unit is severe compared to the region in general. It is cold, icy, and very windy in winter and rainy, foggy, and cool the rest of the year. The soils stay frozen for long periods in winter. This map unit is in landscape positions that receive high winds. The high winds combine with ice to cause damage to the tops of the trees. This micro-climate produces a forest cover which is stunted by the wind and ice damage.

Included in mapping with the Oconaluftee, Guyot, and Cataloochee soils are small areas of contrasting Chiltoskie, Heintooga, and Horsetrough soils. Chiltoskie, Heintooga, and Horsetrough soils formed in colluvium. They are in drainageways and on head slopes. Also included are similar soils which formed under rhododendron vegetation and have organic surface layers, small areas of seeps and springs, and small areas which are very stony or extremely stony. Map areas near the hard metasandstone/soft metasandstone geologic break may have small areas of Breakneak and Pullback soils and rock outcrops. The depth to bedrock ranges from 50 to 100 centimeters for Breakneak soils and from 25 to 50 centimeters for Pullback soils. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

Soils similar to the Oconaluftee, Guyot, and Cataloochee soils are also included in this map unit. These soils have dark surface layers less than 25 centimeters thick or more than 50 centimeters thick. Soils with surface layers less than 25 centimeters thick are on spur ridges or shoulder slopes. Soils with surface layers more than 50 centimeters thick are on the lower part of the side slope or in saddles.

This map unit has a dominant vegetative cover of spruce/fir, northern hardwoods, or a mix of the two. Spruce/fir refers to red spruce and Fraser fir. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. The spruce/fir cover type is dominant above 1,645 meters in elevation. Northern hardwoods are dominant below 1,465 meters in elevation. Mixing of the two cover types occurs between these elevations.

The tree growth is stunted in this map unit by the high winds and ice damage. The poor tree growth is a function of climate. The understory vegetation is often sparse, except where laurel forms small thickets. Low-growing shrubs, such as blueberries, huckleberries, and high bush raspberries, are not stunted by the high winds and ice. The diversity of the cover types ranges from very limited for spruce/fir to very good for northern hardwoods. This map unit has a high amount of downed tree tops because of the ice and wind damage.

This map unit is associated with general soil map unit 3 (Frigid Soft Sandstone: Oconaluftee Soils).

OwE—Oconaluftee-Guyot-Cataloochee complex, 30 to 50 percent slopes, stony, windswept

Setting

Elevation: 1,280 to 2,030 meters
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1 to 13 degrees C
Frost-free period: 162 to 176 days
Landform: Mountain slope on mountains and ridge on mountains

Composition

Oconaluftee soil and similar components: 50 percent
Guyot soil and similar components: 15 percent
Cataloochee soil and similar components: 15 percent
Minor soils: 20 percent

Properties and Qualities of the Oconaluftee Soil

Available water capacity: Moderate (about 21.9 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 8.0 to 15.0 percent
Parent material: Creep deposits over residuum weathered from sandstone and/or metaquartzite
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Channery loam
Potential for surface runoff: Low

Typical Profile of the Oconaluftee Soil

0 to 30 centimeters; channery loam

30 to 112 centimeters; channery loam
112 to 152 centimeters; loam

Interpretive Groups for the Oconaluftee Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Guyot Soil

Available water capacity: High (about 29.5 centimeters to a depth of 150 centimeters)
Depth to restrictive features: 102 to 152 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 11.0 to 23.5 percent
Parent material: Creep deposits over residuum weathered from sandstone and/or metaquartzite
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Clay loam
Potential for surface runoff: Low

Typical Profile of the Guyot Soil

0 to 28 centimeters; clay loam
28 to 72 centimeters; loam
72 to 150 centimeters; fine sandy loam
150 to 183 centimeters; weathered bedrock

Interpretive Groups for the Guyot Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Cataloochee Soil

Available water capacity: Low (about 12.2 centimeters to a depth of 79 centimeters)
Depth to restrictive features: 51 to 102 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 13.5 to 31.0 percent
Parent material: Creep deposits over residuum weathered from sandstone and/or metaquartzite
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Clay loam
Potential for surface runoff: Low

Typical Profile of the Cataloochee Soil

0 to 23 centimeters; clay loam
23 to 48 centimeters; channery loam
48 to 64 centimeters; channery sandy loam
64 to 79 centimeters; channery fine sandy loam
79 to 153 centimeters; weathered bedrock

Interpretive Groups for the Cataloochee Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Due to the higher elevations, the climate in this map unit is severe compared to the region in general. It is cold, icy, and very windy in winter and rainy, foggy, and cool the rest of the year. The soils stay frozen for long periods in winter. This map unit is in landscape positions that receive high winds. The high winds combine with ice to cause damage to the tops of the trees. This micro-climate produces a forest cover which is stunted by the wind and ice damage.

Included in mapping with the Oconaluftee, Guyot, and Cataloochee soils are small areas of contrasting Heintooga soils. Heintooga soils formed in colluvium. They are in drainageways and on head slopes. Also included are similar soils which formed under rhododendron vegetation and have organic surface layers, small areas of seeps and springs, and small areas which are very stony or extremely stony. Map areas near the hard metasandstone/soft metasandstone geologic break may have small areas of Breakneak and Pullback soils and rock outcrops. The depth to bedrock ranges from 50 to 100 centimeters for Breakneak soils and from 25 to 50 centimeters for Pullback soils. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

Soils similar to the Oconaluftee, Guyot, and Cataloochee soils are also included in this map unit. These soils have dark surface layers less than 25 centimeters thick or more than 50 centimeters thick. Soils with surface layers less than 25 centimeters thick are on spur ridges or shoulder slopes. Soils with surface layers more than 50 centimeters thick are on the lower part of the side slope or in saddles.

This map unit has a dominant vegetative cover of spruce/fir, northern hardwoods, or a mix of the two. Spruce/fir refers to red spruce and Fraser fir. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. The spruce/fir cover type is dominant above 1,645 meters in elevation. Northern hardwoods are dominant below 1,465 meters in elevation. Mixing of the two cover types occurs between these elevations.

The tree growth is stunted by the high winds and ice damage. The poor tree growth is a function of climate. The understory vegetation is often sparse, except where laurel forms small thickets. This map unit has a high amount of downed tree tops because of the ice and wind damage. Native plants unaffected by ice and wind damage, such as blueberries, huckleberries, and high bush raspberries, provide an alternative vegetative cover.

This map unit is associated with general soil map unit 3 (Frigid Soft Sandstone: Oconaluftee Soils).

OwF—Oconaluftee-Guyot-Cataloochie complex, 50 to 95 percent slopes, stony, windswept

Setting

Elevation: 1,280 to 2,030 meters
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1 to 13 degrees C
Frost-free period: 162 to 176 days
Landform: Mountain slope on mountains and ridge on mountains

Composition

Oconaluftee soil and similar components: 50 percent
Guyot soil and similar components: 15 percent
Cataloochee soil and similar components: 15 percent
Minor soils: 20 percent

Properties and Qualities of the Oconaluftee Soil

Available water capacity: Moderate (about 21.9 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 8.0 to 15.0 percent
Parent material: Creep deposits over residuum weathered from sandstone and/or metaquartzite
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Channery loam
Potential for surface runoff: Low

Typical Profile of the Oconaluftee Soil

0 to 30 centimeters; channery loam
30 to 112 centimeters; channery loam
112 to 152 centimeters; loam

Interpretive Groups for the Oconaluftee Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Guyot Soil

Available water capacity: High (about 29.5 centimeters to a depth of 150 centimeters)
Depth to restrictive features: 102 to 152 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 11.0 to 23.5 percent
Parent material: Creep deposits over residuum weathered from sandstone and/or metaquartzite
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Clay loam
Potential for surface runoff: Low

Typical Profile of the Guyot Soil

0 to 28 centimeters; clay loam
28 to 72 centimeters; loam
72 to 150 centimeters; fine sandy loam
150 to 183 centimeters; weathered bedrock

Interpretive Groups for the Guyot Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Cataloochee Soil

Available water capacity: Low (about 12.2 centimeters to a depth of 79 centimeters)
Depth to restrictive features: 51 to 102 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 13.5 to 31.0 percent
Parent material: Creep deposits over residuum weathered from sandstone and/or metaquartzite
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Clay loam
Potential for surface runoff: Low

Typical Profile of the Cataloochee Soil

0 to 23 centimeters; clay loam
23 to 48 centimeters; channery loam
48 to 64 centimeters; channery sandy loam
64 to 79 centimeters; channery fine sandy loam
79 to 153 centimeters; weathered bedrock

Interpretive Groups for the Cataloochee Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Due to the higher elevations, the climate in this map unit is severe compared to the region in general. It is cold, icy, and very windy in winter and rainy, foggy, and cool the rest of the year. The soils stay frozen for long periods in winter.

Included in mapping with the Oconaluftee, Guyot, and Cataloochee soils are small areas of contrasting Breakneck, Heintooga, and Pullback soils. The depth to bedrock ranges from 50 to 100 centimeters for Breakneak soils and from 25 to 50 centimeters for Pullback soils. Heintooga soils formed in colluvium. They are in drainageways and on head slopes. Also included are soils similar to the Oconaluftee, Guyot, and Cataloochee soils which formed under rhododendron vegetation and have organic surface layers, small areas of seeps and springs, and small areas which are very stony or extremely stony. Also included are small areas of rock outcrops. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

Soils similar to the Oconaluftee and Guyot soils are also included in this map unit. These soils have dark surface layers less than 25 centimeters thick or more than 50 centimeters thick. Soils with surface layers less than 25 centimeters thick are on spur ridges or shoulder slopes. Soils with surface layers more than 50 centimeters thick are on the lower part of the side slope or in saddles.

This map unit has a dominant vegetative cover of spruce/fir, northern hardwoods, or a mix of the two. Spruce/fir refers to red spruce and Fraser fir. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. The spruce/fir cover type is dominant above 1,645 meters in elevation. Northern hardwoods are dominant below 1,465 meters in elevation. Mixing of the two cover types occurs between these elevations.

The tree growth is stunted in this map unit by the high winds and ice damage. The poor tree growth is a function of climate. The understory vegetation is often sparse, except where laurel forms small thickets. Low-growing shrubs, such as blueberries, huckleberries, and high bush raspberries, are not stunted by the high winds and ice. The diversity of the cover types ranges from very limited for spruce/fir to very good for northern hardwoods. This map unit has a high amount of downed tree tops because of the ice and wind damage.

This map unit is associated with general soil map unit 3 (Frigid Soft Sandstone: Oconaluftee Soils).

Po—Potomac very cobbly loamy sand, 0 to 5 percent slopes, extremely bouldery, frequently flooded

Setting

Elevation: 300 to 800 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Floodplain on mountains

Composition

Potomac soil and similar components: 80 percent
Minor soils: 20 percent

Soil Properties and Qualities

Available water capacity: Low (about 7.7 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: 122.0 to 183.0 centimeters
Water table (kind): Apparent
Ponding: None
Drainage class: Somewhat excessively drained
Flooding: Frequent
Organic matter content in the surface layer: 0.0 to 2.0 percent
Parent material: Cobbly alluvium
Permeability of soil profile: Rapid
Shrink-swell potential: Low
Surface layer texture: Very cobbly loamy sand
Potential for surface runoff: Very low

Typical Profile

0 to 5 centimeters; very cobbly loamy sand
5 to 152 centimeters; extremely cobbly loamy sand

Interpretive Groups

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

This map unit is in landscape positions which are in shade much of the day. Because the map unit is shaded, a cooler, moister micro-climate is created. The Potomac soil stays frozen for long periods in winter and warms up later in spring than other soils at the same elevations. Flooding is frequent and of very brief duration. The seasonal high water table is more than 120 centimeters below the surface. This map unit is associated with streams. The gravel/cobble beds beneath the soil are good aquifers.

Included in mapping with the Potomac soil are small areas of contrasting Smokemont and Dellwood soils. Smokemont and Dellwood soils have loamy surface layers and are shallow to strata of gravel, cobbles, and sand. Smokemont soils are in the higher areas which flood less frequently. Dellwood soils are in old channels blocked by debris from past flooding. Also included are areas scoured down to the strata of gravel, cobbles, and sand. All the fine-earth material has been removed from these areas. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

This map unit has a dominant vegetative cover of floodplain hardwoods with some eastern hemlocks and pines. Floodplain hardwoods commonly have a very diverse tree cover type. However, some map units are dominated by a single species, such as sweetgum, sycamore, or yellow-poplar, depending on past management. Common tree species include basswood, beech, black birch, black cherry, black locust, black walnut, butternut, dogwood, elderberry, hawthorn, hemlock, honey locust, northern red oak, red maple, river birch, shortleaf pine, sweetgum, sycamore, white oak, white pine, witch hazel, yellow buckeye, and yellow-poplar. Rhododendron commonly is dominant in the understory vegetation and may form thickets in some areas.

This map unit is associated with general soil map unit 10 (Mesic Siltstone and Phyllite: Junaluska-Tsali Soils).

Rd—Reddies-Dellwood complex, 0 to 5 percent slopes, frequently flooded

Setting

Elevation: 300 to 770 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Floodplain on mountains

Composition

Reddies soil and similar components: 45 percent
Dellwood soil and similar components: 35 percent
Minor soils: 20 percent

Properties and Qualities of the Reddies Soil

Available water capacity: Low (about 12.1 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: 61.0 to 107.0 centimeters
Water table (kind): Apparent
Ponding: None
Drainage class: Moderately well drained
Flooding: Frequent
Organic matter content in the surface layer: 3.0 to 8.0 percent
Parent material: Loamy alluvium over gravelly alluvium
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Fine sandy loam
Potential for surface runoff: Very low

Typical Profile of the Reddies Soil

0 to 36 centimeters; fine sandy loam
36 to 66 centimeters; fine sandy loam
66 to 152 centimeters; very gravelly sand

Interpretive Groups for the Reddies Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Dellwood Soil

Available water capacity: Very low (about 7.3 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: 61.0 to 122.0 centimeters
Water table (kind): Apparent
Ponding: None
Drainage class: Moderately well drained
Flooding: Frequent
Organic matter content in the surface layer: 3.0 to 8.0 percent
Parent material: Sandy and gravelly alluvium
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Cobbly loam
Potential for surface runoff: Low

Typical Profile of the Dellwood Soil

0 to 20 centimeters; cobbly loam
20 to 36 centimeters; extremely gravelly sand
36 to 152 centimeters; extremely gravelly coarse sand

Interpretive Groups for the Dellwood Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

This map unit is in landscape positions which are in shade much of the day. Because the map unit is shaded, a cooler, moister micro-climate is created. The Reddies and Dellwood soils stay frozen for long periods in winter and warm up later in spring than other soils at the same elevations. Flooding is frequent and of very brief duration. The seasonal high water table is more than 120 centimeters below the surface for the Reddies soil and from 60 to 120 centimeters below the surface for the Dellwood soil. In storm events, rainwater off the higher adjacent map units is concentrated into surface runoff, which causes overland flow in concave areas. This map unit is associated with streams. The gravel/cobble beds beneath these soils are good aquifers.

Included in mapping with the Reddies and Dellwood soils are small areas of contrasting Cullowhee, Rosman, and Wesser soils. Cullowhee soils are somewhat poorly drained. Wesser soils are poorly drained or very poorly drained. Cullowhee and Wesser soils are in old secondary channels blocked with debris. Rosman soils are on small knolls. Also included are soils similar to the Reddies and Dellwood soils which formed under rhododendron vegetation and have organic surface layers. These contrasting soils make up about 20 percent of the map unit.

This map unit has a dominant vegetative cover of floodplain hardwoods with some eastern hemlocks and pines. Floodplain hardwoods commonly have a very diverse tree cover type. However, some map units are dominated by a single species, such as yellow-poplar, depending on past management. Common tree species include basswood, beech, black birch, black cherry, black locust, black walnut, butternut, dogwood, elderberry, hawthorn, hemlock, honey locust, northern red oak, red maple, river birch, shortleaf pine, sugar maple, sweetgum, sycamore, white oak, white pine, witch hazel, yellow buckeye, and yellow-poplar. Rhododendron commonly is dominant in the understory vegetation and may form thickets in some areas. Some map units, in the Cataloochee and Cades Cove areas, have a dominant vegetative cover of introduced and maintained grasslands. In these areas, a thick fescue sod has developed for the most part. The fescue sod, over time, chokes out other grasses and forbs. In the wetter secondary channels, rushes and sedges are common.

This map unit is associated with general soil map unit 13 (Floodplains and Terraces: Rosman-Reddies-Dellwood Soils) and, to a limited extent, general soil map units 7 (Mesic Soft Metasandstone: Soco-Stecoah Soils) and 10 (Mesic Siltstone and Phyllite: Junaluska-Tsali Soils).

RpF—Rock outcrop-Pullback complex, 30 to 95 percent slopes, stony

Setting

Elevation: 1,280 to 2,030 meters
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1 to 13 degrees C
Frost-free period: 162 to 176 days
Landform: Ridge on mountains

Composition

Rock outcrop: 50 percent
Pullback soil and similar components: 30 percent
Minor soils: 20 percent

Interpretive Groups for Rock Outcrop

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Pullback Soil

Available water capacity: Very low (about 5.9 centimeters to a depth of 41 centimeters)
Depth to restrictive features: 25 to 51 centimeters to lithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 80.0 to 95.0 percent
Parent material: Loamy residuum weathered from metasedimentary sandstone
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Peat
Potential for surface runoff: Low

Typical Profile of the Pullback Soil

0 to 3 centimeters; peat

3 to 20 centimeters; sandy loam
20 to 41 centimeters; sandy loam
41 to 200 centimeters; unweathered bedrock

Interpretive Groups for the Pullback Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Due to the higher elevations, the climate in this map unit is severe compared to the region in general. It is cold, icy, and very windy in winter and rainy, foggy, and cool the rest of the year. The Pullback soil stays frozen for long periods in winter. It is well drained and allows water to move into and through the profile moderately rapidly. However, it has a limited water storage capacity due to the texture and the limited depth to bedrock. It occurs in locations with high amounts of rainfall. During periods of prolonged rain or snowmelt, temporary water tables form above the bedrock. These temporary water tables may last for a few hours or occasionally for a few days. The water tables are temporary because when the flow of water into the soils ends, the water tables drain in a short period of time. The water moves laterally over the bedrock downslope. At some point downslope, the water reaches the soil surface and forms seeps.

Included in mapping with the Rock outcrop and the Pullback soil are small areas of contrasting Luftee soils. Luftee soils formed over Anakeesta Slate bedrock. The Thunderhead Sandstone is interbedded with the Anakeesta Slate. Also included are boulder trains and small areas of seeps around the rock outcrops. The boulder trains have little or no fine-earth material on the surface but are covered in vegetation. The boulder trains are located in narrow drainageways. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

This map unit is dominantly rock outcrops. The parts of the map unit which are not rock outcrops have a vegetative cover of spruce/fir, northern hardwoods, or a mix of the two. Spruce/fir refers to red spruce and Fraser fir. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. The spruce/fir cover type is dominant above 1,645 meters in elevation. Northern hardwoods are dominant below 1,465 meters in elevation. Mixing of the two cover types occurs between these elevations.

The rock outcrops provide rare/unique habitats. These rock outcrops are in a micro-climate which is commonly very wet part of the time and dry other times. Water flows intermittently over part of the rock outcrops. The understory vegetation is often sparse, except where laurel forms small thickets. This map unit has a high number of downed trees due to the shallow soils.

This map unit is associated with general soil map unit 2 (Frigid Hard Sandstone: Breakneck-Pullback Soils).

RtF—Rock outcrop-Luftee complex, 30 to 95 percent slopes, very stony

Setting

Elevation: 1,280 to 2,030 meters
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1 to 13 degrees C
Frost-free period: 162 to 176 days
Landform: Ridge on mountains

Composition

Rock outcrop: 50 percent
Luftee soil and similar components: 30 percent
Minor soils: 20 percent

Interpretive Groups for Rock Outcrop

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Luftee Soil

Available water capacity: Low (about 14.1 centimeters to a depth of 86 centimeters)
Depth to restrictive features: 51 to 102 centimeters to lithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 10.0 to 15.0 percent
Parent material: Loamy residuum weathered from metasedimentary slate and phyllite
Permeability of soil profile: Rapid
Shrink-swell potential: Low
Surface layer texture: Very channery loam
Potential for surface runoff: Low

Typical Profile of the Luftee Soil

0 to 28 centimeters; very channery loam
28 to 51 centimeters; extremely channery loam
51 to 86 centimeters; extremely channery sandy loam
86 to 200 centimeters; unweathered bedrock

Interpretive Groups for the Luftee Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Due to the higher elevations, the climate in this map unit is severe compared to the region in general. It is cold, icy, and very windy in winter and rainy, foggy, and cool the rest of the year. The Luftee soil stays frozen for long periods in winter. It is well drained and allows water to move into and through the profile moderately rapidly. However, it has a limited water storage capacity due to the texture and the limited depth to bedrock. This soil occurs in locations with high amounts of rainfall. During periods of prolonged rain or snowmelt, this soil has temporary water tables above the bedrock. These temporary water tables may last for a few hours or occasionally for a few days. The water tables are temporary because when the flow of water into the soils ends, the water tables drain in a short period of time. The water moves laterally over the bedrock downslope. At some point downslope, the water reaches the soil surface and forms seeps.

Included in mapping with the Rock outcrop and the Luftee soil are small areas of contrasting Pullback soils. Pullback soils formed over Thunderhead Sandstone bedrock. The Anakeesta Slate is interbedded with the Thunderhead Sandstone. Also included are boulder trains and small areas of seeps around the rock outcrops. The boulder trains have little or no fine-earth material on the surface but are covered in vegetation. They are located in narrow drainageways. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

This map unit is dominantly rock outcrops. The parts of the map unit which are not rock outcrops have a vegetative cover of spruce/fir, northern hardwoods or a mix of the two. Spruce/fir refers to red spruce and Fraser fir. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. The spruce/fir cover type is dominant above 1,645 meters in elevation. Northern hardwoods are dominant below 1,465 meters in elevation. Mixing of the two cover types occurs between these elevations.

The rock outcrops provide rare/unique habitats. These rock outcrops are in a micro-climate which is commonly very wet part of the time and dry other times. Water flows intermittently over part of the rock outcrops. The understory vegetation is often sparse, except where laurel forms small thickets. This map unit has a high number of downed trees due to the shallow soils.

This map unit is associated with general soil map unit 1 (Frigid Anakeesta Slate: Luftee-Anakeesta Soils.

RuF—Rock outcrop-Unicoi complex, 30 to 95 percent slopes

Setting

Elevation: 300 to 1,220 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Ridge on mountains

Composition

Rock outcrop: 50 percent
Unicoi soil and similar components: 30 percent
Minor soils: 20 percent

Interpretive Groups for Rock Outcrop

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Unicoi Soil

Available water capacity: Very low (about 7.1 centimeters to a depth of 38 centimeters)
Depth to restrictive features: 18 to 51 centimeters to lithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Somewhat excessively drained
Flooding: None
Organic matter content in the surface layer: 3.0 to 10.0 percent
Parent material: Cobbly residuum and/or creep deposits derived from metasedimentary rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Loam
Potential for surface runoff: Low

Typical Profile of the Unicoi Soil

0 to 10 centimeters; loam

10 to 38 centimeters; cobbly loam
38 to 200 centimeters; unweathered bedrock

Interpretive Groups for the Unicoi Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

The Unicoi soil is well drained and allows water to move into and through the profile moderately rapidly. However, it has a limited water storage capacity due to the texture and the limited depth to bedrock. This soil occurs in locations with high amounts of rainfall. During periods of prolonged rain or snowmelt, it has temporary water tables above the bedrock. These temporary water tables may last for a few hours or occasionally for a few days. The water tables are temporary because when the flow of water into the soils ends, the water tables drain in a short period of time. The water moves laterally over the bedrock downslope. At some point downslope, the water reaches the soil surface and forms seeps.

Included in mapping with the Rock outcrop and the Unicoi soil are small areas of contrasting Cataska soils. Cataska soils formed over Anakeesta Slate bedrock. The Thunderhead Sandstone is interbedded with the Anakeesta Slate. Also included are boulder trains and small areas of seeps around the rock outcrops. The boulder trains have little or no fine-earth material on the surface but are covered in vegetation. They are located in narrow drainageways. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

This map unit is dominantly rock outcrops. The parts of the map unit which are not rock outcrops have a vegetative cover of oak, hickory, and yellow pine. Oak, hickory, and yellow pine refer to such trees as black oak, scarlet oak, chestnut oak, bitternut hickory, mockernut hickory, pignut hickory, shortleaf pine, Virginia pine, and pitch pine. North- and east-facing head slopes are mixed with cooler trees species, such as yellow-poplar, black birch, and/or hemlock.

The rock outcrops provide rare/unique habitats. They are in a micro-climate which is commonly very wet part of the time and dry other times. Water flows intermittently over part of the rock outcrops. The understory vegetation is often sparse, except where laurel forms small thickets. This map unit has a high number of downed trees due to the shallow soils.

This map unit is associated with general soil map unit 6 (Mesic Hard Metasandstone: Ditney-Unicoi Soils) and, to a limited extent, general soil map unit 7 (Mesic Soft Metasandstone: Soco-Stecoah Soils).

Rv—Rosman-Reddies complex, 0 to 5 percent slopes, frequently flooded

Setting

Elevation: 300 to 770 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Floodplain on mountains

Composition

Rosman soil and similar components: 50 percent

Reddies soil and similar components: 30 percent
Minor soils: 20 percent

Properties and Qualities of the Rosman Soil

Available water capacity: Very high (about 34.9 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: 100.0 to 152.0 centimeters
Water table (kind): Apparent
Ponding: None
Drainage class: Moderately well drained
Flooding: Frequent
Organic matter content in the surface layer: 2.0 to 10.0 percent
Parent material: Loamy alluvium
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Silt loam
Potential for surface runoff: Very low

Typical Profile of the Rosman Soil

0 to 30 centimeters; silt loam
30 to 54 centimeters; loam
54 to 107 centimeters; fine sandy loam
107 to 175 centimeters; fine sandy loam

Interpretive Groups for the Rosman Soil

Prime farmland: Prime farmland if protected from flooding or not frequently flooded during the growing season
Hydric soil: No

Properties and Qualities of the Reddies Soil

Available water capacity: Low (about 12.1 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: 61.0 to 107.0 centimeters
Water table (kind): Apparent
Ponding: None
Drainage class: Moderately well drained
Flooding: Frequent
Organic matter content in the surface layer: 3.0 to 8.0 percent
Parent material: Loamy alluvium over gravelly alluvium
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Fine sandy loam
Potential for surface runoff: Very low

Typical Profile of the Reddies Soil

0 to 36 centimeters; fine sandy loam
36 to 66 centimeters; fine sandy loam
66 to 152 centimeters; very gravelly sand

Interpretive Groups for the Reddies Soil

Prime farmland: Prime farmland if protected from flooding or not frequently flooded during the growing season
Hydric soil: No

Use and Management

This map unit is in landscape positions which are in shade much of the day. Because the map unit is shaded, a cooler, moister micro-climate is created. The Rosman and Reddies soils stay frozen for long periods in winter and warm up later in spring than other soils at the same elevations. Flooding is frequent and of very brief duration. This map unit has been in grassland for decades with low levels of traffic from livestock and machinery. Therefore, it has surface layers with low bulk densities. The seasonal high water table is more than 120 centimeters below the surface. In storm events, rainwater off the higher adjacent map units is concentrated into surface runoff, which causes overland flow in concave areas. This map unit is associated with streams. The gravel/cobble beds beneath these soils are good aquifers.

Included in mapping with the Rosman and Reddies soils are small areas of contrasting Cullowhee, Ela, and Statler soils. Cullowhee soils are moderately well drained. Ela soils are poorly drained or very poorly drained. Cullowhee and Ela soils are in old secondary channels blocked with debris. Statler soils are rarely flooded and are on small knolls. Also included are soils similar to the Rosman and Reddies soils which formed under rhododendron vegetation and have organic surface layers. These contrasting soils make up about 20 percent of the map unit.

This map unit is dominantly in vegetative cover of introduced and maintained grasslands. In many areas, a thick fescue sod has developed. The fescue sod, over time, chokes out other grasses and forbs. Some map units have a vegetative cover of floodplain hardwoods with some eastern hemlocks and pines. Floodplain hardwoods commonly have a very diverse tree cover type. However, some map units are dominated by a single species, such as yellow-poplar, depending on past management. Common tree species include basswood, beech, black birch, black cherry, black locust, black walnut, butternut, dogwood, elderberry, hawthorn, hemlock, honey locust, northern red oak, red maple, river birch, shortleaf pine, sugar maple, sweetgum, sycamore, white oak, white pine, witch hazel, yellow buckeye, and yellow-poplar. Rhododendron commonly is dominant in the understory vegetation and may form thickets in some areas.

The Cataloochee and Cades Cove areas have a dominant vegetative cover of introduced and maintained grasslands. In these areas, a thick fescue sod has developed for the most part. The fescue sod, over time, chokes out other grasses and forbs. In the wetter secondary channels, rushes and sedges are common.

This map unit is associated with general soil map units 13 (Floodplains and Terraces: Rosman-Reddies-Dellwood Soils) and 14 (Cades Cove: Lonon, Cades-Allegheny-Rosman Soils) and, to a limited extent, general soil map unit 7 (Mesic Soft Metasandstone: Soco-Stecoah Soils).

Rw—Rosman-Reddies-Urban land complex, 0 to 5 percent slopes, occasionally flooded

Setting

Elevation: 300 to 770 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Floodplain on mountains

Composition

Rosman soil and similar components: 40 percent

Reddies soil and similar components: 30 percent
Urban land: 15 percent
Minor soils: 15 percent

Properties and Qualities of the Rosman Soil

Available water capacity: Very high (about 34.9 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: 100.0 to 152.0 centimeters
Water table (kind): Apparent
Ponding: None
Drainage class: Moderately well drained
Flooding: Occasional
Organic matter content in the surface layer: 2.0 to 10.0 percent
Parent material: Loamy alluvium
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Silt loam
Potential for surface runoff: Very low

Typical Profile of the Rosman Soil

0 to 30 centimeters; silt loam
30 to 54 centimeters; loam
54 to 107 centimeters; fine sandy loam
107 to 175 centimeters; fine sandy loam

Interpretive Groups for the Rosman Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Reddies Soil

Available water capacity: Low (about 12.1 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: 61.0 to 107.0 centimeters
Water table (kind): Apparent
Ponding: None
Drainage class: Moderately well drained
Flooding: Occasional
Organic matter content in the surface layer: 3.0 to 8.0 percent
Parent material: Loamy alluvium over gravelly alluvium
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Fine sandy loam
Potential for surface runoff: Very low

Typical Profile of the Reddies Soil

0 to 36 centimeters; fine sandy loam
36 to 66 centimeters; fine sandy loam
66 to 152 centimeters; very gravelly sand

Interpretive Groups for the Reddies Soil

Prime farmland: Not prime farmland
Hydric soil: No

Interpretive Groups for Urban land

Prime farmland: Not prime farmland
Hydric soil: Not rated

Use and Management of the Rosman and Reddies Soils

In storm events, rainwater off the higher adjacent map units is concentrated into surface runoff, which causes overland flow in concave areas. This map unit is associated with streams. The gravel/cobble beds beneath the Rosman and Reddies soils are good aquifers.

Included in mapping with Rosman and Reddies soils are small areas of contrasting Cullowhee, Ela, and Statler soils. Cullowhee soils are moderately well drained. Ela soils are poorly drained or very poorly drained. Cullowhee and Ela soils are in old secondary channels blocked with debris. Statler soils are rarely flooded and are on small knolls. The contrasting soils make up about 15 percent of the map unit.

Most areas of this map unit are in an introduced sod vegetative cover. However, where there is forest cover, the common trees species include basswood, beech, black birch, black cherry, black locust, black walnut, butternut, dogwood, elderberry, hawthorn, hemlock, honey locust, northern red oak, red maple, river birch, shortleaf pine, sugar maple, sweetgum, sycamore, white oak, white pine, witch hazel, yellow buckeye, and yellow-poplar.

This map unit is associated with general soil map unit 13 (Floodplains and Terraces: Rosman-Reddies-Dellwood Soils).

RxF—Rubble land-Spivey complex, 50 to 95 percent slopes, extremely bouldery

Setting

Elevation: 458 to 1,280 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Drainageway on mountains

Composition

Rubble land: 50 percent
Spivey soil and similar components: 30 percent
Minor soils: 20 percent

Interpretive Groups for Rubble Land

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Spivey Soil

Available water capacity: Low (about 10.6 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 5.0 to 10.0 percent
Parent material: Cobbly or stony colluvium derived from metasedimentary rock
Permeability of soil profile: Rapid

Shrink-swell potential: Low
Surface layer texture: Very bouldery sandy loam
Potential for surface runoff: Low

Typical Profile of the Spivey Soil

0 to 33 centimeters; very bouldery sandy loam
33 to 114 centimeters; very bouldery fine sandy loam
114 to 122 centimeters; extremely bouldery sandy loam

Interpretive Groups for the Spivey Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

This map unit is in landscape positions which are in shade much of the day. Because the map unit is shaded, a cooler, moister micro-climate is created. These areas of Rubble land and the Spivey soil stay frozen for long periods in winter and warm up later in spring than other soils at the same elevations. The seasonal high water table is more than 200 centimeters below the surface. In storm events, rainwater off the adjacent uplands is concentrated into surface runoff, which causes overland flow in concave areas. Small streams and springs are common in this map unit. Areas of this map unit are well drained and do not have water tables in the soil profile. However, the colluvial material beneath the soil is a good aquifer. The water in the colluvium moves laterally downslope. At some point downslope, the water reaches the soil surface and forms springs. The springs in turn add to the flow of the streams.

Included in mapping with the Rubble land and the Spivey soil are small areas of contrasting Soco, Stecoah, and Cheoah soils. Soco and Stecoah soils formed in saprolite on south- to west-facing slopes and have thinner or lighter colored surface layers. Soco soils are also moderately deep to weathered bedrock. Cheoah soils formed in saprolite on north- to east-facing slopes. Also included are small areas of moderately well drained or somewhat poorly drained soils around seeps and springs. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

Soils similar to the Spivey soil are also included in this map unit. These soils have dark surface layers less than 25 centimeters thick or more than 50 centimeters thick. Soils with surface layers less than 25 centimeters thick are in convex areas facing south to west. Soils with surface layers more than 50 centimeters thick are in areas facing north to east.

This map unit has a dominant vegetative cover of yellow-poplar mixed with a variety of other tree species such as basswood, black birch, black cherry, eastern hemlock, northern red oak, sugar maple, white pine, and/or yellow buckeye. The yellow-poplar cover type gives way to northern hardwoods above 1,150 meters in elevation. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. Rhododendron commonly is dominant in the understory vegetation and may form thickets in some areas.

This map unit is associated with general soil map unit 7 (Mesic Soft Metasandstone: Soco-Stecoah Soils) and, to a limited extent, general soil map unit 6 (Mesic Hard Metasandstone: Ditney-Unicoi Soils).

RZ—Rubble land, 30 to 95 percent slopes

Setting

Elevation: 900 to 2,030 meters

Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1 to 13 degrees C
Frost-free period: 162 to 176 days
Landform: Mountainside on mountains

Composition

Rubble land: 80 percent
Minor soils: 20 percent

Interpretive Groups

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

The colluvial material beneath this map unit is a good aquifer. The water in the colluvium moves laterally downslope. At some point downslope, the water reaches the soil surface and forms springs. The springs in turn add to the flow of the streams.

Included in mapping with the Rubble land are small areas of contrasting Spivey soils. Spivey soils have more than 35 percent coarse fragments, by volume, with the remaining material being fine earth. These soils occur on small knolls. Also included are small areas of seeps and springs in the drainageways. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

This map unit has a dominant vegetative cover of yellow-poplar mixed with a variety of other tree species such as basswood, black birch, black cherry, eastern hemlock, northern red oak, sugar maple, white pine, and/or yellow buckeye. The yellow-poplar cover type gives way to northern hardwoods above 1,150 meters in elevation. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. Rhododendron commonly is dominant in the understory vegetation and may form thickets in some areas.

This map unit is associated with general soil map units 2 (Frigid Hard Sandstone: Breakneck-Pullback Soils) and 6 (Mesic Hard Metasandstone: Ditney-Unicoi Soils).

SaD—Saunook loam, 15 to 30 percent slopes, stony

Setting

Elevation: 458 to 1,280 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Fan on mountains

Composition

Saunook soil and similar components: 80 percent
Minor soils: 20 percent

Soil Properties and Qualities

Available water capacity: Moderate (about 20.6 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None

Organic matter content in the surface layer: 3.0 to 10.0 percent
Parent material: Loamy colluvium derived from igneous and metamorphic rock
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Loam
Potential for surface runoff: Low

Typical Profile

0 to 23 centimeters; loam
23 to 71 centimeters; loam
71 to 86 centimeters; cobbly loam
86 to 165 centimeters; cobbly sandy loam

Interpretive Groups

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

In storm events, rainwater off the adjacent uplands is concentrated into surface runoff, which causes overland flow in concave areas. Small streams and springs are common in this map unit. The Saunook soil is well drained and does not have a water table in the soil profile. However, the colluvial material beneath the soil is a good aquifer. The water in the colluvium moves laterally downslope. At some point downslope, the water reaches the soil surface and forms springs. The springs in turn add to the flow of the streams.

Included in mapping with the Saunook soil are small areas of contrasting Evard soils. Evard soils formed in residuum and are on the upslope margins of map units. Also included are small areas of seeps and springs. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

This map unit has a dominant vegetative cover of yellow-poplar mixed with a variety of other species such as basswood, black birch, black cherry, eastern hemlock, northern red oak, white pine, and/or yellow buckeye. Species from the adjacent uplands may also mix with the yellow-poplar. These species include white oak, black oak, mockernut hickory, shagbark hickory, black locust, and shortleaf pine.

This map unit is associated with general soil map unit 8 (Mesic Gneiss: Evard-Cowee Soils).

SdC—Saunook-Urban land complex, 8 to 15 percent slopes, stony

Setting

Elevation: 458 to 1,280 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Fan on mountains

Composition

Saunook soil and similar components: 60 percent
Urban land: 20 percent
Minor soils: 20 percent

Properties and Qualities of the Saunook Soil

Available water capacity: Moderate (about 20.6 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 3.0 to 10.0 percent
Parent material: Loamy colluvium derived from igneous and metamorphic rock
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Loam
Potential for surface runoff: Low

Typical Profile of the Saunook Soil

0 to 23 centimeters; loam
23 to 71 centimeters; loam
71 to 86 centimeters; cobbly loam
86 to 165 centimeters; cobbly sandy loam

Interpretive Groups for the Saunook Soil

Prime farmland: Not prime farmland
Hydric soil: No

Interpretive Groups for Urban Land

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management of the Saunook Soil

This map unit is in landscape positions which are in shade much of the day. Because the map unit is shaded, a cooler, moister micro-climate is created. The Saunook soil stays frozen for long periods in winter and warms up later in spring than other soils at the same elevations. Flooding is occasional and of very brief duration. The seasonal high water table for the Saunook soil is greater than 150 centimeters below the soil surface. In storm events, rainwater off the adjacent uplands is concentrated into surface runoff, which causes overland flow in concave areas. Small streams and springs are common in this map unit. The Saunook soil is well drained and does not have a water table in the soil profile. However, the colluvial material beneath the soil is a good aquifer. The water in the colluvium moves laterally downslope. At some point downslope, the water reaches the soil surface and forms springs. The springs in turn add to the flow of the streams.

Included in mapping with the Saunook soil are small areas of contrasting Evard soils. Evard soils formed in residuum and are on the upslope margins of map units. Also included are small areas of seeps and springs. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

This map unit has a dominant vegetative cover of yellow-poplar mixed with a variety of other species such as basswood, black birch, black cherry, eastern hemlock, northern red oak, white pine, and/or yellow buckeye. Species from the adjacent uplands may also mix with the yellow-poplar. These species include white oak, black oak, mockernut hickory, shagbark hickory, black locust, and shortleaf pine.

This map unit is associated with general soil map unit 8 (Mesic Gneiss: Evard-Cowee Soils).

Sl—Slide area

Setting

Frost-free period: 162 to 176 days
Landform: Landslide on mountains

Composition

Slide area: 100 percent

Interpretive Groups

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

This map unit consists of the exposed rock face and subsequent downslope talus cause by catastrophic landslides on steep mountain slopes. Slide faces are nearly absent of vegetation. The talus has some ground cover, but the canopy has not formed. This map unit commonly occurs in areas underlain by the Anakeesta Slate Formation. However, slide areas can be induced on many of the geologic formations in the survey area by poor road design and installation. This map unit ranges in size from 1 to 26 hectares.

This map unit is associated with general soil map units 1 (Frigid Anakeesta Slate: Luftee-Anakeesta Soils) and 2 (Frigid Hard Sandstone: Breakneck-Pullback Soils).

SnF—Snowbird loam, 30 to 95 percent slopes, stony

Setting

Elevation: 458 to 1,280 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Mountainside on mountains

Composition

Snowbird soil and similar components: 80 percent
Minor soils: 20 percent

Soil Properties and Qualities

Available water capacity: High (about 23.0 centimeters to a depth of 138 centimeters)
Depth to restrictive features: 102 to 152 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 5.0 to 10.0 percent
Parent material: Loamy residuum weathered from soft metasedimentary sandstone and siltstone
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Loam
Potential for surface runoff: Low

Typical Profile

0 to 15 centimeters; loam
15 to 23 centimeters; sandy clay loam
23 to 95 centimeters; sandy clay loam
95 to 138 centimeters; very gravelly fine sandy loam
138 to 167 centimeters; weathered bedrock

Interpretive Groups

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

This map unit is in landscape positions which are in shade much of the day. Because the map unit is shaded, a cooler, moister micro-climate is created. The Snowbird soil stays frozen for long periods in winter and warms up later in spring than other soils at the same elevations. This map unit commonly occurs on head slopes. Head slopes are concave, perpendicular, and parallel to the slope. Because of the shape, this map unit concentrates the flow of water to drainageways. The drainageways are small areas of colluvial material within the map unit. These areas are good aquifers. The water in the colluvium moves laterally downslope. At some point downslope, the water reaches the soil surface and forms springs. These springs often form small streams.

Included in mapping with the Snowbird soil are small areas of contrasting Junaluska, Brasstown, Tsali, and Santeetlah soils. Junaluska, Brasstown, and Tsali soils are on south- to west-facing slopes and have surface layers that are thinner or lighter in color. Junaluska soils are also moderately deep, and Tsali soils are shallow to weathered bedrock. Santeetlah soils are in drainageways. Small areas of rock outcrop are near the ridgetop in some map units. Seepage areas are commonly associated with these rock outcrops. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

Soils similar to the Snowbird soil are also included in this map unit. These soils have dark surface layers more than 25 centimeters thick. Some areas have more rocks on the surface.

This map unit has a dominant vegetative cover of yellow-poplar mixed with a variety of other species such as basswood, black birch, black cherry, eastern hemlock, northern red oak, white pine, and/or yellow buckeye. The yellow-poplar cover type gives way to northern hardwoods above 1,150 meters in elevation. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. Rhododendron commonly is dominant in the understory vegetation and may form thickets in some areas.

This map unit is associated with general soil map units 7 (Mesic Soft Metasandstone: Soco-Stecoah Soils) and 10 (Mesic Siltstone and Phyllite: Junaluska-Tsali Soils).

SoD—Soco-Stecoah complex, 15 to 30 percent slopes, stony

Setting

Elevation: 301 to 1,280 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C

Frost-free period: 162 to 176 days
Landform: Ridge on mountains

Composition

Soco soil and similar components: 50 percent
Stecoah soil and similar components: 35 percent
Minor soils: 15 percent

Properties and Qualities of the Soco Soil

Available water capacity: Low (about 13.6 centimeters to a depth of 94 centimeters)
Depth to restrictive features: 51 to 102 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 8.0 percent
Parent material: Loamy residuum and/or creep deposits derived from metasedimentary rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Channery loam
Potential for surface runoff: Low

Typical Profile of the Soco Soil

0 to 15 centimeters; channery loam
15 to 66 centimeters; fine sandy loam
66 to 94 centimeters; channery fine sandy loam
94 to 158 centimeters; weathered bedrock

Interpretive Groups for the Soco Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Stecoah Soil

Available water capacity: Moderate (about 17.2 centimeters to a depth of 127 centimeters)
Depth to restrictive features: 102 to 152 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 8.0 percent
Parent material: Loamy residuum and/or creep deposits derived from metasedimentary rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Channery loam
Potential for surface runoff: Low

Typical Profile of the Stecoah Soil

0 to 10 centimeters; channery loam
10 to 71 centimeters; channery loam
71 to 127 centimeters; channery loam
127 to 157 centimeters; weathered bedrock

Interpretive Groups for the Stecoah Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Included in mapping with the Soco and Stecoah soils are small areas of contrasting Cheoah soils. Cheoah soils have thick dark surface layers and are on north- to east-facing head slopes. Included are soils similar to the Soco and Stecoah soils which formed under laurel vegetation and have organic surface layers. Also included are small areas of seeps and springs and small areas which are very stony or extremely stony. These contrasting soils and miscellaneous areas make up about 15 percent of this map unit.

Soils similar to the Soco and Stecoah soils are also included in this map unit. These soils have more rock fragments on the surface and/or redder subsoils.

This map unit has a dominant vegetative cover of oak, hickory, and yellow pine. Oak, hickory, and yellow pine generally refer to such trees as black oak, scarlet oak, chestnut oak, bitternut hickory, mockernut hickory, pignut hickory, shortleaf pine, Virginia pine, and pitch pine. Some map units may also have tree species such as northern red oak, white oak, shagbark hickory, white ash, and/or white pine.

This map unit is associated with general soil map units 7 (Mesic Soft Metasandstone: Soco-Stecoah Soils) and 10 (Mesic Siltstone and Phyllite: Junaluska-Tsali Soils).

SoF—Soco-Stecoah complex, 30 to 95 percent slopes, stony

Setting

Elevation: 301 to 1,280 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Mountainside on mountains

Composition

Soco soil and similar components: 50 percent
Stecoah soil and similar components: 30 percent
Minor soils: 20 percent

Properties and Qualities of the Soco Soil

Available water capacity: Low (about 13.6 centimeters to a depth of 94 centimeters)
Depth to restrictive features: 51 to 102 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 8.0 percent
Parent material: Loamy residuum and/or creep deposits derived from metasedimentary rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Channery loam
Potential for surface runoff: Low

Typical Profile of the Soco Soil

0 to 15 centimeters; channery loam
15 to 66 centimeters; fine sandy loam
66 to 94 centimeters; channery fine sandy loam
94 to 158 centimeters; weathered bedrock

Interpretive Groups for the Soco Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Stecoah Soil

Available water capacity: Moderate (about 17.2 centimeters to a depth of 127 centimeters)
Depth to restrictive features: 102 to 152 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 8.0 percent
Parent material: Loamy residuum and/or creep deposits derived from metasedimentary rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Channery loam
Potential for surface runoff: Low

Typical Profile of the Stecoah Soil

0 to 10 centimeters; channery loam
10 to 71 centimeters; channery loam
71 to 127 centimeters; channery loam
127 to 157 centimeters; weathered bedrock

Interpretive Groups for the Stecoah Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Included in mapping with the Soco and Stecoah soils are small areas of contrasting Cheoah, Santeetlah, and Spivey soils. Cheoah soils have a thick dark surface layer and are on north- to east-facing slopes. Santeetlah and Spivey soils are in drainageways, have thick dark surface layers, and are very deep. Spivey soils also have more than 35 percent rock fragments in the subsoil. Included are soils similar to the Soco and Stecoah soils which formed under laurel vegetation and have organic surface layers. Also included are small areas of seeps and springs and small areas which are very stony or extremely stony. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

Soils similar to the Soco and Stecoah soils are also included in this map unit. These soils have more rocks on the surface or redder subsoils.

This map unit has a dominant vegetative cover of oak, hickory, and yellow pine. Oak, hickory, and yellow pine generally refer to such trees as black oak, scarlet oak, chestnut oak, bitternut hickory, mockernut hickory, pignut hickory, shortleaf pine, Virginia pine, and pitch pine. Some map units may also have tree species such as northern red oak, white oak, shagbark hickory, white ash, and/or white pine.

This map unit is associated with general soil map units 7 (Mesic Soft

Metasandstone: Soco-Stecoah Soils), 10 (Mesic Siltstone and Phyllite: Junaluska-Tsali Soils), and 15 (Mesic Copperhill Sandstone/Slate Rolling Hill Phase: Junaluska-Brasstown-Soco Soils).

SpD—Soco-Stecoah complex, 15 to 30 percent slopes, stony, windswept

Setting

Elevation: 301 to 1,280 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Ridge on mountains

Composition

Soco soil and similar components: 50 percent
Stecoah soil and similar components: 30 percent
Minor soils: 20 percent

Properties and Qualities of the Soco Soil

Available water capacity: Low (about 13.6 centimeters to a depth of 94 centimeters)
Depth to restrictive features: 51 to 102 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 8.0 percent
Parent material: Loamy residuum and/or creep deposits derived from metasedimentary rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Channery loam
Potential for surface runoff: Low

Typical Profile of the Soco Soil

0 to 15 centimeters; channery loam
15 to 66 centimeters; fine sandy loam
66 to 94 centimeters; channery fine sandy loam
94 to 158 centimeters; weathered bedrock

Interpretive Groups for the Soco Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Stecoah Soil

Available water capacity: Moderate (about 17.2 centimeters to a depth of 127 centimeters)
Depth to restrictive features: 102 to 152 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained

Flooding: None
Organic matter content in the surface layer: 1.0 to 8.0 percent
Parent material: Loamy residuum and/or creep deposits derived from metasedimentary rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Channery loam
Potential for surface runoff: Low

Typical Profile of the Stecoah Soil

0 to 10 centimeters; channery loam
10 to 71 centimeters; channery loam
71 to 127 centimeters; channery loam
127 to 157 centimeters; weathered bedrock

Interpretive Groups for the Stecoah Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

This map unit is in landscape positions that receive high winds. The high winds combine with ice to cause damage to the tops of the trees. This micro-climate produces a forest cover which is stunted by the wind and ice damage.

Included in mapping with the Soco and Stecoah soils are small areas of contrasting Cheoah soils. Cheoah soils have a thick dark surface layer and are on north- to east-facing head slopes. Included are soils similar to the Soco and Stecoah soils which formed under laurel vegetation and have organic surface layers. Also included are small areas of seeps and springs and small areas which are very stony or extremely stony. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

Soils similar to the Soco and Stecoah soils are also included in this map unit. These soils have more rocks on the surface or redder subsoils.

This map unit has a dominant vegetative cover of oak, hickory, and yellow pine. Oak, hickory, and yellow pine generally refer to such trees as black oak, scarlet oak, chestnut oak, bitternut hickory, mockernut hickory, pignut hickory, shortleaf pine, Virginia pine, and pitch pine. Some map units may also have tree species such as northern red oak, white oak, shagbark hickory, white ash, and/or white pine.

The tree growth is stunted by the high winds and ice damage. The poor tree growth is a function of climate. The understory vegetation is often sparse, except where laurel forms small thickets. This map unit has a high amount of downed tree tops because of the ice and wind damage.

This map unit is associated with general soil map unit 7 (Mesic Soft Metasandstone: Soco-Stecoah Soils).

SpF—Soco-Stecoah complex, 30 to 95 percent slopes, stony, windswept

Setting

Elevation: 301 to 1,280 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C

Frost-free period: 162 to 176 days
Landform: Mountainside on mountains

Composition

Soco soil and similar components: 50 percent
Stecoah soil and similar components: 30 percent
Minor soils: 20 percent

Properties and Qualities of the Soco Soil

Available water capacity: Low (about 13.6 centimeters to a depth of 94 centimeters)
Depth to restrictive features: 51 to 102 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 8.0 percent
Parent material: Loamy residuum and/or creep deposits derived from metasedimentary rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Channery loam
Potential for surface runoff: Low

Typical Profile of the Soco Soil

0 to 15 centimeters; channery loam
15 to 66 centimeters; fine sandy loam
66 to 94 centimeters; channery fine sandy loam
94 to 158 centimeters; weathered bedrock

Interpretive Groups for the Soco Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Stecoah Soil

Available water capacity: Moderate (about 17.2 centimeters to a depth of 127 centimeters)
Depth to restrictive features: 102 to 152 centimeters to paralithic bedrock
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 8.0 percent
Parent material: Loamy residuum and/or creep deposits derived from metasedimentary rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Channery loam
Potential for surface runoff: Low

Typical Profile of the Stecoah Soil

0 to 10 centimeters; channery loam
10 to 71 centimeters; channery loam
71 to 127 centimeters; channery loam
127 to 157 centimeters; weathered bedrock

Interpretive Groups for the Stecoah Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

This map unit is in landscape positions that receive high winds. The high winds combine with ice to cause damage to the tops of the trees. This micro-climate produces a forest cover which is stunted by the wind and ice damage.

Included in mapping with the Soco and Stecoah soils are small areas of contrasting Cheoah, Santeetlah, and Spivey soils. Cheoah soils have a thick dark surface layer and are on north- to east-facing slopes. Santeetlah and Spivey soils are in drainageways, have thick dark surface layers, and are very deep. Spivey soils also have more than 35 percent rock fragments in the subsoil. Included are soils similar to the Soco and Stecoah soils which formed under laurel vegetation and have organic surface layers. Also included are small areas of seeps and springs and small areas which are very stony or extremely stony. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

Soils similar to the Soco and Stecoah soils are also included in this map unit. These soils have more rocks on the surface or redder subsoils.

This map unit has a dominant vegetative cover of oak, hickory, and yellow pine. Oak, hickory, and yellow pine generally refer to such trees as black oak, scarlet oak, chestnut oak, bitternut hickory, mockernut hickory, pignut hickory, shortleaf pine, Virginia pine, and pitch pine. Some map units may also have tree species such as northern red oak, white oak, shagbark hickory, white ash, and/or white pine.

The tree growth is stunted in this map unit by the high winds and ice damage. The poor tree growth is a function of climate. The understory vegetation is often sparse, except where laurel forms small thickets. This map unit has a high amount of downed tree tops because of the ice and wind damage.

This map unit is associated with general soil map unit 7 (Mesic Soft Metasandstone: Soco-Stecoah Soils).

SsB—Spivey-Santeetlah-Nowhere complex, 2 to 8 percent slopes, very stony

Setting

Elevation: 458 to 1,280 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Cove on mountains

Composition

Spivey soil and similar components: 50 percent
Santeetlah soil and similar components: 25 percent
Nowhere soil and similar components: 15 percent
Minor soils: 10 percent

Properties and Qualities of the Spivey Soil

Available water capacity: Low (about 10.6 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None

Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 5.0 to 10.0 percent
Parent material: Cobbly or stony colluvium derived from metasedimentary rock
Permeability of soil profile: Rapid
Shrink-swell potential: Low
Surface layer texture: Very bouldery sandy loam
Potential for surface runoff: Low

Typical Profile of the Spivey Soil

0 to 33 centimeters; very bouldery sandy loam
33 to 114 centimeters; very bouldery fine sandy loam
114 to 122 centimeters; extremely bouldery sandy loam

Interpretive Groups for the Spivey Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Santeetlah Soil

Available water capacity: High (about 25.3 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 5.0 to 10.0 percent
Parent material: Loamy colluvium derived from metasedimentary sandstone, slate, and phyllite
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Loam
Potential for surface runoff: Low

Typical Profile of the Santeetlah Soil

0 to 43 centimeters; loam
43 to 99 centimeters; loam
99 to 124 centimeters; channery loam
124 to 165 centimeters; very channery loam

Interpretive Groups for the Santeetlah Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Nowhere Soil

Available water capacity: Moderate (about 16.0 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: 15.0 to 40.0 centimeters
Water table (kind): Apparent
Ponding: Brief
Depth of ponding: 2.0 to 6.0 centimeters
Drainage class: Poorly drained
Flooding: None
Organic matter content in the surface layer: 2.0 to 10.0 percent

Parent material: Cobbly colluvium derived from metasedimentary rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Very cobbly fine sandy loam
Potential for surface runoff: Low

Typical Profile of the Nowhere Soil

0 to 41 centimeters; very cobbly fine sandy loam
41 to 71 centimeters; extremely cobbly fine sandy loam
71 to 158 centimeters; extremely cobbly fine sandy loam

Interpretive Groups for the Nowhere Soil

Prime farmland: Not prime farmland
Hydric soil: Yes

Use and Management

This map unit is in landscape positions which are in shade much of the day. Because the map unit is shaded, a cooler, moister micro-climate is created. These Spivey, Santeetlah, and Nowhere soils stay frozen for long periods in winter and warm up later in spring than other soils at the same elevations. The seasonal high water table is more than 200 centimeters below the surface in areas of the Spivey and Santeetlah soils. It can reach the surface in areas of the Nowhere soil. In storm events, rainwater off the adjacent uplands is concentrated into surface runoff, which causes overland flow in concave areas. Small streams and springs are common in this map unit. The colluvial material beneath these soils is a good aquifer. The water in the colluvium moves laterally downslope. At some point downslope, the water reaches the soil surface and forms springs. The springs in turn add to the flow of the streams. The Nowhere soil is located near the springs.

Included in mapping with the Spivey, Santeetlah, and Nowhere soils are small areas of contrasting Dellwood, Potomac, and Smokemont soils. Dellwood and Smokemont soils are shallow to strata containing more than 35 percent, by volume, gravel, cobbles, and stones. Dellwood soils frequently flood and are moderately well drained. Smokemont soils flood occasionally and are well drained. Dellwood and Smokemont soils occur on small floodplains along the streams. Potomac soils are frequently flooded and have strata containing more than 35 percent, by volume, gravel, cobbles, and stones. Potomac soils commonly occur on small islands in the streams. Also included are soils similar to the Spivey, Santeetlah, and Nowhere soils which formed under rhododendron vegetation and have organic surface layers and small areas of rubble land. Springs and seeps are also common in some map units. The contrasting soils and miscellaneous areas make up about 10 percent of this map unit.

Soils similar to the Spivey and Santeetlah soils are also included in this map unit. These soils have dark surface layers less than 25 centimeters thick or more than 50 centimeters thick. Soils with surface layers less than 25 centimeters thick are in convex areas facing south to west. Soils with surface layers more than 50 centimeters thick are in areas facing north to east.

This map unit has a dominant vegetative cover of yellow-poplar mixed with a variety of other tree species such as basswood, black birch, black cherry, eastern hemlock, northern red oak, sugar maple, white pine, and/or yellow buckeye. The yellow-poplar cover type gives way to northern hardwoods above 1,150 meters in elevation. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. Rhododendron commonly is dominant in the understory vegetation and may form thickets in some areas.

This map unit is associated with general soil map units 7 (Mesic Soft

Metasandstone: Soco-Stecoah Soils), 10 (Mesic Siltstone and Phyllite: Junaluska-Tsali Soils), and 11 (Large Basins of Colluvium: Spivey-Santeetlah Soils).

SsC—Spivey-Santeetlah-Nowhere complex, 8 to 15 percent slopes, very stony

Setting

Elevation: 458 to 1,280 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Cove on mountains

Composition

Spivey soil and similar components: 50 percent
Santeetlah soil and similar components: 25 percent
Nowhere soil and similar components: 15 percent
Minor soils: 10 percent

Properties and Qualities of the Spivey Soil

Available water capacity: Low (about 10.6 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 5.0 to 10.0 percent
Parent material: Cobbly or stony colluvium derived from metasedimentary rock
Permeability of soil profile: Rapid
Shrink-swell potential: Low
Surface layer texture: Very bouldery sandy loam
Potential for surface runoff: Low

Typical Profile of the Spivey Soil

0 to 33 centimeters; very bouldery sandy loam
33 to 114 centimeters; very bouldery fine sandy loam
114 to 122 centimeters; extremely bouldery sandy loam

Interpretive Groups for the Spivey Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Santeetlah Soil

Available water capacity: High (about 25.3 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 5.0 to 10.0 percent
Parent material: Loamy colluvium derived from metasedimentary sandstone, slate, and phyllite

Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Loam
Potential for surface runoff: Low

Typical Profile of the Santeetlah Soil

0 to 43 centimeters; loam
43 to 99 centimeters; loam
99 to 124 centimeters; channery loam
124 to 165 centimeters; very channery loam

Interpretive Groups for the Santeetlah Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Nowhere Soil

Available water capacity: Moderate (about 16.0 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: 15.0 to 40.0 centimeters
Water table (kind): Apparent
Ponding: Brief
Depth of ponding: 2.0 to 6.0 centimeters
Drainage class: Somewhat poorly drained
Flooding: None
Organic matter content in the surface layer: 2.0 to 10.0 percent
Parent material: Cobbly colluvium derived from metasedimentary rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Very cobbly fine sandy loam
Potential for surface runoff: Low

Typical Profile of the Nowhere Soil

0 to 41 centimeters; very cobbly fine sandy loam
41 to 71 centimeters; extremely cobbly fine sandy loam
71 to 158 centimeters; extremely cobbly fine sandy loam

Interpretive Groups for the Nowhere Soil

Prime farmland: Not prime farmland
Hydric soil: Yes

Use and Management

This map unit is in landscape positions which are in shade much of the day. Because the map unit is shaded, a cooler, moister micro-climate is created. These Spivey, Santeetlah, and Nowhere soils stay frozen for long periods in winter and warm up later in spring than other soils at the same elevations. The seasonal high water table is more than 200 centimeters below the surface in areas of the Spivey and Santeetlah soils. It is less than 30 centimeters below the surface in areas of the Nowhere soil. In storm events, rainwater off the adjacent uplands is concentrated into surface runoff, which causes overland flow in concave areas. Small streams and springs are common in this map unit. The colluvial material beneath these soils is a good aquifer. The water in the colluvium moves laterally downslope. At some point downslope, the water reaches the soil surface and forms springs. The springs in turn add to the flow of the streams. The Nowhere soil is located near the springs.

Included in mapping with the Spivey, Santeetlah, and Nowhere soils are small areas of contrasting Junaluska, Soco, and Cheoah soils. Junaluska and Soco soils formed in saprolite on south- to west-facing slopes and have thinner or lighter colored surface layers. Junaluska and Soco soils are also moderately deep to weathered bedrock. Cheoah soils formed in saprolite on north- to east-facing slopes. Also included are soils similar to the Spivey, Santeetlah, and Nowhere soils which formed under rhododendron vegetation and have organic surface layers and small areas of rubble land. Springs and seeps are also common in some map units. These contrasting soils and miscellaneous areas make up about 10 percent of this map unit.

Soils similar to the Spivey and Santeetlah soils are also included in this map unit. These soils have dark surface layers less than 25 centimeters thick or more than 50 centimeters thick. Soils with surface layers less than 25 centimeters thick are in convex areas facing south to west. Soils with surface layers more than 50 centimeters thick are in areas facing north to east.

This map unit has a dominant vegetative cover of yellow-poplar mixed with a variety of other tree species such as basswood, black birch, black cherry, eastern hemlock, northern red oak, sugar maple, white pine, and/or yellow buckeye. The yellow-poplar cover type gives way to northern hardwoods above 1,150 meters in elevation. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. Rhododendron commonly is dominant in the understory vegetation and may form thickets in some areas.

This map unit is associated with general soil map units 7 (Mesic Soft Metasandstone: Soco-Stecoah Soils), 10 (Mesic Siltstone and Phyllite: Junaluska-Tsali Soils), and 11 (Large Basins of Colluvium: Spivey-Santeetlah Soils).

SsD—Spivey-Santeetlah complex, 15 to 30 percent slopes, very stony

Setting

Elevation: 458 to 1,280 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Cove on mountains

Composition

Spivey soil and similar components: 50 percent
Santeetlah soil and similar components: 30 percent
Minor soils: 20 percent

Properties and Qualities of the Spivey Soil

Available water capacity: Low (about 10.6 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 5.0 to 10.0 percent
Parent material: Cobbly or stony colluvium derived from metasedimentary rock
Permeability of soil profile: Rapid
Shrink-swell potential: Low

Surface layer texture: Very bouldery sandy loam
Potential for surface runoff: Low

Typical Profile of the Spivey Soil

0 to 33 centimeters; very bouldery sandy loam
33 to 114 centimeters; very bouldery fine sandy loam
114 to 122 centimeters; extremely bouldery sandy loam

Interpretive Groups for the Spivey Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Santeetlah Soil

Available water capacity: High (about 25.3 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 5.0 to 10.0 percent
Parent material: Loamy colluvium derived from metasedimentary sandstone, slate, and phyllite
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Loam
Potential for surface runoff: Low

Typical Profile of the Santeetlah Soil

0 to 43 centimeters; loam
43 to 99 centimeters; loam
99 to 124 centimeters; channery loam
124 to 165 centimeters; very channery loam

Interpretive Groups for the Santeetlah Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

This map unit is in landscape positions which are in shade much of the day. Because the map unit is shaded, a cooler, moister micro-climate is created. These Spivey and Santeetlah soils stay frozen for long periods in winter and warm up later in spring than other soils at the same elevations. The seasonal high water table is more than 200 centimeters below the surface. In storm events, rainwater off the adjacent uplands is concentrated into surface runoff, which causes overland flow in concave areas. Small streams and springs are common in this map unit. These soils are well drained and do not have water tables in the soil profiles. However, the colluvial material beneath these soils is a good aquifer. The water in the colluvium moves laterally downslope. At some point downslope, the water reaches the soil surface and forms springs. The springs in turn add to the flow of the streams.

Included in mapping with the Spivey and Santeetlah soils are small areas of contrasting Junaluska, Soco, and Cheoah soils. Junaluska and Soco soils formed in saprolite on south- to west-facing slopes and have thinner or lighter colored surface layers. Junaluska and Soco soils are also moderately deep to weathered bedrock. Cheoah soils formed in saprolite on north- to east-facing slopes. Also included are soils similar to the Spivey and Santeetlah soils which formed under rhododendron vegetation and have organic surface layers and small areas of rubble land. Springs and seeps are also common in some map areas. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

Soils similar to the Spivey and Santeetlah soils are also included in this map unit. These soils have dark surface layers less than 25 centimeters thick or more than 50 centimeters thick. Soils with surface layers less than 25 centimeters thick are in convex areas facing south to west. Soils with surface layers more than 50 centimeters thick are in areas facing north to east.

This map unit has a dominant vegetative cover of yellow-poplar mixed with a variety of other tree species such as basswood, black birch, black cherry, eastern hemlock, northern red oak, sugar maple, white pine, and/or yellow buckeye. The yellow-poplar cover type gives way to northern hardwoods above 1,150 meters in elevation. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. Rhododendron commonly is dominant in the understory vegetation and may form thickets in some areas.

This map unit is associated with general soil map units 6 (Mesic Hard Metasandstone: Ditney-Unicoi Soils), 7 (Mesic Soft Metasandstone: Soco-Stecoah Soils), 10 (Mesic Siltstone and Phyllite: Junaluska-Tsali Soils), and 11 (Large Basins of Colluvium: Spivey-Santeetlah Soils).

SsE—Spivey-Santeetlah complex, 30 to 50 percent slopes, very stony

Setting

Elevation: 458 to 1,280 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Cove on mountains

Composition

Spivey soil and similar components: 60 percent
Santeetlah soil and similar components: 20 percent
Minor soils: 20 percent

Properties and Qualities of the Spivey Soil

Available water capacity: Low (about 10.6 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 5.0 to 10.0 percent
Parent material: Cobbly or stony colluvium derived from metasedimentary rock
Permeability of soil profile: Rapid
Shrink-swell potential: Low
Surface layer texture: Very bouldery sandy loam
Potential for surface runoff: Low

Typical Profile of the Spivey Soil

0 to 33 centimeters; very bouldery sandy loam
33 to 114 centimeters; very bouldery fine sandy loam
114 to 122 centimeters; extremely bouldery sandy loam

Interpretive Groups for the Spivey Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Santeetlah Soil

Available water capacity: High (about 25.3 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 5.0 to 10.0 percent
Parent material: Loamy colluvium derived from metasedimentary sandstone, slate, and phyllite
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Loam
Potential for surface runoff: Low

Typical Profile of the Santeetlah Soil

0 to 43 centimeters; loam
43 to 99 centimeters; loam
99 to 124 centimeters; channery loam
124 to 165 centimeters; very channery loam

Interpretive Groups for the Santeetlah Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

This map unit is in landscape positions which are in shade much of the day. Because the map unit is shaded, a cooler, moister micro-climate is created. These Spivey and Santeetlah soils stay frozen for long periods in winter and warm up later in spring than other soils at the same elevations. The seasonal high water table is more than 200 centimeters below the surface. In storm events, rainwater off the adjacent uplands is concentrated into surface runoff, which causes overland flow in concave areas. Small streams and springs are common in this map unit. These soils are well drained and do not have water tables in the soil profiles. However, the colluvial material beneath these soils is a good aquifer. The water in the colluvium moves laterally downslope. At some point downslope, the water reaches the soil surface and forms springs. The springs in turn add to the flow of the streams.

Included in mapping with the Spivey and Santeetlah soils are small areas of contrasting Soco, Stecoah, and Cheoah soils. Soco and Stecoah soils formed in saprolite on south- to west-facing slopes and have thinner or lighter colored surface layers. Soco soils are also moderately deep to weathered bedrock. Cheoah soils formed in saprolite on north- to east-facing slopes. Also included are small areas of moderately well drained or somewhat poorly drained soils around seeps and springs.

These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

Soils similar to the Spivey and Santeetlah soils are also included in this map unit. These soils have dark surface layers less than 25 centimeters thick or more than 50 centimeters thick. Soils with surface layers less than 25 centimeters thick are in convex areas facing south to west. Soils with surface layers more than 50 centimeters thick are in areas facing north to east.

This map unit has a dominant vegetative cover of yellow-poplar mixed with a variety of other tree species such as basswood, black birch, black cherry, eastern hemlock, northern red oak, sugar maple, white pine, and/or yellow buckeye. The yellow-poplar cover type gives way to northern hardwoods above 1,150 meters in elevation. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. Rhododendron commonly is dominant in the understory vegetation and may form thickets in some areas.

This map unit is associated with general soil map units 6 (Mesic Hard Metasandstone: Ditney-Unicoi Soils), 7 (Mesic Soft Metasandstone: Soco-Stecoah Soils), 10 (Mesic Siltstone and Phyllite: Junaluska-Tsali Soils), and 11 (Large Basins of Colluvium: Spivey-Santeetlah Soils).

StB—Statler loam, 0 to 5 percent slopes

Setting

Elevation: 458 to 1,000 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Terrace in valley

Composition

Statler soil and similar components: 85 percent
Minor soils: 15 percent

Soil Properties and Qualities

Available water capacity: High (about 27.5 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: Rare
Organic matter content in the surface layer: 2.0 to 6.0 percent
Parent material: Loamy alluvium derived from metasedimentary rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Loam
Potential for surface runoff: Low

Typical Profile

0 to 23 centimeters; loam
23 to 76 centimeters; loam
76 to 97 centimeters; loam
97 to 157 centimeters; loam

Interpretive Groups

Prime farmland: All areas are prime farmland
Hydric soil: No

Use and Management

This map unit is in landscape positions which are in shade much of the day. Because the map unit is shaded, a cooler, moister micro-climate is created. This Statler soil stays frozen for long periods in winter and warms up later in spring than other soils at the same elevations. This map unit has been in grassland for decades with low levels of traffic from livestock and machinery. Therefore, it has surface layers with low bulk densities. The seasonal high water table is more than 200 centimeters below the surface. In storm events, rainwater off the higher adjacent map units is concentrated into surface runoff, which causes overland flow in concave areas.

Included with the Statler soil are small areas of contrasting Dillard, Reddies, and Rosman soils. Dillard soils are moderately well drained and have moderately slow permeability. Dillard soils occur in depressions. Reddies soils are moderately deep to strata of gravel, cobbles, and sand. Reddies and Rosman soils contain less clay in the subsoil and are on floodplains that flood occasionally. These contrasting soils make up about 15 percent of this map unit.

Small areas of soils similar to the Statler soil are also included in this map unit. These soils have more rock fragments in the surface layer. Also included are small areas of soils with thicker dark surface layers or a seasonal high water table 100 to 200 centimeters below the surface.

This map unit has a dominant vegetative cover of introduced and maintained grasslands. In many areas, a thick fescue sod has developed. The fescue sod, over time, chokes out other grasses and forbs. This map unit would in time revert to a yellow-poplar cover type. It is the manipulation of the map unit which maintains the grasslands.

This map unit is associated with general soil map unit 13 (Floodplains and Terraces: Rosman-Reddies-Dellwood Soils).

StC—Statler loam, 5 to 15 percent slopes

Setting

Elevation: 458 to 1,000 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Terrace in valley

Composition

Statler soil and similar components: 80 percent
Minor soils: 20 percent

Soil Properties and Qualities

Available water capacity: High (about 27.5 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: Rare
Organic matter content in the surface layer: 2.0 to 6.0 percent

Parent material: Loamy alluvium derived from metasedimentary rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Loam
Potential for surface runoff: Low

Typical Profile

0 to 23 centimeters; loam
23 to 76 centimeters; loam
76 to 97 centimeters; loam
97 to 157 centimeters; loam

Interpretive Groups

Prime farmland: All areas are prime farmland
Hydric soil: No

Use and Management

This map unit is in landscape positions which are in shade much of the day. Because the map unit is shaded, a cooler, moister micro-climate is created. This Statler soil stays frozen for long periods in winter and warms up later in spring than other soils at the same elevations. This map unit has been in grassland for decades with low levels of traffic from livestock and machinery. Therefore, it has surface layers with low bulk densities. The seasonal high water table is more than 200 centimeters below the surface.

Included in mapping with the Statler soil are small areas of contrasting Cullasaja, Santeetlah, Spivey, and Tuckasegee soils. Cullasaja, Santeetlah, Spivey, and Tuckasegee soils are on toeslopes. All of these soils formed in colluvium and are very deep. Cullasaja and Spivey soils also have more than 35 percent rock fragments in the subsoil. Also included are some escarpments too small to show at the scale used and small areas of moderately well drained or somewhat poorly drained soils around the seeps and springs. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

Small areas of soils similar to the Statler soil are also included in this map unit. These soils have more rocks in the surface layer. Also included are small areas of soils with thicker dark surface layers or a seasonal high water table 100 to 200 centimeters below the surface.

This map unit has a dominant vegetative cover of introduced and maintained grasslands. In many areas, a thick fescue sod has developed. The fescue sod, over time, chokes out other grasses and forbs. This map unit would in time revert to a yellow-poplar cover type. It is the manipulation of the map unit which maintains the grasslands. Some map units have a vegetative cover of mixed hardwoods with some eastern hemlocks and pines.

Some map areas have vegetative cover of mixed hardwoods with some eastern hemlocks and pines. Mixed hardwoods commonly have a very diverse tree cover type. Often these map areas have trees common to the floodplains, toeslopes, and adjoining uplands. In some map areas a single species such as yellow-poplar is dominant, depending on past management. Common tree species include basswood, beech, black birch, black cherry, black locust, black walnut, dogwood, fraser magnolia, hemlock, hickory, honey locust, northern red oak, red maple, shortleaf pine, sugar maple, white oak, white pine, yellow buckeye, and yellow-poplar. Rhododendron commonly is dominant in the understory vegetation and may form thickets in some areas.

This map unit is associated with general soil map unit 13 (Floodplains and Terraces: Rosman-Reddies-Dellwood Soils).

TaC—Tanasee-Balsam complex, 5 to 15 percent slopes, stony

Setting

Elevation: 1,280 to 2,030 meters
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1 to 13 degrees C
Frost-free period: 162 to 176 days
Landform: Cove on mountains

Composition

Tanasee soil and similar components: 50 percent
Balsam soil and similar components: 30 percent
Minor soils: 20 percent

Properties and Qualities of the Tanasee Soil

Available water capacity: Very high (about 33.7 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 50.0 to 95.0 percent
Parent material: Loamy colluvium derived from gneiss
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Moderately decomposed plant material
Potential for surface runoff: Low

Typical Profile of the Tanasee Soil

0 to 5 centimeters; moderately decomposed plant material
5 to 20 centimeters; clay loam
20 to 46 centimeters; loam
46 to 84 centimeters; clay loam
84 to 142 centimeters; loam
142 to 200 centimeters; cobbly sandy loam

Interpretive Groups for the Tanasee Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Balsam Soil

Available water capacity: Moderate (about 16.9 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 50.0 to 95.0 percent
Parent material: Cobbly colluvium derived from igneous and metamorphic rock
Permeability of soil profile: Moderately rapid

Shrink-swell potential: Low
Surface layer texture: Moderately decomposed plant material
Potential for surface runoff: Low

Typical Profile of the Balsam Soil

0 to 5 centimeters; moderately decomposed plant material
5 to 33 centimeters; cobbly sandy loam
33 to 122 centimeters; very cobbly sandy loam
122 to 165 centimeters; very cobbly loamy sand

Interpretive Groups for the Balsam Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Due to the higher elevations, the climate is cold and icy in winter and rainy, foggy, and cool the rest of the year. However, this map unit is sheltered from high winds due to its landscape position. The seasonal high water table is more than 200 centimeters below the surface. In storm events, rainwater off the adjacent uplands is concentrated into surface runoff, which causes overland flow in concave areas. Small streams and springs are common in this map unit. These Tanasee and Balsam soils are well drained and do not have water tables in the soil profiles. However, the colluvial material beneath these soils is a good aquifer. The water in the colluvium moves laterally downslope. At some point downslope, the water reaches the soil surface and forms springs. The springs in turn add to the flow of the streams.

Included in mapping with the Tanasee and Balsam soils are small areas of contrasting Burton and Wayah soils. Burton and Wayah soils formed in saprolite on the adjacent uplands. Burton soils are moderately deep to hard bedrock. Also included are small areas of somewhat poorly drained and moderately well drained soils around seeps and springs. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

Soils similar to the Tanasee and Balsam soils are also included in this map unit. These soils have dark surface layers less than 25 centimeters thick or more than 50 centimeters thick. Soils with surface layers less than 25 centimeters thick are in convex areas facing south to west. Soils with surface layers more than 50 centimeters thick are in areas facing north to east.

This map unit normally has a dominant vegetative cover of northern hardwoods or a mix of spruce/fir and northern hardwoods. However, most map units at Purchase Knob are in grassland or planted Fraser fir. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. Spruce/fir refers to red spruce and Fraser fir. Northern hardwoods are dominant below 1,465 meters in elevation. The mixed spruce/fir and northern hardwoods are above 1,465 meters in elevation.

This map unit occurs in the colder climate of the higher elevations. Therefore, the growing season is shorter and less food is produced that at the lower elevations. Tree damage is limited to minor top breakage. This is because this map unit is out of the high winds.

In the Purchase Knob area, the introduced and maintained habitat of grassland and planted Fraser fir will, over time, evolve into northern hardwoods. Much of the Purchase Knob area is in a thick fescue sod. The fescue sod, over time, chokes out other grasses and forbs. The maintenance of grasslands is an option.

This map unit is associated with general soil map unit 4 (Frigid Gneiss: Wayah Soils).

TaD—Tanasee-Balsam complex, 15 to 30 percent slopes, stony

Setting

Elevation: 1,280 to 2,030 meters
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1 to 13 degrees C
Frost-free period: 162 to 176 days
Landform: Cove on mountains

Composition

Tanasee soil and similar components: 50 percent
Balsam soil and similar components: 30 percent
Minor soils: 20 percent

Properties and Qualities of the Tanasee Soil

Available water capacity: Very high (about 33.7 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 50.0 to 95.0 percent
Parent material: Loamy colluvium derived from gneiss
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Moderately decomposed plant material
Potential for surface runoff: Low

Typical Profile of the Tanasee Soil

0 to 5 centimeters; moderately decomposed plant material
5 to 20 centimeters; clay loam
20 to 46 centimeters; loam
46 to 84 centimeters; clay loam
84 to 142 centimeters; loam
142 to 200 centimeters; cobbly sandy loam

Interpretive Groups for the Tanasee Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Balsam Soil

Available water capacity: Moderate (about 16.9 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 50.0 to 95.0 percent
Parent material: Cobbly colluvium derived from igneous and metamorphic rock
Permeability of soil profile: Moderately rapid

Shrink-swell potential: Low
Surface layer texture: Moderately decomposed plant material
Potential for surface runoff: Low

Typical Profile of the Balsam Soil

0 to 5 centimeters; moderately decomposed plant material
5 to 33 centimeters; cobbly sandy loam
33 to 122 centimeters; very cobbly sandy loam
122 to 165 centimeters; very cobbly loamy sand

Interpretive Groups for the Balsam Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Due to the higher elevations, the climate is cold and icy in winter and rainy, foggy, and cool the rest of the year. However, this map unit is sheltered from high winds due to its landscape position. The seasonal high water table is more than 200 centimeters below the surface. In storm events, rainwater off the adjacent uplands is concentrated into surface runoff, which causes overland flow in concave areas. Small streams and springs are common in this map unit. These Tanasee and Balsam soils are well drained and do not have water tables in the soil profiles. However, the colluvial material beneath these soils is a good aquifer. The water in the colluvium moves laterally downslope. At some point downslope, the water reaches the soil surface and forms springs. The springs in turn add to the flow of the streams.

Included in mapping with the Tanasee and Balsam soils are small areas of contrasting Burton and Wayah soils. Burton and Wayah soils formed in saprolite on the adjacent uplands. Burton soils are moderately deep to hard bedrock. Also included are small areas of somewhat poorly drained and moderately well drained soils around seeps and springs. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

Soils similar to the Tanasee and Balsam soils are also included in this map unit. These soils have dark surface layers less than 25 centimeters thick or more than 50 centimeters thick. Soils with surface layers less than 25 centimeters thick are in convex areas facing south to west. Soils with surface layers more than 50 centimeters thick are in areas facing north to east.

This map unit normally has a dominant vegetative cover of northern hardwoods or a mix of spruce/fir and northern hardwoods. However, most map areas at Purchase Knob are in grassland or planted Fraser fir. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. Spruce/fir refers to red spruce and Fraser fir. Northern hardwoods are dominant below 1,465 meters in elevation. The mixed spruce/fir and northern hardwoods are above 1,465 meters in elevation.

This map unit occurs in the colder climate of the higher elevations. Therefore, the growing season is shorter and less food is produced than at the lower elevations. Tree damage is limited to minor top breakage. This is because this map unit is out of the high winds.

In the Purchase Knob area, the introduced and maintained habitat of grassland and planted Fraser fir will, over time, evolve into northern hardwoods. Much of the Purchase Knob area is in a thick fescue sod. The fescue sod, over time, chokes out other grasses and forbs. The maintenance of grasslands is an option.

This map unit is associated with general soil map unit 4 (Frigid Gneiss: Wayah Soils).

ThB—Thurmont-Dillard complex, 2 to 8 percent slopes, stony

Setting

Elevation: 458 to 914 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Fan in valley, bench in valley, and stream terrace in valley

Composition

Thurmont soil and similar components: 50 percent
Dillard soil and similar components: 30 percent
Minor soils: 20 percent

Properties and Qualities of the Thurmont Soil

Available water capacity: High (about 24.4 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: 90.0 to 183.0 centimeters
Water table (kind): Apparent
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 2.0 to 8.0 percent
Parent material: Colluvium derived from igneous and metamorphic rock
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Loam
Potential for surface runoff: Low

Typical Profile of the Thurmont Soil

0 to 36 centimeters; loam
36 to 119 centimeters; sandy clay loam
119 to 135 centimeters; loamy sand
135 to 203 centimeters; sandy clay loam

Interpretive Groups for the Thurmont Soil

Prime farmland: All areas are prime farmland
Hydric soil: No

Properties and Qualities of the Dillard Soil

Available water capacity: Moderate (about 21.5 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: 60.0 to 90.0 centimeters
Water table (kind): Apparent
Ponding: None
Drainage class: Moderately well drained
Flooding: None
Organic matter content in the surface layer: 0.5 to 5.0 percent
Parent material: Alluvium and/or colluvium derived from igneous and metamorphic rock
Permeability of soil profile: Moderate

Shrink-swell potential: Low
Surface layer texture: Loam
Potential for surface runoff: Low

Typical Profile of the Dillard Soil

0 to 18 centimeters; loam
18 to 127 centimeters; loam
127 to 203 centimeters; sandy loam

Interpretive Groups for the Dillard Soil

Prime farmland: All areas are prime farmland
Hydric soil: No

Use and Management

In storm events, rainwater off the adjacent uplands is concentrated into surface runoff, which causes overland flow in concave areas. Small streams and springs are common in this map unit. The lower part of the Thurmont and Dillard soils and the colluvial material beneath them are good aquifers. The water in the colluvium moves laterally downslope. At some point downslope, the water reaches the soil surface and forms springs. The springs in turn add to the flow of the streams.

Included in mapping with the Thurmont and Dillard soils are small areas of contrasting Cullowhee and Ela soils. Cullowhee soils are somewhat poorly drained. Ela soils are poorly drained or very poorly drained. Cullowhee and Ela soils occur in drainageways. Also included are small areas of seeps and springs. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

This map unit has a dominant vegetative cover of yellow-poplar mixed with a variety of other species such as basswood, black birch, black cherry, eastern hemlock, northern red oak, white pine, and/or yellow buckeye. Species from the adjacent uplands may also mix with the yellow-poplar. These species include white oak, black oak, mockernut hickory, shagbark hickory, black locust, and shortleaf pine.

This map unit is associated with general soil map unit 15 (Mesic Copperhill Sandstone/Slate Rolling Hill Phase: Junaluska-Brasstown-Soco Soils).

ThC—Thurmont loam, 8 to 15 percent slopes, stony

Setting

Elevation: 458 to 914 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Stream terrace in valley, bench in valley, and fan in valley

Composition

Thurmont soil and similar components: 80 percent
Minor soils: 20 percent

Soil Properties and Qualities

Available water capacity: High (about 24.4 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: 90.0 to 183.0 centimeters
Water table (kind): Apparent
Ponding: None
Drainage class: Well drained

Flooding: None
Organic matter content in the surface layer: 2.0 to 8.0 percent
Parent material: Colluvium derived from igneous and metamorphic rock
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Loam
Potential for surface runoff: Low

Typical Profile

0 to 36 centimeters; loam
36 to 119 centimeters; sandy clay loam
119 to 135 centimeters; loamy sand
135 to 203 centimeters; sandy clay loam

Interpretive Groups

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

In storm events, rainwater off the adjacent uplands is concentrated into surface runoff, which causes overland flow in concave areas. Small streams and springs are common in this map unit. The Thurmont soil is well drained. The lower part of the soil and the colluvial material beneath it are good aquifers. The water in the colluvium moves laterally downslope. At some point downslope, the water reaches the soil surface and forms springs. The springs in turn add to the flow of the streams.

Included in mapping with the Thurmont soil are small areas of contrasting Brasstown and Cullowhee soils. Brasstown soils formed in weathered bedrock and are on the margins of map areas. Cullowhee soils are somewhat poorly drained. Cullowhee soils occur in drainageways. Also included are small areas of seeps and springs. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

This map unit has a dominant vegetative cover of yellow-poplar mixed with a variety of other species such as basswood, black birch, black cherry, eastern hemlock, northern red oak, white pine, and/or yellow buckeye. Species from the adjacent uplands may also be mixed with the yellow-poplar. These species include white oak, black oak, mockernut hickory, shagbark hickory, black locust, and shortleaf pine.

This map unit is associated with general soil map unit 15 (Mesic Copperhill Sandstone/Slate Rolling Hill Phase: Junaluska-Brasstown-Soco Soils).

To—Toxaway silty clay loam, 0 to 2 percent slopes, occasionally flooded

Setting

Elevation: 300 to 920 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Floodplain in valley

Composition

Toxaway soil and similar components: 80 percent
Minor soils: 20 percent

Soil Properties and Qualities

Available water capacity: Very high (about 55.0 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: 0.0 to 30.0 centimeters
Water table (kind): Apparent
Ponding: Brief
Depth of ponding: 8.0 to 23.0 centimeters
Drainage class: Very poorly drained
Flooding: Occasional
Organic matter content in the surface layer: 5.0 to 10.0 percent
Parent material: Loamy alluvium derived from metasedimentary rock
Permeability of soil profile: Moderate
Shrink-swell potential: Low
Surface layer texture: Silty clay loam
Potential for surface runoff: Low

Typical Profile

0 to 15 centimeters; silty clay loam
15 to 26 centimeters; silty clay loam
26 to 41 centimeters; silty clay loam
41 to 69 centimeters; silty clay loam
69 to 89 centimeters; silty clay loam
89 to 117 centimeters; silt loam
117 to 147 centimeters; mucky silt loam
147 to 179 centimeters; loamy coarse sand

Interpretive Groups

Prime farmland: Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
Hydric soil: Yes

Use and Management

The Toxaway soil is a hydric soil. It commonly supports wetland vegetation. Most areas are cleared and in Cades Cove. These areas are dominated by wetland forbs with some sycamore, sweetgum, and yellow-poplar. Flooding and ponding are occasional.

Included in mapping with the Toxaway soil are areas of dissimilar soils with argillic horizons, dissimilar soils that are somewhat poorly drained and moderately well drained, and similar soils with recent overwash. These inclusions make up approximately 20 percent of the map unit.

This map unit is associated with general soil map unit 14 (Cades Cove: Lonon-Cades Soils).

TuC—Tuckasegee-Cullasaja complex, 8 to 15 percent slopes, stony

Setting

Elevation: 301 to 1,280 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C

Frost-free period: 162 to 176 days
Landform: Drainageway on mountains, fan on mountains, mountain slope on mountains, and cove on mountains

Composition

Tuckasegee soil and similar components: 50 percent
Cullasaja soil and similar components: 30 percent
Minor soils: 20 percent

Properties and Qualities of the Tuckasegee Soil

Available water capacity: Moderate (about 22.6 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 4.0 to 15.0 percent
Parent material: Loamy colluvium derived from igneous and metamorphic rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Fine sandy loam
Potential for surface runoff: Low

Typical Profile of the Tuckasegee Soil

0 to 33 centimeters; fine sandy loam
33 to 66 centimeters; loam
66 to 119 centimeters; gravelly sandy clay loam
119 to 165 centimeters; cobbly sandy loam

Interpretive Groups for the Tuckasegee Soil

Prime farmland: Not prime farmland
Hydric soil: No

Properties and Qualities of the Cullasaja Soil

Available water capacity: Low (about 14.3 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 5.0 to 15.0 percent
Parent material: Cobbly and stony colluvium derived from igneous and metamorphic rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Cobbly loam
Potential for surface runoff: Low

Typical Profile of the Cullasaja Soil

0 to 46 centimeters; cobbly loam
46 to 122 centimeters; very cobbly fine sandy loam
122 to 157 centimeters; extremely cobbly sandy loam

Interpretive Groups for the Cullasaja Soil

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

In storm events, rainwater off the adjacent uplands is concentrated into surface runoff, which causes overland flow in concave areas. Small streams and springs are common in this map unit. The Tuckasegee and Cullasaja soils are well drained and do not have water tables in the soil profiles. However, the colluvial material beneath these soils is a good aquifer. The water in the colluvium moves laterally downslope. At some point downslope, the water reaches the soil surface and forms springs. The springs in turn add to the flow of the streams.

Included in mapping with the Tuckasegee and Cullasaja soils are small areas of contrasting Dellwood and Whiteside soils. Dellwood soils flood occasionally and are moderately well drained. Whiteside soils are moderately well drained and are in depressions. Springs and seeps are also common in some map areas. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

Soils similar to the Tuckasegee and Cullasaja soils are also included in this map unit. These soils have dark surface layers less than 25 centimeters thick or more than 50 centimeters thick. Soils with surface layers less than 25 centimeters thick are in convex areas commonly facing south to west. Soils with surface layers more than 50 centimeters thick are commonly in areas facing north to east. Also included are some soils with a seasonal high water table at 100 to 200 centimeters below the surface.

This map unit has a dominant vegetative cover of yellow-poplar mixed with a variety of other tree species such as basswood, black birch, black cherry, eastern hemlock, northern red oak, sugar maple, white pine, and/or yellow buckeye. The yellow-poplar cover type gives way to northern hardwoods above 1,150 meters in elevation. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. Rhododendron commonly is dominant in the understory vegetation and may form thickets in some areas.

This map unit is associated with general soil map unit 7 (Mesic Soft Metasandstone: Soco-Stecoah Soils).

Ud—Udorthents-loamy

Setting

Elevation: 600 to 1,280 meters
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6 to 20 degrees C
Frost-free period: 162 to 176 days
Landform: Hillslope on upland and ridge on upland

Composition

Udorthents and similar components: 85 percent
Minor soils: 15 percent

Soil Properties and Qualities

Available water capacity: Moderate (about 21.3 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None

Drainage class: Somewhat excessively drained
Flooding: None
Organic matter content in the surface layer: 0.0 to 1.0 percent
Parent material: Loamy and clayey mine spoil or earthy fill derived from igneous, metamorphic, and sedimentary rock
Permeability of soil profile: Very slow
Shrink-swell potential: Low
Surface layer texture: Sandy clay loam

Typical Profile

0 to 152 centimeters; sandy clay loam

Interpretive Groups

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

This map unit consists of areas that have been highly altered by human activities and include borrow areas and areas that have been intensively utilized in the past. In these areas, most of the natural soils have been altered by excavation, grading, or filling.

Borrow areas consist of excavated areas where the soils have been removed for fill material. Other areas include places where waste material has been stockpiled. These areas have usually been vegetated. The size of these areas ranges from 2 to 9 hectares.

W—Water

Composition

Water: 100 percent

Interpretive Groups

Prime farmland: Not prime farmland
Hydric soil: No

WaC—Wayah sandy loam, 5 to 15 percent slopes, stony, windswept

Setting

Elevation: 1,280 to 2,030 meters
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1 to 13 degrees C
Frost-free period: 162 to 176 days
Landform: Ridge on mountains

Composition

Wayah soil and similar components: 80 percent
Minor soils: 20 percent

Soil Properties and Qualities

Available water capacity: Moderate (about 17.4 centimeters to a depth of 152 centimeters)

Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 8.0 to 15.0 percent
Parent material: Loamy creep deposits and/or residuum weathered from igneous and metamorphic rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Sandy loam
Potential for surface runoff: Low

Typical Profile

0 to 38 centimeters; sandy loam
38 to 94 centimeters; gravelly loam
94 to 152 centimeters; gravelly sandy loam

Interpretive Groups

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Due to the higher elevations, the climate in this map unit is severe compared to the region in general. It is cold, icy, and very windy in winter and rainy, foggy, and cool the rest of the year. The Wayah soil stays frozen for long periods in winter. This map unit is in landscape positions that receive high winds. The high winds combine with ice to cause damage to the tops of the trees. This micro-climate produces a forest cover which is stunted by the wind and ice damage.

Included in mapping with the Wayah soil are small areas of contrasting Burton, Craggey, and Oconaluftee soils. Burton and Craggey soils are near rock outcrops. Burton soils are moderately deep to hard bedrock, and Craggey soils are shallow to hard bedrock. Oconaluftee soils are similar in appearance to the Wayah soil but formed from metasedimentary rocks. Oconaluftee soils are included in map units near the geological break between metasedimentary rocks and high-grade metamorphic rocks. Also included are small areas of rock outcrop. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

Soils similar to the Wayah soils are also included in this map unit. These soils have dark surface layers less than 10 centimeters or more than 20 centimeters thick. Soils with surface layers less than 10 centimeters thick are on spur ridges or shoulder slopes. Soils with surface layers more than 20 centimeters thick are in saddles.

This map unit has a dominant vegetative cover of spruce/fir, northern hardwoods, or a mix of the two. However, most map units at Purchase Knob are in grassland or planted Fraser fir. Spruce/fir refers to red spruce and Fraser fir. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. The spruce/fir cover type is dominant above 1,645 meters in elevation. Northern hardwoods are dominant below 1,465 meters in elevation. Mixing of the two cover types occurs between these elevations.

The tree growth is stunted in this map unit by the high winds and ice damage. The poor tree growth is a function of climate. The understory vegetation is often sparse, except where laurel forms small thickets. Low-growing shrubs, such as blueberries, huckleberries, and high bush raspberries, are not stunted by the high winds and ice. The diversity of the cover types ranges from very limited for spruce/fir to very good for northern hardwoods. This map unit has a high amount of downed tree tops because of the ice and wind damage.

Much of the Purchase Knob area is in a thick fescue sod. The fescue sod, over time, chokes out other grasses and forbs. The maintenance of grasslands is an option.

This map unit is associated with general soil map unit 4 (Frigid Gneiss: Wayah Soils).

WaD—Wayah sandy loam, 15 to 30 percent slopes, stony, windswept

Setting

Elevation: 1,280 to 2,030 meters
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1 to 13 degrees C
Frost-free period: 162 to 176 days
Landform: Ridge on mountains

Composition

Wayah soil and similar components: 80 percent
Minor soils: 20 percent

Soil Properties and Qualities

Available water capacity: Moderate (about 17.4 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 8.0 to 15.0 percent
Parent material: Loamy creep deposits and/or residuum weathered from igneous and metamorphic rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Sandy loam
Potential for surface runoff: Low

Typical Profile

0 to 38 centimeters; sandy loam
38 to 94 centimeters; gravelly loam
94 to 152 centimeters; gravelly sandy loam

Interpretive Groups

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Due to the higher elevations, the climate in this map unit is severe compared to the region in general. It is cold, icy, and very windy in winter and rainy, foggy, and cool the rest of the year. The Wayah soil stays frozen for long periods in winter. This map unit is in landscape positions that receive high winds. The high winds combine with ice to cause damage to the tops of the trees. This micro-climate produces a forest cover which is stunted by the wind and ice damage.

Included in mapping with the Wayah soil are small areas of contrasting Burton, Craggey, and Oconaluftee soils. Burton and Craggey soils are near rock outcrops. Burton soils are moderately deep to hard bedrock, and Craggey soils are shallow to hard bedrock. Oconaluftee soils are similar in appearance to the Wayah soil but formed from metasedimentary rocks. Oconaluftee soils are included in map units near the geological break between metasedimentary rocks and high-grade metamorphic rocks. Also included are small areas of rock outcrops. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

Soils similar to the Wayah soil are also included in this map unit. These soils have dark surface layers less than 25 centimeters thick or more than 50 centimeters thick. Soils with surface layers less than 25 centimeters thick are on spur ridges or shoulder slopes. Soils with surface layers more than 50 centimeters thick are in saddles.

This map unit has a dominant vegetative cover of spruce/fir, northern hardwoods, or a mix of the two. However, most map units at Purchase Knob are in grassland or planted Fraser fir. Spruce/fir refers to red spruce and Fraser fir. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. The spruce/fir cover type is dominant above 1,645 meters in elevation. Northern hardwoods are dominant below 1,465 meters in elevation. Mixing of the two cover types occurs between these elevations.

The tree growth is stunted in this map unit by the high winds and ice damage. The poor tree growth is a function of climate. The understory vegetation is often sparse, except where laurel forms small thickets. Low-growing shrubs, such as blueberries, huckleberries, and high bush raspberries, are not stunted by the high winds and ice. The diversity of the cover types ranges from very limited for spruce/fir to very good for northern hardwoods. This map unit has a high amount of downed tree tops because of the ice and wind damage.

Much of the Purchase Knob area is in a thick fescue sod. The fescue sod, over time, chokes out other grasses and forbs. The maintenance of grasslands is an option.

This map unit is associated with general soil map unit 4 (Frigid Gneiss: Wayah Soils).

WaF—Wayah sandy loam, 30 to 95 percent slopes, stony, windswept

Setting

Elevation: 1,280 to 2,030 meters
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1 to 13 degrees C
Frost-free period: 162 to 176 days
Landform: Mountainside on mountains

Composition

Wayah soil and similar components: 80 percent
Minor soils: 20 percent

Soil Properties and Qualities

Available water capacity: Moderate (about 17.4 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters

Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 8.0 to 15.0 percent
Parent material: Loamy creep deposits and/or residuum weathered from igneous and metamorphic rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Sandy loam
Potential for surface runoff: Low

Typical Profile

0 to 38 centimeters; sandy loam
38 to 94 centimeters; gravelly loam
94 to 152 centimeters; gravelly sandy loam

Interpretive Groups

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Due to the higher elevations, the climate in this map unit is severe compared to the region in general. It is cold, icy, and very windy in winter and rainy, foggy, and cool the rest of the year. The Wayah soil stays frozen for long periods in winter. This map unit is in landscape positions that receive high winds. The high winds combine with ice to cause damage to the tops of the trees. This micro-climate produces a forest cover which is stunted by the wind and ice damage.

Included in mapping with the Wayah soil are small areas of contrasting Burton, Craggey, and Oconaluftee soils. Burton and Craggey soils are near rock outcrops. Burton soils are moderately deep to hard bedrock, and Craggey soils are shallow to hard bedrock. Oconaluftee soils are similar in appearance to the Wayah soil but formed from metasedimentary rocks. Oconaluftee soils are included in map units near the geological break between metasedimentary rocks and high-grade metamorphic rocks. Also included are small areas of rock outcrop. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

Soils similar to the Wayah soil are also included in this map unit. These soils have dark surface layers less than 25 centimeters thick or more than 50 centimeters thick. Soils with a surface layer less than 25 centimeters thick are on spur ridges or shoulder slopes. Soils with surface layers more than 50 centimeters thick are on the lower part of the side slope or in saddles.

This map unit has a dominant vegetative cover of spruce/fir, northern hardwoods or a mix of the two. Spruce/fir refers to red spruce and Fraser fir. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. The spruce/fir cover type is dominant above 1,645 meters in elevation. Northern hardwoods are dominant below 1,465 meters in elevation. Mixing of the two cover types occurs between these elevations.

The tree growth is stunted in this map unit by the high winds and ice damage. The poor tree growth is a function of climate. The understory vegetation is often sparse, except where laurel forms small thickets. Low-growing shrubs, such as blueberries, huckleberries, and high bush raspberries, are not stunted by the high winds and ice. The diversity of the cover types ranges from very limited for spruce/fir to very good for northern hardwoods. This map unit has a high amount of downed tree tops because of the ice and wind damage.

This map unit is associated with general soil map unit 4 (Frigid Gneiss: Wayah Soils).

WeD—Wayah sandy loam, 15 to 30 percent slopes, stony

Setting

Elevation: 1,280 to 2,030 meters
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1 to 13 degrees C
Frost-free period: 162 to 176 days
Landform: Ridge on mountains

Composition

Wayah soil and similar components: 80 percent
Minor soils: 20 percent

Soil Properties and Qualities

Available water capacity: Moderate (about 17.4 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 8.0 to 15.0 percent
Parent material: Loamy creep deposits and/or residuum weathered from igneous and metamorphic rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Sandy loam
Potential for surface runoff: Low

Typical Profile

0 to 38 centimeters; sandy loam
38 to 94 centimeters; gravelly loam
94 to 152 centimeters; gravelly sandy loam

Interpretive Groups

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Due to the higher elevations, the climate is cold and icy in winter and rainy, foggy, and cool the rest of the year. However, this map unit is sheltered from high winds due to its landscape position. The Wayah soil stays frozen for long periods in winter.

Included in mapping with the Wayah soil are small areas of contrasting Burton, Craggey, and Oconaluftee soils. Burton and Craggey soils are near rock outcrops. Burton soils are moderately deep to hard bedrock, and Craggey soils are shallow to hard bedrock. Oconaluftee soils are similar in appearance to the Wayah soil but formed from metasedimentary rocks. Oconaluftee soils are included in map units near the geological break between metasedimentary rocks and high-grade metamorphic rocks. Also included are small areas of rock outcrop. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

Soils similar to the Wayah soils are also included in this map unit. These soils have dark surface layers less than 25 centimeters thick or more than 50 centimeters thick. Soils with surface layers less than 25 centimeters thick are on spur ridges or shoulder slopes. Soils with surface layers more than 50 centimeters thick are in saddles.

This map unit normally has a dominant vegetative cover of northern hardwoods or a mix of spruce/fir and northern hardwoods. However, most map units at Purchase Knob are in grassland or planted Fraser fir. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. Spruce/fir refers to red spruce and Fraser fir. Northern hardwoods are dominant below 1,465 meters in elevation. The mixed spruce/fir and northern hardwoods are above 1,465 meters in elevation.

This map unit occurs in the colder climate of the higher elevations. Tree damage is limited to minor top breakage in this map unit. This is because this map unit is out of the high winds.

In the Purchase Knob area, the introduced and maintained habitat of grassland and planted Fraser fir will, over time, evolve into northern hardwoods. Much of the Purchase Knob area is in a thick fescue sod. The fescue sod, over time, chokes out other grasses and forbs. The maintenance of grasslands is an option.

This map unit is associated with general soil map unit 4 (Frigid Gneiss: Wayah Soils).

WeF—Wayah sandy loam, 30 to 95 percent slopes, stony

Setting

Elevation: 1,280 to 2,030 meters
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1 to 13 degrees C
Frost-free period: 162 to 176 days
Landform: Mountainside on mountains

Composition

Wayah soil and similar components: 80 percent
Minor soils: 20 percent

Soil Properties and Qualities

Available water capacity: Moderate (about 17.4 centimeters to a depth of 152 centimeters)
Depth to restrictive features: Greater than 203 centimeters
Depth to the top of the seasonal high water table: Greater than 183 centimeters
Ponding: None
Drainage class: Well drained
Flooding: None
Organic matter content in the surface layer: 8.0 to 15.0 percent
Parent material: Loamy creep deposits and/or residuum weathered from igneous and metamorphic rock
Permeability of soil profile: Moderately rapid
Shrink-swell potential: Low
Surface layer texture: Sandy loam
Potential for surface runoff: Low

Typical Profile

0 to 38 centimeters; sandy loam

38 to 94 centimeters; gravelly loam
94 to 152 centimeters; gravelly sandy loam

Interpretive Groups

Prime farmland: Not prime farmland
Hydric soil: No

Use and Management

Due to the higher elevations, the climate is cold and icy in winter and rainy, foggy, and cool the rest of the year. However, this map unit is sheltered from high winds due to its landscape position. The Wayah soil stays frozen for long periods in winter. This map unit commonly occurs on head slopes. Head slopes are concave, perpendicular, and parallel to the slope. Because of the shape, this map unit concentrates the flow of water to drainageways. The drainageways are small areas of colluvial material within the map unit. These areas are good aquifers. The water in the colluvium moves laterally downslope. At some point downslope, the water reaches the soil surface and forms springs. These springs often form small streams.

Included in mapping with the Wayah soil are small areas of contrasting Burton, Craggey, and Oconaluftee soils. Burton and Craggey soils are near rock outcrops. Burton soils are moderately deep to hard bedrock, and Craggey soils are shallow to hard bedrock. Oconaluftee soils are similar in appearance to the Wayah soil but formed from metasedimentary rocks. They are included in map units near the geological break between metasedimentary rocks and high-grade metamorphic rocks. Also included are small areas of rock outcrop. These contrasting soils and miscellaneous areas make up about 20 percent of this map unit.

Soils similar to the Wayah soil are also included in this map unit. These soils have dark surface layers less than 25 centimeters thick or more than 50 centimeters thick. Soils with surface layers less than 25 centimeters thick are on spur ridges or shoulder slopes. Soils with surface layers more than 50 centimeters thick are on the lower part of the side slope or in saddles.

This map unit normally has a dominant vegetative cover of northern hardwoods or a mix of spruce/fir and northern hardwoods. Northern hardwoods refer to such trees as northern red oak, black cherry, yellow birch, sugar maple, beech, and serviceberry. Spruce/fir refers to red spruce and Fraser fir. Northern hardwoods are dominant below 1,465 meters in elevation. The mixed spruce/fir and northern hardwoods are above 1,465 meters in elevation.

This map unit occurs in the colder climate of the higher elevations. Tree damage is limited to minor top breakage in this map unit. This is because this map unit is out of the high winds.

This map unit is associated with general soil map unit 4 (Frigid Gneiss: Wayah Soils).

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in Great Smoky Mountains National Park. It can be used to determine the distribution of soil properties and to assess the natural condition of the soils in the park. This information can be integrated into a wide range of research activities focused on the biological systems found in the park.

In preparing a soil survey, soil scientists, foresters, geologists, and others collect extensive field data about the nature and behavioral characteristics of the soils. Extensive work was completed on the interaction of the soils and landscapes in Great Smoky Mountains National Park and resulted in the construction of 15 soil-landscape relationship models, which correspond to the general soil map units. These models should be utilized to guide the user of the soils information.

Certain recommendations are included in the tables and can be used by the management staff. Extensive information related to the actual and potential productivity of the soils in the park is also included. This information is valuable when ranking a soil's response to outside impacts and when dealing with managing vegetative stands for various restoration activities.

Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses. Many of the tables identify the limitations that affect specified uses and indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

Rating Class Terms

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use or in terms that indicate the suitability of the soils for the use. Thus, the tables may show limitation classes or suitability classes. Terms for the limitation classes are *not limited, slightly limited, somewhat limited,* and *very limited*. The suitability ratings are expressed as *well suited, moderately well suited, poorly suited,* and *unsuited* or as *good, fair,* and *poor*.

Numerical Ratings

Numerical ratings in the tables indicate the relative severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation. The limitations appear in order from the most limiting to the least limiting. Thus, if more than one limitation is identified, the most severe limitation is listed first and the least severe one is listed last.

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 either is not frequently flooded during the growing season or is protected from flooding. 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.

The map units in the survey area that are considered prime farmland are listed in table 2. This list does not constitute a recommendation for a particular land use. For some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are identified. The extent of each listed map unit is shown in table 1. 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."

Major Land Resource Areas

A major land resource area (MLRA) is a broad geographic area that has a distinct combination of physiography, geology, climate, hydrology, soils, biological resources, and land use (USDA-NRCS, 2006b). Great Smoky Mountains National Park is contained in MLRA 130B, Southern Blue Ridge.

MLRA 130B, Southern Blue Ridge. One hundred percent of the survey area is in MLRA 130B. In this portion of the major land resource area, the physiography is characterized by interior low and intermediate mountains, intermountain basins, and major mountains. Elevations range from 275 to 2,010 meters. The bedrock geology consists mainly of Precambrian metamorphic rock with a few small windows of igneous and sedimentary rock. Surficial deposits include colluvial material on fans and alluvial material along the major streams. The climate varies widely with elevation. The average temperature ranges from 8 to 16 degrees C, decreasing with elevation. Precipitation ranges from 1,525 to 3,025 millimeters, increasing with elevation. The frost–free period averages 185 days and is shorter at high elevations and on valley floors because of cold air drainage. Microclimate differences resulting from aspect significantly affect the type and vigor of the plant communities in the area. South- and west-facing slopes are warmer and drier than north- and east-facing slopes and those shaded by the higher mountains. Surface water and spring flow varies widely throughout the year and is dependent on precipitation in each drainage area. The dominant soil orders are Inceptisols and Ultisols. The soil moisture regime is udic. The soil temperature regime is mesic below 1,280 meters and frigid above 1,280 meters in elevation. The biological resources are some of the most diverse in the lower 48 States. This is due to the variability of topography and climate. Vegetative cover type changes with elevation and slope aspect. The lower elevations are dominated by a forest cover of mixed southern hardwoods. The forest cover changes to a mixture of northern hardwoods as elevation increases and is spruce and fir at the highest elevations. There are also grassy and heath balds at the higher elevations. Land use is dominated by protected forest cover. There are several maintained grassy areas in Cades Cove and Cataloochee Valley.

Hydric Soils

In this section, hydric soils are defined and described and the hydric soils in the survey area are listed.

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin et al., 1979; Schoeneberger et al., 2002; U.S. ACOE, 1987; Federal Register, 1994). Criteria for each of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register. 1995). These criteria are used to identify a phase of a soil series that normally is associated with wetlands. The criteria used are selected estimated soil properties that are described in “Soil Taxonomy” (USDA-NRCS, 1999) and “Keys to Soil Taxonomy” (USDA-NRCS, 2006a) and in the “Soil Survey Manual” (USDA-SCS, 1993).

If soils are wet enough for a long enough period to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils in this survey area are specified in “Field Indicators of Hydric Soils in the United States” (Hurt et al., 1996).

Hydric soils are identified by examining and describing the soil to a depth of about 51 centimeters. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

The map units listed in table 3 have components that meet the definition of hydric soils and, in addition, have at least one of the hydric soil indicators. This list can help for planning purposes; however, onsite investigation is recommended to determine the hydric soils on a specific site (Hurt et al., 1996; Schoeneberger et al., 2002).

Map units that are made up of hydric soils or include hydric soils may also include non-hydric soils in higher positions on the landform. Other map units that are made up primarily of non-hydric soils may also include hydric soil components in lower-lying positions. Each major soil component that is hydric is indicated in the “Detailed Soil Map Units” section.

Forestland Productivity and Management

The tables in this section can help forest owners or managers plan the use of soils for wood crops. They show the potential productivity of the soils for wood crops and rate the soils according to the limitations that affect various aspects of forest management.

Table 4 lists the plant symbols, common names, and scientific names for the overstory and understory plants that were recorded in the survey area.

Forest Productivity

In table 5, 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 forest managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability. More detailed information regarding site index is available in the “National Forestry Manual,” which is available in local offices of the Natural Resources Conservation Service or on the Internet.

The *volume of wood fiber*, a number, is the yield likely to be produced by the most important tree species. This number, expressed as cubic feet per acre per year and calculated at the age of culmination of the mean annual increment (CMAI), indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

Trees to manage are those that are preferred for planting, seeding, or natural regeneration and those that remain in the stand after thinning or partial harvest.

Forestland Management

In table 6, parts I and II, interpretive ratings are given for various aspects of forestland management. The ratings are both verbal and numerical.

Some rating class terms indicate the degree to which the soils are suited to a specified aspect of forestland management. *Well suited* indicates that the soil has features that are favorable for the specified management aspect and has no limitations. Good performance can be expected, and little or no maintenance is needed. *Moderately suited* indicates that the soil has features that are moderately favorable for the specified management aspect. One or more soil properties are less than desirable, and fair performance can be expected. Some maintenance is needed. *Poorly suited* indicates that the soil has one or more properties that are unfavorable for the specified management aspect. Overcoming the unfavorable properties requires special design, extra maintenance, and costly alteration. *Unsuited* indicates that the expected performance of the soil is unacceptable for the specified management aspect or that extreme measures are needed to overcome the undesirable soil properties.

Rating class terms for fire damage and seedling mortality are expressed as *low, moderate,* and *high*. Where these terms are used, the numerical ratings indicate gradations between the point at which the potential for fire damage or seedling mortality is highest (1.00) and the point at which the potential is lowest (0.00). *Low* indicates that the soil has features that reduce its potential for fire damage and for seedling mortality. Good performance can be expected, and little or no maintenance is needed. *Moderate* indicates that the soil has features that result in a moderate potential for fire damage or seedling mortality. One or more soil properties are less than desirable, and fair performance can be expected. Some maintenance is needed. *High* indicates that the soil has one or more properties that result in a high potential for fire damage and for seedling mortality. Effects of the unfavorable properties on the management of the resource base need to be considered.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the specified aspect of forestland management (1.00) and the point at which the soil feature is not a limitation (0.00).

The paragraphs that follow indicate the soil properties considered in rating the soils. More detailed information about the criteria used in the ratings is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

Ratings in the column *hazard of off-road or off-trail erosion* are based on slope and on soil erodibility factor K. The soil loss is caused by sheet or rill erosion in off-road or off-trail areas where 50 to 75 percent of the surface has been exposed by fire, clearing, or other kinds of disturbance. The hazard is described as slight, moderate, severe, or very severe. A rating of *slight* indicates that erosion is unlikely under ordinary climatic conditions; *moderate* indicates that some erosion is likely and that erosion-control measures may be needed; *severe* indicates that erosion is very likely and that erosion-control measures, including revegetation of bare areas, are advised; and *very severe* indicates that significant erosion is expected, loss of soil productivity and off-site damage are likely, and erosion-control measures are costly and generally impractical.

Ratings in the column *hazard of erosion on roads and trails* are based on the soil erodibility factor K, slope, and content of rock fragments. The ratings apply to unsurfaced roads and trails. The hazard is described as slight, moderate, or severe. A rating of *slight* indicates that little or no erosion is likely; *moderate* indicates that some erosion is likely, that the roads or trails may require occasional maintenance, and that simple erosion-control measures are needed; and *severe* indicates that significant erosion is expected, that the roads or trails require frequent maintenance, and that costly erosion-control measures are needed.

Ratings in the column *suitability for roads (natural surface)* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The ratings indicate the suitability for using the natural surface of the soil for roads. The soils are described as well suited, moderately suited, or poorly suited to this use.

Ratings in the column *potential for damage to soil by fire* are based on texture of the surface layer, content of rock fragments and organic matter in the surface layer, thickness of the surface layer, and slope. Not considered in the ratings, but important in evaluating a site, are the types and quantity of vegetative fuels, climate, and surface moisture conditions. The ratings evaluate soil properties only, and it is assumed that all sites have equal potential to sustain high-intensity fires. The soils are described as having a low, moderate, or high potential for this kind of damage. The ratings indicate an evaluation of the potential impact of prescribed fires or wildfires that are intense enough to remove the duff layer and consume organic matter in the surface layer.

Ratings in the column *potential for seedling mortality* are based on flooding, ponding, depth to a water table, content of lime, reaction, salinity, available water capacity, soil moisture regime, soil temperature regime, aspect, and slope. The soils are described as having a low, moderate, or high potential for seedling mortality.

Recreational Development

The soils of the survey area are rated in table 7, parts I and II, according to limitations that affect their suitability for recreational development. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in this table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings in this table are based on restrictive soil features, such as wetness, slope, surface stoniness, 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 also are important. Soils that are 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.

The information in this table can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields.

Foot traffic and equestrian trails should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

Mountain bike and off-road vehicle trails require little or no site preparation. They are not covered with surface material or vegetation. Considerable compaction of the soil material is likely. The ratings are based on the soil properties that influence erodibility, trafficability, dustiness, and the ease of revegetation. These properties are stoniness, slope, depth to a water table, ponding, flooding, and the texture of the surface layer.

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 ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a cemented pan are the main concerns affecting the development of camp areas. The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, saturated hydraulic conductivity (K_{sat}), and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, K_{sat}, and toxic substances in the soil.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, K_{sat}, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

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 construction materials, sanitary facilities, 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 between the surface and a depth of 1.5 to 2 meters. 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.

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 particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 1.5 to 2 meters of the surface, soil wetness, depth to a water table, ponding, 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.

Construction Materials

Table 8, parts I and II, give information about the soils as potential sources of gravel, sand, topsoil, reclamation material, and roadfill. Normal compaction, minor processing, and other standard construction practices are assumed.

Gravel and *sand* 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 8, only the likelihood 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 gravel or sand are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the bottom layer of the soil contains gravel or sand, the soil is considered a likely source regardless of thickness. The assumption is that the gravel or sand layer below the depth of observation exceeds the minimum thickness.

The soils are rated *good, fair,* or *poor* as potential sources of sand and gravel. A rating of *good* or *fair* means that the source material is likely to be in or below soil. The bottom layer and the thickest layer of the soils are assigned numerical ratings. These ratings indicate the likelihood that the layer is a source of sand or gravel. The numbers 0.00 to 0.07 indicate that the layer is a poor source. The numbers 0.75 to 1.00 indicate that the layer is a good source. The numbers 0.08 to 0.74 indicate the degree to which the layer is a likely source.

The soils are rated *good, fair,* or *poor* as potential sources of reclamation material, roadfill, and topsoil. The features that limit the soils as sources of these materials are specified in the table. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of reclamation material, roadfill, and topsoil. The lower the number, the greater the limitation.

Reclamation material is used in areas that have been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence. The reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined areas that require an offsite source of reconstruction material. The ratings are based on the soil properties that affect erosion and stability of the surface and the productive potential of the reconstructed soil. These properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; and content of organic matter and other features that affect fertility.

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 183 centimeters high and less exacting in design than higher embankments.

Ratings are for the whole soil, from the surface to a depth of about 152 centimeters. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a 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 AASHTO classification of the soils) and linear extensibility (shrink-swell potential).

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 100 centimeters of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and the reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content and nutrients for plant growth.

Sanitary Facilities

Table 9 shows the degree and kind of soil limitations that affect septic tank absorption fields and sewage lagoons. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

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 60 and 152 centimeters is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 1.2 meters below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

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. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 51 millimeters per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 1 meter, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

Water Management

Table 10 provides 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 ratings are both descriptive and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. An entry of *no limitations* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. An entry of *limitations* indicates that the soil has some features that are favorable for the specified uses and some that are unfavorable. Ratings between 0.01 and 1.00 indicate limitations that can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. Limitations with a rating of 1.00 indicate that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures.

Numerical ratings in the table indicate the severity of the individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00). Values of 0.00 are not shown in the table.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 152 centimeters. 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 6 meters high, constructed to impound water or to protect land against overflow. Embankments that have zoned construction (core and shell) are not considered. 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 152 centimeters. 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 the embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 152 centimeters of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are rated on the depth to water table and the stability of the soils in place.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

Soil properties are ascertained 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 particle-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 are shown in tables. They include engineering index properties, physical and chemical properties, and pertinent soil and water features.

Soil samples from 71 pedons were analyzed by the National Soil Survey Laboratory, United States Department of Agriculture, Natural Resources Conservation Service, Lincoln, Nebraska. A list of laboratory sample pedon ID's, laboratory pedon numbers, and soil component name referenced by map unit symbol is available in table 11. The list indicates pedons that are the typical pedon for the official series. This data is available as characterization data. The data are also available online at http://ssldata.nrcs.usda.gov/.

Engineering Index Properties

Table 12 gives the engineering classifications and the range of index properties for the layers of each soil in the survey area.

Depth to the upper and lower boundaries of each layer is indicated.

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 15 percent or more, 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 (ASTM, 1998) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 1998).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-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 particle-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.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 250 millimeters in diameter and 75 to 250 millimeters 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 75 millimeters 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.

Physical Soil Properties

Table 13, parts I and II, show estimates of some physical 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.

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.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In table 13, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In the table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In the table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

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.

The amount and kind of clay affect the fertility and physical condition of the soil and 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 $^{1}/_{3}$- or $^{1}/_{10}$-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each 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. Depending on soil texture, 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, as used in soil surveys, indicates saturated hydraulic conductivity (K_{sat}). Saturated hydraulic conductivity refers to the ability of a soil to transmit water or air. The estimates in the table indicate the rate of water movement, in micrometers per second (um/sec), 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 soil layer. The capacity varies, depending on soil properties that affect retention of water. 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 $^{1}/_{3}$- or $^{1}/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. 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 13, part I, 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 by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in table 13, part II, 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 six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the 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.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are as follows:

1. Coarse sands, sands, fine sands, and very fine sands.

2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, ash material, and sapric soil material.

3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams.

4L. Calcareous loams, silt loams, clay loams, and silty clay loams.

4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay.

5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material.

6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay.

7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material.

8. Soils that are not subject to wind erosion because of coarse fragments on the surface or because of surface wetness.

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Chemical Soil Properties

Table 14 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 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. 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 exchangeable cations 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.

Water Features

Table 15 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.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

Surface runoff is the portion of precipitation that is lost without entering the soil. For example, a low surface runoff potential indicates that very little or none of the precipitation that reaches a site is lost to overland flow before entering the soil.

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 15 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.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. Table 15 indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 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, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

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.

Soil Features

Table 16 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. The table indicates the hardness of the restrictive layer, which significantly affects the ease of excavation. *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.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (USDA-NRCS, 1999 and 2006a). 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 17 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 Inceptisol.

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 Udept (*Ud*, meaning udic soil moisture regime, plus *ept*, from Inceptisol).

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 Dystrudepts (*Dystr*, meaning low base cation saturation, plus *udept*, the suborder of the Inceptisols that has a udic soil 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 *Humic* denotes a mollic or umbric epipedon. An example is Humic Dystrudepts.

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, and reaction. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-loamy, isotic, mesic Humic Dystrudepts.

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. There can be some variation in the texture of the surface layer or of the substratum within a series. The Tuckasegee series is an example of fine-loamy, isotic, mesic Humic Dystrudepts.

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” (USDA-SCS, 1993). Many of the technical terms used in the descriptions are defined in “Soil Taxonomy” (USDA-NRCS, 1999) and in “Keys to Soil Taxonomy” (USDA-NRCS, 2006a). Following the pedon description is the range of important characteristics of the soils in the series.

Alarka Series

Major Land Resource Area: 130B
Map unit(s):
AwB—Alarka-Wesser complex, 0 to 8 percent slopes, flooded
AwC—Alarka-Whiteside complex, 8 to 15 percent slopes, stony
Depth class: Very deep
Drainage class: Poorly drained
Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Cove on mountains
Landform position(s) (three-dimensional): Head slope
Parent material: Loamy colluvium over gravelly alluvium derived from metasedimentary rock
Elevation: 762 to 1,524 meters
Slope: 3 to 15 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Fine-loamy over sandy or sandy-skeletal, mixed, active, mesic Aeric Epiaquults

Typical Pedon

This pedon of Alarka soil is located outside of Great Smoky Mountains National Park in an area of Alarka-Wesser complex, 0 to 8 percent slopes, occasionally flooded; Swain County, North Carolina; USGS Green’s Creek topographic quadrangle; latitude 35 degrees 20 minutes 1.00 seconds north and longitude 83 degrees 21 minutes 18.00 seconds west; UTM Zone 17, 285953 meters easting, 3912387 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oe—0 to 8 centimeters; moderately decomposed plant material; many fine, many medium, many coarse, many very coarse, and many very fine roots throughout; extremely acid, pH 3.5; clear wavy boundary. Lab sample # 00P01686

Oa—8 to 18 centimeters; highly decomposed plant material; many fine, many medium, and many coarse roots throughout; ultra acid, pH 3.1; clear irregular boundary. Lab sample # 00P01687

A—18 to 25 centimeters; black (10YR 2/1) mucky fine sandy loam; weak fine granular structure; friable; common fine, common medium, common coarse, and few very fine roots throughout; ultra acid, pH 3.4; clear irregular boundary. Lab sample # 00P01688

Btg—25 to 33 centimeters; brown (7.5YR 5/2) loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; few medium and few coarse roots throughout; 10 percent continuous black (10YR 2/1) organic stains on surfaces along root channels; 20 percent medium and coarse prominent irregular strong brown (7.5YR 5/8) masses of oxidized iron throughout; 2 percent fine mica flakes throughout; extremely acid, pH 3.7; clear wavy boundary. Lab sample # 00P01689

Bt—33 to 53 centimeters; yellowish brown (10YR 5/8) loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; few coarse roots throughout; 10 percent continuous organic stains on surfaces along root channels; 2 percent fine prominent irregular red (2.5YR 4/6) masses of oxidized iron throughout and 20 percent medium and coarse prominent irregular dark grayish brown (10YR 4/2) clay depletions throughout; 2 percent fine mica flakes throughout; extremely acid, pH 3.9; clear wavy boundary. Lab sample # 00P01690

Cg—53 to 91 centimeters; light brownish gray (2.5Y 6/2) very fine sandy loam; massive; friable; 10 percent medium and coarse prominent irregular dark yellowish brown (10YR 4/6) masses of oxidized iron lining pores; 5 percent 2- to 75-millimeter unspecified fragments; very strongly acid, pH 4.7; abrupt wavy boundary. Lab sample # 00P01691

2C—91 to 152 centimeters; 40 percent yellowish brown (10YR 5/6), 30 percent strong brown (7.5YR 5/8), and 30 percent red (2.5YR 5/8) very stony loamy sand; massive; loose; 5 percent 75- to 250-millimeter unspecified fragments, 15 percent 250- to 600-millimeter unspecified fragments, and 30 percent 2- to 75-millimeter unspecified fragments; very strongly acid, pH 5.0. Lab sample # 00P01692

Range in Characteristics

Depth to restrictive feature: Greater than 203 centimeters
Diagnostic feature(s): Argillic horizon
Surface fragments: None
Seasonal high water table: January, February, March, April, May, June, July, August, September, October, November, December
Depth to top of water table: 0 to 15 centimeters

Oe horizon:
Texture—moderately decomposed plant material
Fragment content—none
Reaction—pH 2.5 to 3.5
Organic matter content—90.0 to 95.0 percent

Oa1 horizon:
Texture—highly decomposed plant material
Fragment content—none
Reaction—pH 2.5 to 3.5
Organic matter content—90.0 to 95.0 percent

Oa2 horizon:
Texture—highly decomposed plant material
Fragment content—none
Reaction—pH 3.0 to 3.5
Organic matter content—60.0 to 70.0 percent

A horizon (if present):
Hue—10YR or 2.5Y
Value—2 or 3
Chroma—1 to 3
Texture (fine-earth fraction)—loam, fine sandy loam, sandy loam
Reaction—3.0 to 3.5

Btg horizon:
Hue—7.5YR to 2.5Y
Value—2 to 5

Chroma—1 or 2
Texture (fine-earth fraction)—sandy loam, sandy clay loam, clay loam, loam
Fragment content—none
Reaction—pH 3.5 to 4.4
Organic matter content—5.0 to 10.0 percent

Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Texture (fine-earth fraction)—clay loam, sandy clay loam, sandy loam, loam
Fragment content—none
Reaction—pH 3.5 to 5.0
Organic matter content—1.0 to 3.0 percent

Cg horizon:
Hue—10YR to 2.5Y
Value—2 to 6
Chroma—1 or 2
Texture (fine-earth fraction)—very fine sandy loam, sandy loam, fine sandy loam, loam
Fragment content—0 to 10 percent
Reaction—pH 4.5 to 5.5
Organic matter content—0.5 to 2.0 percent

2C horizon:
Hue—5YR to 10YR
Value—4 or 5
Chroma—3 to 6
Texture (fine-earth fraction)—very gravelly loamy sand, very gravelly sandy loam, very gravelly fine sandy loam
Fragment content—49 to 59 percent
Reaction—pH 4.5 to 5.5
Organic matter content—1.0 to 2.0 percent

Allegheny Series

Major Land Resource Area: 130B
Map unit(s):
AxB—Allegheny loam, 2 to 8 percent slopes
Depth class: Very deep
Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): Moderately high
Landform(s): Stream terrace in valley
Landform position(s) (three-dimensional): Tread
Parent material: Loamy alluvium derived from sandstone and shale
Elevation: 300 to 920 meters
Slope: 2 to 8 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Fine-loamy, mixed, semiactive, mesic Typic Hapludults

Typical Pedon

This pedon of Allegheny soil is located outside of Great Smoky Mountains National Park in an area of Allegheny loam, 2 to 6 percent slopes, rarely flooded; Johnson County, Kentucky; USGS Offutt topographic quadrangle; latitude 37 degrees 51 minutes 25.00 seconds north and longitude 82 degrees 43 minutes 43.00 seconds west; UTM Zone 17, 347928 meters easting, 4191145 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Ap—0 to 20 centimeters; dark yellowish brown (10YR 4/4) loam; weak medium subangular blocky structure parting to weak fine granular; very friable; many fine and medium roots; moderately acid, pH 5.8; clear smooth boundary.

Bt1—20 to 38 centimeters; yellowish brown (10YR 5/6) loam; moderate medium subangular blocky structure; firm; common fine roots; common fine tubular pores; 35 percent faint clay films on all faces of peds and 55 percent faint organic stains; strongly acid, pH 5.3; gradual smooth boundary.

Bt2—38 to 71 centimeters; yellowish brown (10YR 5/6) loam; moderate medium subangular blocky structure; firm; few fine roots; few fine tubular pores; 35 percent faint clay films on all faces of peds; strongly acid, pH 5.3; gradual wavy boundary.

Bt3—71 to 84 centimeters; yellowish brown (10YR 5/6) loam; 1 percent medium distinct strong brown (7.5YR 5/8) and 1 percent medium distinct brown (10YR 5/3) mottles; moderate medium subangular blocky structure; firm; few fine roots; few fine tubular pores; 35 percent faint clay films on all faces of peds; strongly acid, pH 5.3; gradual smooth boundary.

Bt4—84 to 107 centimeters; yellowish brown (10YR 5/4) fine sandy loam; 1 percent medium prominent strong brown (7.5YR 5/8) and 1 percent medium faint brown (10YR 5/3) mottles; moderate medium subangular blocky structure; firm; few fine roots; few fine tubular pores; 15 percent faint clay films on all faces of peds; strongly acid, pH 5.3; clear smooth boundary.

BC1—107 to 140 centimeters; yellowish brown (10YR 5/4) fine sandy loam; weak very coarse prismatic structure parting to moderate medium subangular blocky; firm; few fine roots; few fine tubular pores; 15 percent faint clay films on all faces of peds and 15 percent faint silt coats on all faces of peds; 5 percent fine prominent spherical moderately cemented very dark grayish brown (10YR 3/2) iron-manganese concretions in matrix and 5 percent medium prominent strong brown (7.5YR 5/8) masses of oxidized iron on vertical faces of peds; 15 to 30 percent brittleness; strongly acid, pH 5.3; gradual smooth boundary.

BC2—140 to 183 centimeters; yellowish brown (10YR 5/4) fine sandy loam; weak very coarse prismatic structure parting to moderate medium subangular blocky; firm; few fine roots; few fine tubular pores; 15 percent faint silt coats on all faces of peds and 15 percent faint clay films on all faces of peds; 20 to 40 percent brittleness; strongly acid, pH 5.3; gradual smooth boundary.

C—183 to 226 centimeters; yellowish brown (10YR 5/4) sandy loam; massive; firm; faint irregular weakly cemented masses of oxidized iron in matrix and 1 percent fine distinct irregular weakly cemented light brownish gray (10YR 6/2) iron depletions; strongly acid, pH 5.3.

Range in Characteristics

Depth to restrictive feature: Greater than 203 centimeters
Diagnostic feature(s): Ochric epipedon and argillic horizon
Surface fragments: None
Depth to seasonal high water table: Greater than 183 centimeters

A or Ap horizon:
Hue—7.5YR to 2.5Y

Value—3 or 5
Chroma—1 to 4
Texture (fine-earth fraction)—loam, fine sandy loam, silt loam
Fragment content—0 to 14 percent
Reaction—pH 3.6 to 5.5
Organic matter content—2.0 to 4.0 percent

BA or BE horizon (if present):
Hue—7.5YR to 2.5YR
Value—4 to 6
Chroma—3 to 8
Texture (fine-earth fraction)—sandy loam to silt loam

Bt horizon:
Hue—7.5YR to 2.5YR
Value—4 to 6
Chroma—3 to 8
Texture (fine-earth fraction)—clay loam, loam, sandy clay loam, fine sandy loam, silt loam, silty clay loam
Fragment content—0 to 14 percent
Reaction—pH 3.6 to 5.5
Organic matter content—0.5 to 1.0 percent

BC horizon (if present):
Color—similar to the Bt horizon
Texture—similar to the Bt horizon

C horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture (fine-earth fraction)—clay, clay loam, sandy loam, gravelly sandy loam
Fragment content—0 to 34 percent
Reaction—pH 3.6 to 5.5
Organic matter content—0.3 to 0.5 percent

Anakeesta Series

Major Land Resource Area: 130B
Map unit(s):
LrD—Luftee-Anakeesta complex, 15 to 30 percent slopes, very rocky
LrF—Luftee-Anakeesta complex, 30 to 95 percent slopes, very rocky
Depth class: Deep
Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Mountainside on mountains and ridge on mountains
Landform position(s) (three-dimensional): Mountainflank
Parent material: Channery residuum weathered from metasedimentary rock
Elevation: 1,280 to 2,030 meters
Slope: 15 to 95 percent
Climatic data:
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1.0 to 13.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Loamy-skeletal, isotic, frigid Humic Dystrudepts

Typical Pedon

This pedon of Anakeesta soil is located in Great Smoky Mountains National Park in an area of Luftee-Anakeesta complex, 30 to 95 percent slopes, very rocky; Sevier County, Tennessee; USGS Clingman’s Dome topographic quadrangle; latitude 35 degrees 36 minutes 57.00 seconds north and longitude 83 degrees 25 minutes 13.00 seconds west; UTM Zone 17, 280787 meters easting, 3943838 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oe—0 to 3 centimeters; moderately decomposed plant material.

A—3 to 20 centimeters; very dark grayish brown (10YR 3/2) channery loam; moderate coarse granular, moderate medium granular, and moderate fine granular structure; very friable; many medium, many coarse, many very coarse, common fine, and common very fine roots throughout; 5 percent flat subangular strongly cemented 2- to 150-millimeter metasedimentary rock fragments and 20 percent flat subangular strongly cemented 2- to 150-millimeter slate fragments; extremely acid, pH 4.2; clear wavy boundary. Lab sample # 01N05398

BA—20 to 36 centimeters; dark brown (10YR 3/3) very channery loam; weak coarse subangular blocky and weak medium subangular blocky structure; friable; few fine and few medium roots throughout; 10 percent flat subangular strongly cemented 2- to 150-millimeter metasedimentary rock fragments, 10 percent nonflat subangular very strongly cemented 2- to 75-millimeter quartz fragments, and 30 percent flat subangular strongly cemented 2- to 150-millimeter slate fragments; very strongly acid, pH 4.7; clear wavy boundary. Lab sample # 01N05400

Bw—36 to 114 centimeters; dark yellowish brown (10YR 4/4) extremely channery loam; weak coarse subangular blocky and weak medium subangular blocky structure; friable; 10 percent nonflat subangular very strongly cemented 2- to 75-millimeter quartz fragments, 10 percent flat subangular strongly cemented 2- to 150-millimeter metasedimentary rock fragments, and 45 percent flat subangular strongly cemented 2- to 150-millimeter slate fragments; strongly acid, pH 5.1; clear smooth boundary. Lab sample # 01N05401

R—114 to 200 centimeters; indurated metasedimentary bedrock; very strongly cemented; very high excavation difficulty.

Range in Characteristics

Depth to restrictive feature: 102 to 152 centimeters to lithic bedrock
Diagnostic feature(s): Lithic contact, umbric epipedon, and cambic horizon
Surface fragments: 0 to 3 percent subangular very strongly cemented slate flagstones
Depth to seasonal high water table: Greater than 183 centimeters

A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 to 3
Texture (fine-earth fraction)—loam, silt loam
Fragment content—15 to 34 percent
Reaction—pH 3.0 to 5.5
Organic matter content—3.0 to 15.0 percent

BA horizon (if present):
Color—similar to the Bw horizon
Texture—similar to the Bw horizon

Bw horizon:
Hue—10YR or 2.5Y
Value—3 to 5
Chroma—2 to 6

Texture (fine-earth fraction)—loam, sandy loam, coarse sandy loam, silt loam
Fragment content—15 to 75 percent
Reaction—pH 3.0 to 5.5
Organic matter content—1.0 to 5.0 percent

R horizon(s):
Texture—unweathered bedrock

Balsam Series

Major Land Resource Area: 130B
Map unit(s):
BaE—Balsam-Tanasee complex, 30 to 50 percent slopes, stony
TaC—Tanasee-Balsam complex, 5 to 15 percent slopes, stony
TaD—Tanasee-Balsam complex, 15 to 30 percent slopes, stony
Depth class: Very deep
Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Cove on mountains
Landform position(s) (three-dimensional): Mountainflank
Parent material: Cobbly colluvium derived from igneous and metamorphic rock
Elevation: 1,280 to 2,030 meters
Slope: 5 to 50 percent
Climatic data:
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1.0 to 13.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Loamy-skeletal, isotic, frigid Humic Dystrudepts

Typical Pedon

This pedon of Balsam soil is located outside of Great Smoky Mountains National Park in an area of Tanasee-Balsam complex, 15 to 30 percent slopes, stony; Jackson County, North Carolina; USGS Tuckasegee topographic quadrangle; latitude 35 degrees 21 minutes 46 seconds north and longitude 83 degrees 0 minutes 5 seconds west; UTM Zone 17, 630000 meters easting, 800000 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oe—0 to 5 centimeters; partially decomposed leaves, twigs, roots, and other coniferous plant materials.

A1—5 to 15 centimeters; black (10YR 2/1) stony sandy loam, very dark brown (10YR 2/2) dry; weak fine granular structure; very friable; common fine, common medium, and common coarse roots throughout; 1 percent fine mica flakes throughout; 20 percent nonflat unspecified fragments; very strongly acid, pH 4.7; clear wavy boundary.

A2—15 to 38 centimeters; very dark brown (10YR 2/2) stony sandy loam; weak fine granular structure; very friable; common fine, common medium, and common coarse roots throughout; 1 percent fine mica flakes throughout; 20 percent nonflat unspecified fragments; very strongly acid, pH 4.7; clear wavy boundary.

Bw1—38 to 61 centimeters; dark yellowish brown (10YR 4/4) very cobbly loam; weak medium subangular blocky structure; very friable; common fine, common medium, and common coarse roots throughout; 11 percent fine mica flakes throughout; 40 percent nonflat unspecified fragments; very strongly acid, pH 4.7; gradual wavy boundary.

Bw2—61 to 127 centimeters; dark yellowish brown (10YR 4/6) very cobbly fine sandy loam; weak medium subangular blocky structure; very friable; common fine, common medium, and common coarse roots throughout; 2 percent fine mica flakes throughout; 50 percent nonflat unspecified fragments; very strongly acid, pH 4.7; gradual irregular boundary.

C—127 to 170 centimeters; 34 percent dark yellowish brown (10YR 4/6), 33 percent black (10YR 2/1), and 33 percent very pale brown (10YR 8/2) very cobbly sandy loam; massive; very friable; common fine roots throughout; 11 percent fine manganese coatings around rock fragments; 11 percent fine and 11 percent medium mica flakes throughout; 55 percent nonflat unspecified fragments; very strongly acid, pH 4.7.

Range in Characteristics

Depth to restrictive feature: Greater than 203 centimeters
Diagnostic feature(s): Umbric epipedon and cambic horizon
Surface fragments: None
Depth to seasonal high water table: Greater than 183 centimeters

Oe horizon:
Texture—moderately decomposed plant material
Fragment content—0 percent
Reaction—pH 3.0 to 4.0
Organic matter content—50.0 to 95.0 percent

A horizon:
Hue—7.5YR to 2.5Y
Value—2 or 3
Chroma—0 to 3
Texture (fine-earth fraction)—loam, fine sandy loam, sandy loam
Fragment content—15 to 57 percent
Reaction—pH 3.5 to 6.0
Organic matter content—8.0 to 20.0 percent

Bw horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture (fine-earth fraction)—sandy loam, loam
Fragment content—31 to 90 percent
Reaction—pH 3.5 to 6.0
Organic matter content—1.0 to 5.0 percent

C horizon:
Color—multicolored
Texture (fine-earth fraction)—fine sandy loam, loam, loamy sand
Fragment content—31 to 90 percent
Reaction—pH 3.5 to 6.0
Organic matter content—0.5 to 2.0 percent

Biltmore Series

Major Land Resource Area: 130B
Map unit(s):
Bm—Biltmore sand, 0 to 3 percent slopes, frequently flooded
Depth class: Very deep
Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Floodplain in valley

Figure 27.—Profile of Biltmore soil series (outside Great Smoky Mountains National Park). Scale is in inches.

Landform position(s) (three-dimensional): Mountain base
Parent material: Sandy alluvium
Elevation: 300 to 700 meters
Slope: 0 to 3 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Mixed, mesic Typic Udipsamments (fig. 27)

Typical Pedon

This pedon of Biltmore soil is located outside of Great Smoky Mountains National Park in an area of Biltmore sand, 0 to 3 percent slopes, frequently flooded; Jackson County, North Carolina; USGS Whittier topographic quadrangle; latitude 35 degrees 24 minutes 59.90 seconds north and longitude 83 degrees 20 minutes 0.00 seconds west; UTM Zone 17, 288145 meters easting, 3921752 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Ap—0 to 25 centimeters; brown (10YR 4/3) sand; weak fine granular structure; very friable; common fine and common medium roots; 1 percent fine mica flakes throughout; slightly acid, pH 6.3; clear smooth boundary.

C1—25 to 69 centimeters; dark yellowish brown (10YR 4/6) sand; single grain; loose; common fine and common medium roots throughout; 11 percent medium mica flakes throughout; slightly acid, pH 6.3; gradual wavy boundary.

C2—69 to 91 centimeters; yellowish brown (10YR 5/8) loamy sand; single grain; loose; common fine roots throughout; 11 percent medium mica flakes throughout; slightly acid, pH 6.3; gradual wavy boundary.

C3—91 to 152 centimeters; dark yellowish brown (10YR 4/4) sand; single grain; loose; 11 percent medium mica flakes throughout; slightly acid, pH 6.3.

Range in Characteristics

Depth to restrictive feature: Greater than 203 centimeters
Diagnostic feature(s): Ochric epipedon
Surface fragments: None
Seasonal high water table: January, February, March, April, May, December
Depth to top of water table: 120 to 183 centimeters

A or Ap horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—1 to 6
Texture (fine-earth fraction)—sand
Fragment content—0 to 10 percent
Reaction—pH 4.5 to 6.5
Organic matter content—0.5 to 3.0 percent

C horizon:
Hue—7.5YR to 10YR
Value—4 to 6
Chroma—3 to 8
Texture (fine-earth fraction)—loamy fine sand, sand, fine sand
Fragment content—0 to 10 percent
Reaction—pH 4.5 to 6.5
Organic matter content—0.0 to 0.5 percent

Brasstown Series

Major Land Resource Area: 130B
Map unit(s):
JbD—Junaluska-Brasstown complex, 15 to 30 percent slopes, stony
JbE—Junaluska-Brasstown complex, 30 to 50 percent slopes, stony
Depth class: Deep
Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): Moderately high

Figure 28.—Profile of Brasstown soil series on the Old Settlers Trail in Great Smoky Mountains National Park. Scale is in centimeters.

Landform(s): Mountainside on mountains and ridge on mountains
Landform position(s) (three-dimensional): Side slope and crest
Parent material: Loamy residuum weathered from metasedimentary rock
Elevation: 301 to 1,280 meters
Slope: 15 to 50 percent
Climatic data:
    Mean annual precipitation: 1,219 to 1,651 millimeters
    Mean annual air temperature: 6.0 to 20.0 degrees C
    Frost-free period: 162 to 176 days
Taxonomic class: Fine-loamy, mixed, subactive, mesic Typic Hapludults (fig. 28)

Typical Pedon

This pedon of Brasstown soil is located outside of Great Smoky Mountains National

Park in an area of Brasstown-Junaluska complex, 30 to 50 percent slopes; Macon County, North Carolina; USGS Alarka topographic quadrangle; latitude 35 degrees 16 minutes 59.99 seconds north and longitude 85 degrees 28 minutes 59.99 seconds west; UTM Zone 17, 274152 meters easting, 3907293 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oi—0 to 3 centimeters; reddish brown (5YR 4/4) slightly decomposed plant material.

A—3 to 18 centimeters; reddish brown (5YR 4/4) loam; moderate medium granular and moderate fine granular structure; friable; common fine and common coarse roots; 1 percent fine mica flakes throughout; 10 percent flat metasedimentary rock fragments; strongly acid, pH 5.3; clear smooth boundary.

BA—18 to 33 centimeters; red (2.5YR 4/8) loam; weak fine subangular blocky and weak medium subangular blocky structure; friable; common fine and common coarse roots throughout; 1 percent fine mica flakes throughout; 10 percent flat metasedimentary rock fragments; strongly acid, pH 5.3; gradual wavy boundary.

Bt—33 to 94 centimeters; red (2.5YR 4/8) clay loam; moderate fine subangular blocky and moderate medium subangular blocky structure; friable; common medium and common coarse roots throughout; 15 percent faint clay films on all faces of peds; 1 percent fine mica flakes; 5 percent flat metasedimentary rock fragments; strongly acid, pH 5.3; gradual wavy boundary.

BC—94 to 114 centimeters; red (2.5YR 4/8) channery loam; weak fine subangular blocky and weak medium subangular blocky structure; friable; common medium and common coarse roots throughout; 11 percent fine mica flakes throughout; 15 percent flat metasedimentary rock fragments; strongly acid, pH 5.3; clear wavy boundary.

Cr—114 to 152 centimeters; very strongly cemented metasedimentary bedrock; 1 percent medium distinct red (2.5YR 4/8) mottles; 15 percent sand coats on rock fragments.

Range in Characteristics

Depth to restrictive feature: 102 to 152 centimeters to paralithic bedrock
Diagnostic feature(s): Ochric epipedon and argillic horizon
Surface fragments: None
Depth to seasonal high water table: Greater than 183 centimeters

A horizon:
Hue—5YR to 10YR
Value—4 or 5
Chroma—3 to 6
Texture (fine-earth fraction)—loam
Fragment content—10 to 34 percent
Reaction—pH 3.5 to 6.0
Organic matter content—1.0 to 5.0 percent

BA horizon (if present):
Color—similar to the Bt horizon
Texture—similar to the Bt horizon

Bt horizon:
Hue—2.5YR to 7.5YR
Value—4 to 6
Chroma—4 to 8
Texture (fine-earth fraction)—sandy clay loam, loam, clay loam
Fragment content—1 to 34 percent
Reaction—pH 3.5 to 6.0
Organic matter content—0.0 to 0.5 percent

BC horizon(s):
- Hue—2.5YR to 7.5YR
- Value—4 or 5
- Chroma—4 to 8
- Texture (fine-earth fraction)—loam, fine sandy loam, sandy loam, silt loam, sandy clay loam
- Fragment content—1 to 34 percent
- Reaction—pH 3.5 to 6.0
- Organic matter content—0.0 to 0.5 percent

Cr horizon(s):
- Texture—weathered bedrock

Breakneck Series

Major Land Resource Area: 130B
Map unit(s):
- BpC—Breakneck-Pullback complex, 8 to 15 percent slopes, very rocky
- BpD—Breakneck-Pullback complex, 15 to 30 percent slopes, very rocky
- BpF—Breakneck-Pullback complex, 30 to 95 percent slopes, very rocky
- BrE—Breakneck-Luftee-Clingman-Pinnacle complex, 15 to 50 percent slopes, very stony
- BrF—Breakneck-Luftee-Clingman-Pinnacle complex, 50 to 95 percent slopes, rocky

Depth class: Moderately deep
Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Mountainside on mountains and ridge on mountains
Landform position(s) (three-dimensional): Mountaintop and mountainflank
Parent material: Loamy residuum and/or creep deposits derived from metasedimentary rock and sandstone loamy residuum weathered from metasedimentary rock
Elevation: 1,060 to 2,030 meters
Slope: 8 to 95 percent
Climatic data:
- Mean annual precipitation: 2,032 to 2,540 millimeters
- Mean annual air temperature: 1.0 to 13.0 degrees C
- Frost-free period: 162 to 176 days

Taxonomic class: Fine-loamy, isotic, frigid Humic Dystrudepts (fig. 29)

Typical Pedon

This pedon of Breakneck soil is located in Great Smoky Mountains National Park in an area of Breakneck-Pullback complex, 15 to 30 percent slopes, very rocky; Sevier County, Tennessee; USGS Clingmans Dome topographic quadrangle; latitude 35 degrees 33 minutes 46.00 seconds north and longitude 83 degrees 29 minutes 58.00 seconds west; UTM Zone 17, 273465 meters easting, 3938131 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oe—0 to 8 centimeters; moderately decomposed plant material.
A1—8 to 20 centimeters; black (10YR 2/1) clay loam; moderate fine granular and moderate medium granular structure; very friable; many fine and medium, common coarse, and common very coarse roots throughout; 10 percent flat subangular strongly cemented 2- to 150-millimeter metasedimentary rock fragments; extremely acid, pH 3.7; abrupt wavy boundary. Lab sample # 02N04891

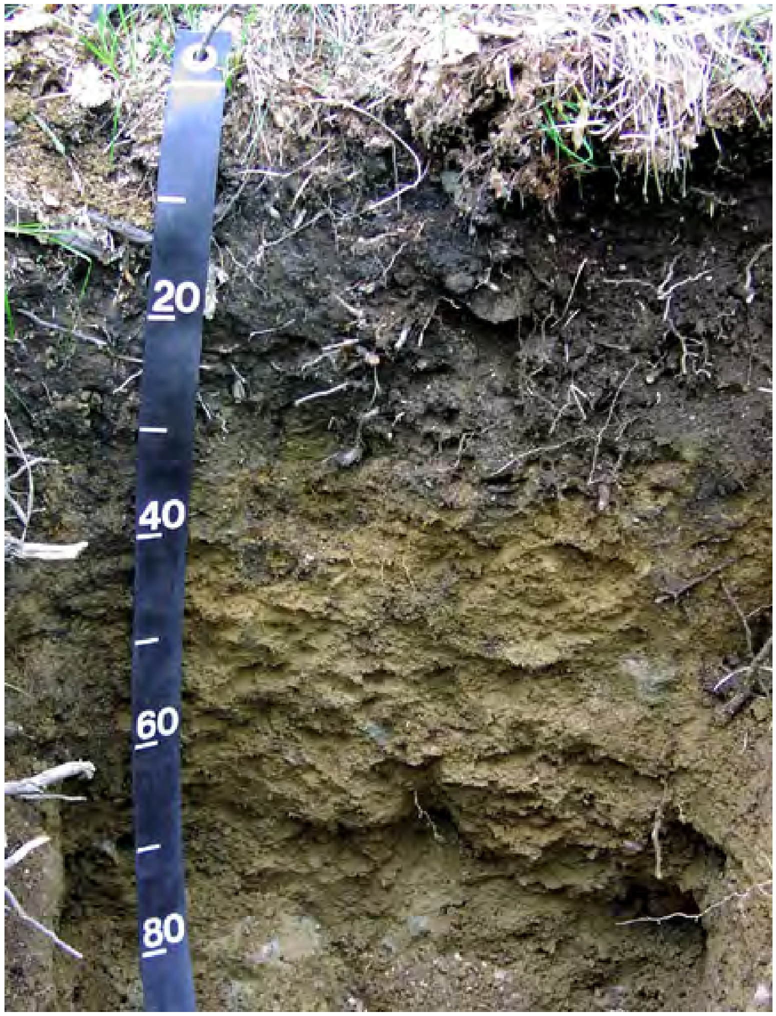


Figure 29.—Profile of Breakneck soil series near Clingmans Dome in Great Smoky Mountains National Park. Scale is in centimeters.

A2—20 to 30 centimeters; very dark brown (10YR 2/2) channery loam; moderate coarse granular structure; friable; common fine roots throughout; 25 percent nonflat subangular strongly cemented 2- to 150-millimeter metasedimentary rock fragments; very strongly acid, pH 4.7; abrupt wavy boundary. Lab sample # 02N04891

Bw—30 to 71 centimeters; dark yellowish brown (10YR 4/4) channery loam; weak coarse subangular blocky structure; friable; few fine roots throughout; 25 percent nonflat subangular strongly cemented 2- to 150-millimeter metasedimentary rock fragments; very strongly acid, pH 4.7; abrupt wavy boundary. Lab sample # 02N04892

R—71 centimeters; hard interbedded metasandstone (Thunderhead) and slate (Anakeesta); fractured at intervals of 4 to less than 18 inches; very strongly cemented; very high excavation difficulty.

Range in Characteristics

Depth to restrictive feature: 51 to 102 centimeters to lithic bedrock
Diagnostic feature(s): Lithic contact, umbric epipedon, and cambic horizon

Surface fragments: None
Depth to seasonal high water table: Greater than 183 centimeters

A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 to 3
Texture (fine-earth fraction)—loam, clay loam
Fragment content—0 to 34 percent
Reaction—pH 3.0 to 4.5
Organic matter content—3.0 to 5.0 percent

Bw horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 8
Texture (fine-earth fraction)—loam, sandy loam
Fragment content—9 to 34 percent
Reaction—pH 3.0 to 5.5
Organic matter content—0.5 to 1.0 percent

R horizon:
Texture—unweathered bedrock

Burton Series

Major Land Resource Area: 130B
Map unit(s):
BuF—Burton-Craggey-Rock outcrop complex, 30 to 95 percent slopes, very stony
Depth class: Moderately deep
Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Mountain slope on high mountains and ridge on high mountains
Landform position(s) (three-dimensional): Free face
Parent material: Loamy residuum weathered from igneous and metamorphic rock
Elevation: 1,280 to 1,951 meters
Slope: 30 to 95 percent
Climatic data:
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1.0 to 13.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Fine-loamy, isotic, frigid Humic Dystrudepts

Typical Pedon

This pedon of Burton soil is located outside of Great Smoky Mountains National Park in an area of Burton-Craggey-Rock outcrop complex, windswept, 8 to 30 percent slopes; Haywood County, North Carolina; USGS Sylva North topographic quadrangle; latitude 35 degrees 21 minutes 1.00 seconds north and longitude 82 degrees 58 minutes 24.00 seconds west; UTM Zone 17, 306387 meters easting, 3925039 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oe—0 to 3 centimeters; moderately decomposed plant material; 11 percent fine mica flakes throughout.
A1—3 to 20 centimeters; black (10YR 2/1) gravelly loam; weak medium granular structure; very friable; common fine, common medium, and common coarse roots

throughout; 11 percent fine mica flakes throughout; 15 percent nonflat metasedimentary rock fragments; extremely acid, pH 4.0; gradual wavy boundary.

A2—20 to 38 centimeters; very dark grayish brown (10YR 3/2) gravelly loam, brown (10YR 4/3) dry; weak medium granular structure; very friable; common fine, common medium, and common coarse roots throughout; 11 percent fine mica flakes throughout; 16 percent nonflat metasedimentary rock fragments; very strongly acid, pH 4.7; clear smooth boundary.

Bw—38 to 69 centimeters; dark yellowish brown (10YR 4/6) gravelly sandy loam, dark yellowish brown (10YR 4/6) dry; weak fine subangular blocky and medium subangular blocky structure; friable; common fine and common coarse roots throughout; 17 percent nonflat metasedimentary rock fragments; very strongly acid, pH 4.7; gradual wavy boundary.

BC—69 to 84 centimeters; yellowish brown (10YR 5/4) cobbly sandy loam; massive; very friable; common fine roots throughout; 27 percent nonflat metasedimentary rock fragments; strongly acid, pH 5.3; clear wavy boundary.

R—84 centimeters; indurated metasedimentary bedrock.

Range in Characteristics

Depth to restrictive feature: 51 to 102 centimeters to lithic bedrock
Diagnostic feature(s): Lithic contact and umbric epipedon
Surface fragments: 0 to 3 percent subangular indurated gneiss stones
Depth to seasonal high water table: Greater than 183 centimeters

A horizon:
Hue—5YR to 2.5YR
Value—2 or 3
Chroma—1 to 3
Texture (fine-earth fraction)—loam, fine sandy loam, sandy clay loam, sandy loam
Fragment content—4 to 31 percent
Reaction—pH 3.5 to 6.0
Organic matter content—8.0 to 15.0 percent

Bw horizon:
Hue—7.5YR to 2.5Y
Value—3 to 6
Chroma—3 to 8
Texture (fine-earth fraction)—fine sandy loam, sandy loam, loam, sandy clay loam
Fragment content—15 to 50 percent
Reaction—pH 3.5 to 6.0
Organic matter content—0.0 to 0.5 percent

BC horizon (if present):
Color—similar to Bw horizon
Texture—similar to Bw horizon

R horizon:
Texture—unweathered bedrock

Cades Series

Major Land Resource Area: 130B
Map unit(s):
CaB—Cades silt loam, 2 to 8 percent slopes
Depth class: Very deep
Drainage class: Well drained

Saturated hydraulic conductivity (K_{sat}): Moderately high
Landform(s): Collivial fan in valley
Landform position(s) (three-dimensional): Mountain base
Parent material: Loamy alluvium derived from metasedimentary rock
Elevation: 300 to 1,000 meters
Slope: 2 to 8 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Fine-loamy, mixed, semiactive, mesic Typic Hapludults

Typical Pedon

This pedon of Cades soil is located in Great Smoky Mountains National Park in an area of Cades silt loam, 2 to 8 percent slopes; Blount County, Tennessee; USGS Cades Cove topographic quadrangle; latitude 35 degrees 36 minutes 26.49 seconds north and longitude 83 degrees 47 minutes 5.53 seconds west; UTM Zone 17, 247730 meters easting, 3943772 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

A—0 to 10 centimeters; dark yellowish brown (10YR 4/4) channery loam; weak fine granular and moderate medium and coarse subangular blocky structure; friable; common very fine and fine roots between peds; 25 percent flat rounded 2- to 13-millimeter metasedimentary rock fragments; strongly acid, pH 5.3; abrupt smooth boundary. Lab sample # 01P00194

BA—10 to 26 centimeters; dark yellowish brown (10YR 4/6) channery loam; moderate medium and coarse subangular blocky structure; friable; common very fine and fine roots between peds; 25 percent flat rounded 2- to 13-millimeter metasedimentary rock fragments; moderately acid, pH 5.7; gradual wavy boundary. Lab sample # 01P00195

Bt1—26 to 46 centimeters; strong brown (7.5YR 4/6) channery clay loam; moderate medium and coarse subangular blocky structure; friable; common very fine and fine roots between peds; 25 percent flat rounded 2- to 13-millimeter metasedimentary rock fragments; strongly acid, pH 5.2; gradual wavy boundary. Lab sample # 01P00196

Bt2—46 to 69 centimeters; strong brown (7.5YR 4/6) channery clay loam; moderate medium and coarse subangular blocky structure; friable; few very fine and fine roots between peds; 25 percent flat rounded 2- to 13-millimeter metasedimentary rock fragments; strongly acid, pH 5.1; abrupt wavy boundary. Lab sample # 01P00197

2C1—69 to 140 centimeters; strong brown (7.5YR 4/6) extremely channery loam; massive; few very fine and fine roots; 75 percent flat rounded 2- to 76-millimeter metasedimentary rock fragments; strongly acid, pH 5.3; clear wavy boundary. Lab sample # 01P00198

2C2—140 to 182 centimeters; strong brown (7.5YR 5/8) extremely channery loam; massive; 15 percent flat rounded 150- to 180-millimeter metasedimentary rock fragments and 65 percent flat rounded 2- to 150-millimeter metasedimentary rock fragments; strongly acid, pH 5.4. Lab sample # 01P00199

Range in Characteristics

Depth to restrictive feature: Greater than 203 centimeters
Diagnostic feature(s): Ochric epipedon and argillic horizon
Surface fragments: None
Depth to seasonal high water table: Greater than 183 centimeters

A horizon:
Hue—10YR
Value—3 or 4
Chroma—3 or 4
Texture (fine-earth fraction)—loam, silt loam
Fragment content—0 to 14 percent
Reaction—pH 4.5 to 6.0
Organic matter content—2.0 to 5.0 percent

BA horizon:
Hue—10YR or 7.5YR
Value—3 to 5
Chroma—4 to 6
Texture (fine-earth fraction)—silty clay loam, loam, silt loam
Fragment content—0 to 20 percent
Reaction—pH 4.5 to 6.0
Organic matter content—1.0 to 3.0 percent

Bt horizon:
Hue—10YR to 5YR
Value—4 or 5
Chroma—6 to 8
Texture (fine-earth fraction)—silty clay loam, loam, clay loam
Fragment content—0 to 20 percent
Reaction—pH 4.5 to 6.0
Organic matter content—0.5 to 1.0 percent

2C horizon:
Hue—10YR to 5YR
Value—4 or 5
Chroma—6 to 8
Texture (fine-earth fraction)—sandy clay loam, clay loam
Fragment content—60 to 80 percent
Reaction—pH 4.5 to 6.0
Organic matter content—0.0 to 1.0 percent

Cataloochee Series

Major Land Resource Area: 130B
Map unit(s):
OwC—Oconaluftee-Guyot-Cataloochee complex, 8 to 15 percent slopes, stony, windswept
OwD—Oconaluftee-Guyot-Cataloochee complex, 15 to 30 percent slopes, stony, windswept
OwE—Oconaluftee-Guyot-Cataloochee complex, 30 to 50 percent slopes, stony, windswept
OwF—Oconaluftee-Guyot-Cataloochie complex, 50 to 95 percent slopes, stony, windswept
Local phase(s): Windswept
Depth class: Moderately deep
Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Ridge on mountains
Landform position(s) (three-dimensional): Mountaintop and mountainflank

Figure 30.—Profile of Cataloochee soil series on Andrews Bald in Great Smoky Mountains National Park. Scale is in centimeters.

Parent material: Creep deposits over residuum weathered from sandstone and/or metaquartzite
Elevation: 1,280 to 2,030 meters
Slope: 8 to 95 percent
Climatic data:
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1.0 to 13.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Fine-loamy, isotic, frigid Humic Dystrudepts (fig. 30)

Typical Pedon

This pedon of Cataloochee soil is located in Great Smoky Mountains National Park in an area of Oconaluftee-Guyot-Cataloochee complex, 8 to 15 percent slopes, stony, windswept; Haywood County, North Carolina; USGS Bunches Bald topographic quadrangle: latitude 35 degrees 33 minutes 44 seconds north and longitude 83 degrees 09 minutes 39 seconds west; UTM Zone 17, 304159 meters easting, 3937343 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oe—0 to 5 centimeters; black (7.5YR 2/1) moderately decomposed plant material.

A1—5 to 10 centimeters; black (10YR 2/1) clay loam; moderate fine granular and moderate medium granular structure; very friable; many fine, many medium, and many very coarse roots throughout; 1 percent fine mica flakes throughout; 5 percent flat 2- to 150-millimeter metasedimentary rock fragments; ultra acid, pH 3.3. Lab sample # 00P06864

A2—10 to 23 centimeters; very dark brown (10YR 2/2) clay loam; moderate fine granular and moderate medium granular structure; very friable; many medium, many very coarse, and common fine roots throughout; 1 percent fine mica flakes throughout; 12 percent flat 2- to 150-millimeter metasedimentary rock fragments; ultra acid, pH 3.4. Lab sample # 00P06865

Bw1—23 to 33 centimeters; dark yellowish brown (10YR 4/6) loam; weak medium and coarse subangular blocky structure; friable; common fine, few medium, and few coarse roots throughout; 1 percent fine mica flakes throughout; 10 percent flat 2- to 150-millimeter metasedimentary rock fragments; extremely acid, pH 4.1. Lab sample # 00P06866

Bw2—33 to 48 centimeters; dark yellowish brown (10YR 4/6) channery loam; weak medium and coarse subangular blocky structure; friable; 1 percent fine mica flakes throughout; 20 percent flat 2- to 150-millimeter metasedimentary rock fragments; very strongly acid, pH 4.5. Lab sample # 00P06867

BC—48 to 64 centimeters; dark yellowish brown (10YR 4/4) channery sandy loam; weak medium and coarse subangular blocky structure; friable; 1 percent fine mica flakes throughout; 30 percent flat 2- to 150-millimeter metasedimentary rock fragments; very strongly acid, pH 4.8. Lab sample # 00P06868

C—64 to 79 centimeters; dark yellowish brown (10YR 4/6) channery fine sandy loam; massive; very friable; 1 percent fine mica flakes throughout; 25 percent flat 2- to 150-millimeter metasedimentary rock fragments; very strongly acid, pH 4.7. Lab sample # 00P06869

Cr—79 to 153 centimeters; moderately cemented metasedimentary bedrock. Lab sample # 00P06870

Range in Characteristics

Depth to restrictive feature: 51 to 102 centimeters to paralithic bedrock
Diagnostic feature(s): Umbric epipedon, cambic horizon, and paralithic contact
Surface fragments: None
Depth to seasonal high water table: Greater than 183 centimeters

A horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 to 3
Texture (fine-earth fraction)—fine sandy loam, clay loam, loam
Fragment content—0 to 20 percent
Reaction—pH 3.0 to 4.0
Organic matter content—13.5 to 31.0 percent

Bw horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture (fine-earth fraction)—fine sandy loam, sandy loam, loam

Fragment content—0 to 25 percent
Reaction—pH 3.5 to 5.5
Organic matter content—2.3 to 4.3 percent

BC horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture (fine-earth fraction)—sandy loam, loamy sand
Fragment content—0 to 34 percent
Reaction—pH 3.5 to 5.5
Organic matter content—0.0 to 1.0 percent

C horizon:
Texture (fine-earth fraction)—sandy loam, loamy sand, fine sandy loam
Fragment content—0 to 34 percent
Reaction—pH 3.5 to 5.5
Organic matter content—0.0 to 1.0 percent

Cr horizon:
Texture—weathered bedrock

Cataska Series

Major Land Resource Area: 130B
Map unit(s):
CcF—Cataska-Sylco complex, 30 to 95 percent slopes, very rocky
Depth class: Shallow
Drainage class: Excessively drained
Saturated hydraulic conductivity (K_{sat}): Moderately low
Landform(s): Mountainside on low to intermediate mountains and ridge on low to intermediate mountains
Landform position(s) (three-dimensional): Side slope
Parent material: Channery residuum weathered from metamorphic and sedimentary rock
Elevation: 301 to 1,280 meters
Slope: 30 to 95 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Loamy-skeletal, mixed, semiactive, mesic, shallow Typic Dystrudepts

Typical Pedon

This pedon of Cataska soil is located outside of Great Smoky Mountains National Park in an area of Cataska-Sylco complex, 50 to 95 percent slopes; Macon County, North Carolina; USGS Hewitt topographic quadrangle; latitude 35 degrees 16 minutes 47.39 seconds north and longitude 83 degrees 39 minutes 48.02 seconds west; UTM Zone 17, 257767 meters easting, 3907334 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oi—0 to 5 centimeters; slightly decomposed plant material.
A—5 to 20 centimeters; dark brown (10YR 3/3) very channery loam; moderate fine granular structure; very friable; common fine, common medium, and common coarse roots throughout; 15 percent flat metasedimentary rock fragments and 30

percent flat metasedimentary rock fragments; very strongly acid, pH 4.7; gradual wavy boundary.

Bw—20 to 45 centimeters; dark yellowish brown (10YR 4/4) very channery loam; weak fine subangular blocky structure; very friable; common fine, common medium, and common coarse roots throughout; 45 percent flat metasedimentary rock fragments; strongly acid, pH 5.3; gradual irregular boundary.

Cr—45 to 81 centimeters; weathered bedrock; 1 percent fine dark yellowish brown (10YR 3/4) mottles.

R—81 centimeters; indurated slate bedrock.

Range in Characteristics

Depth to restrictive feature: 25 to 51 centimeters to paralithic bedrock; 51 to 122 centimeters to lithic bedrock
Diagnostic feature(s): Ochric epipedon and cambic horizon
Surface fragments: None
Depth to seasonal high water table: Greater than 183 centimeters

A horizon:
Hue—10YR
Value—3 or 4
Chroma—2 to 4
Texture (fine-earth fraction)—loam, silt loam
Fragment content—15 to 34 percent
Reaction—pH 3.6 to 5.5
Organic matter content—1.0 to 3.0 percent

Bw horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Texture (fine-earth fraction)—loam, silt loam
Fragment content—35 to 78 percent
Reaction—pH 3.6 to 5.5
Organic matter content—0.5 to 2.0 percent

Cr horizon(s):
Texture—weathered bedrock

R horizon(s):
Texture—unweathered bedrock

Cheoah Series

Major Land Resource Area: 130B
Map unit(s):
ChF—Cheoah channery loam, 30 to 95 percent slopes, stony
Depth class: Deep
Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Mountainside on mountains
Landform position(s) (three-dimensional): Head slope
Parent material: Loamy residuum and/or creep deposits derived from metasedimentary rock
Elevation: 600 to 1,280 meters
Slope: 30 to 95 percent

Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Fine-loamy, isotic, mesic Humic Dystrudepts

Typical Pedon

This pedon of Cheoah soil is located outside of Great Smoky Mountains National Park in an area of Cheoah channery loam, 50 to 95 percent slopes; Jackson County, North Carolina; USGS Bunches Bald topographic quadrangle; latitude 35 degrees 31 minutes 5 seconds north and longitude 83 degrees 12 minutes 57 seconds west; UTM Zone 17, 299068 meters easting, 3932754 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oe—5 to 0 centimeters; moderately decomposed organic matter.
A—0 to 28 centimeters; very dark grayish brown (10YR 3/2) channery loam; weak fine granular structure; very friable; common fine, common medium, and common coarse roots throughout; 1 percent fine mica flakes throughout; 20 percent flat phyllite fragments; very strongly acid, pH 4.7; clear smooth boundary.
AB—28 to 38 centimeters; dark yellowish brown (10YR 4/4) channery loam; weak fine granular structure; very friable; common fine and common medium roots throughout; 1 percent fine and 1 percent medium mica flakes throughout; 20 percent flat phyllite fragments; very strongly acid, pH 4.7; clear wavy boundary.
Bw1—38 to 56 centimeters; yellowish brown (10YR 5/8) channery loam; weak medium subangular blocky structure; very friable; common fine and common medium roots throughout; 11 percent fine mica flakes throughout; 20 percent flat phyllite fragments; strongly acid, pH 5.3; gradual wavy boundary.
Bw2—56 to 81 centimeters; strong brown (7.5YR 5/6) channery loam; weak medium subangular blocky structure; friable; common fine and common medium roots throughout; 11 percent fine mica flakes throughout; 20 percent flat unspecified fragments; strongly acid, pH 5.3; gradual wavy boundary.
BC—81 to 99 centimeters; strong brown (7.5YR 5/6) channery fine sandy loam; weak medium subangular blocky structure; friable; 11 percent fine mica flakes throughout; 25 percent flat phyllite fragments; strongly acid, pH 5.3; gradual wavy boundary.
C—99 to 142 centimeters; variegated sandy loam; massive; very friable; 11 percent fine black (10YR 2/1) manganese coatings in cracks; 11 percent fine mica flakes throughout; strongly acid, pH 5.3; gradual wavy boundary.
Cr—142 to 160 centimeters; weathered bedrock that has yellowish brown (10YR 5/8) mottles; common fine and common medium roots throughout.

Range in Characteristics

Depth to restrictive feature: 102 to 152 centimeters to paralithic bedrock
Diagnostic feature(s): Umbric epipedon and cambic horizon
Surface fragments: None
Depth to seasonal high water table: Greater than 183 centimeters

A horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 to 3
Texture (fine-earth fraction)—loam, fine sandy loam, silt loam, sandy clay loam
Fragment content—15 to 34 percent

Reaction—pH 5.0 to 6.0
Organic matter content—2.0 to 7.0 percent

AB horizon (if present):
Color—similar to the A horizon
Texture—similar to the A horizon

Bw horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture (fine-earth fraction)—loam, sandy clay loam, fine sandy loam, silt loam
Fragment content—0 to 34 percent
Reaction—pH 5.0 to 6.0
Organic matter content—1.0 to 5.0 percent

BC horizon (if present):
Color—similar to the Bw horizon
Texture—similar to the Bw horizon

C horizon:
Hue—7.5YR to 2.5Y
Value—2 or 3
Chroma—1 to 3
Texture (fine-earth fraction)—loam, sandy loam, silt loam, fine sandy loam
Fragment content—5 to 34 percent
Reaction—pH 5.0 to 6.0
Organic matter content—0.0 to 2.0 percent

Cr horizon:
Texture—weathered bedrock

Chestnut Series

Major Land Resource Area: 130B
Map unit(s):
CkF—Chestnut-Cleveland-Rock outcrop complex, 30 to 95 percent slopes, very stony
Depth class: Moderately deep
Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Mountain slope on intermediate mountains and ridge on intermediate mountains
Landform position(s) (three-dimensional): Free face
Parent material: Loamy residuum weathered from igneous and metamorphic rock
Elevation: 301 to 1,280 meters
Slope: 30 to 95 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Coarse-loamy, mixed, active, mesic Typic Dystrudepts

Typical Pedon

This pedon of Chestnut soil is located outside of Great Smoky Mountains National

Park in an area of Edneyville-Chestnut complex, 30 to 50 percent slopes, stony; Jackson County, North Carolina; USGS Lake Toxaway topographic quadrangle; latitude 35 degrees 14 minutes 59.94 seconds north and longitude 82 degrees 58 minutes 0.00 seconds west; UTM Zone 17, 321074 meters easting, 3902,540 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oi—0 to 3 centimeters; moderately decomposed plant material.

A—3 to 10 centimeters; dark yellowish brown (10YR 4/4) gravelly fine sandy loam; weak fine granular structure; very friable; common fine roots throughout; 1 percent fine mica flakes throughout; 20 percent nonflat metasedimentary rock fragments; very strongly acid, pH 4.7; clear wavy boundary.

Bw—10 to 41 centimeters; strong brown (7.5YR 5/6) fine sandy loam; weak medium subangular blocky structure; very friable; common fine roots throughout; 11 percent fine and 11 percent medium mica flakes throughout; 5 percent nonflat metasedimentary rock fragments; very strongly acid, pH 4.7; gradual wavy boundary.

C—41 to 71 centimeters; strong brown (7.5YR 5/6) gravelly sandy loam; massive; very friable; common fine roots throughout; 11 percent silica on all faces of peds; 11 percent fine manganese coatings on faces of peds; 11 percent fine and 11 percent medium mica flakes throughout; 20 percent nonflat metasedimentary rock fragments; very strongly acid, pH 4.7; gradual wavy boundary.

Cr—71 to 152 centimeters; very strongly cemented gneiss bedrock; 11 percent fine prominent very pale brown (10YR 8/2) and 11 percent fine prominent black (10YR 2/1) mottles.

Range in Characteristics

Depth to restrictive feature: 51 to 102 centimeters to paralithic bedrock
Diagnostic feature(s): Ochric epipedon, cambic horizon, and paralithic contact
Surface fragments: 0 to 3 percent subangular indurated granite stones
Depth to seasonal high water table: Greater than 183 centimeters

A horizon:
Hue—7.5YR to 2.5YR
Value—2 to 6
Chroma—1 to 6
Texture (fine-earth fraction)—loam, sandy loam, fine sandy loam
Fragment content—0 to 14 percent
Reaction—pH 3.5 to 6.0
Organic matter content—1.0 to 8.0 percent

Bw horizon:
Hue—5YR to 2.5Y
Value—4 to 6
Chroma—2 to 8
Texture (fine-earth fraction)—loam, sandy loam, fine sandy loam
Fragment content—1 to 34 percent
Reaction—pH 3.5 to 6.0
Organic matter content—0.0 to 2.0 percent

C horizon:
Hue—5YR to 2.5Y
Value—4 to 6
Chroma—2 to 8
Texture (fine-earth fraction)—loam, sandy loam, fine sandy loam

Cr horizon:
Texture—weathered bedrock

Chiltoskie Series

Major Land Resource Area: 130B
Map unit(s):
CmC—Chiltoskie-Heintooga-Horsetrough complex, 8 to 15 percent slopes, very stony
CmD—Chiltoskie-Heintooga complex, 15 to 30 percent slopes, stony
HcE—Heintooga-Chiltoskie complex, 30 to 50 percent slopes, stony
Depth class: Very deep
Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Colluvial drainageway on mountains
Landform position(s) (three-dimensional): Mountainflank
Parent material: Loamy colluvium derived from soft metasedimentary sandstone
Elevation: 1,280 to 2,030 meters
Slope: 8 to 50 percent
Climatic data:
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1.0 to 13.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Fine-loamy, isotic, frigid Typic Dystrudepts (fig. 31)

Typical Pedon

This pedon of Chiltoskie soil is located in Great Smoky Mountains National Park in an area of Chiltoskie-Heintooga-Horsetrough complex, 8 to 15 percent slopes, very stony; Swain County, North Carolina; USGS Bunches Bald topographic quadrangle: latitude 35 degrees 34 minutes 17 seconds north and longitude 83 degrees 10 minutes 48 seconds west; UTM Zone 17, 302444 meters easting, 3938399 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oe—0 to 5 centimeters; moderately decomposed plant material; extremely acid, pH 3.8. Lab sample # 00P6897H

A—5 to 20 centimeters; very dark brown (10YR 2/2) loam; moderate medium granular, moderate coarse granular, and moderate very coarse granular structure; very friable; many fine, many medium, many coarse, and common very coarse roots throughout; 1 percent fine mica flakes throughout; 2 percent 2- to 150-millimeter metasedimentary rock fragments; extremely acid, pH 3.6; clear wavy boundary. Lab sample # 00P6880S

Bw1—20 to 36 centimeters; dark yellowish brown (10YR 4/4) loam; moderate medium subangular blocky, moderate coarse subangular blocky, and moderate fine subangular blocky structure; friable; few medium roots throughout; 1 percent fine mica flakes throughout; 10 percent 2- to 150-millimeter metasedimentary rock fragments; very strongly acid, pH 4.5; clear smooth boundary. Lab sample # 00P6881S

Bw2—36 to 104 centimeters; dark yellowish brown (10YR 4/6) loam; moderate medium subangular blocky, moderate coarse subangular blocky, and moderate fine subangular blocky structure; friable; 1 percent fine mica flakes throughout; 5 percent 2- to 150-millimeter metasedimentary rock fragments; very strongly acid, pH 4.8; clear smooth boundary. Lab sample # 00P6883S, 00P6882S

2BC—104 to 155 centimeters; dark yellowish brown (10YR 4/6) very channery sandy loam; weak medium subangular blocky and weak coarse subangular blocky structure; friable; 1 percent fine mica flakes throughout; 40 percent 2- to 150-millimeter metasedimentary rock fragments; very strongly acid, pH 4.9. Lab sample # 00P6884S

Figure 31.—Profile of Chiltoskie soil series near Polls Gap in Great Smoky Mountains National Park. Scale is in centimeters.

Range in Characteristics

Depth to restrictive feature: Greater than 203 centimeters
Diagnostic feature(s): Cambic horizon
Surface fragments: None
Depth to seasonal high water table: Greater than 183 centimeters

Oe horizon:
Texture—peat
Fragment content—0 percent
Reaction—pH 3.0 to 4.5
Organic matter content—60.0 to 90.0 percent

A horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 to 3
Texture (fine-earth fraction)—loam
Fragment content—0 to 14 percent
Reaction—pH 3.0 to 5.5
Organic matter content—10.0 to 15.0 percent

Bw horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture (fine-earth fraction)—loam, sandy loam
Fragment content—0 to 34 percent
Reaction—pH 3.0 to 5.5
Organic matter content—0.5 to 3.0 percent

BC horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture (fine-earth fraction)—sandy loam
Fragment content—35 to 59 percent
Reaction—pH 3.0 to 5.5
Organic matter content—0.0 to 1.0 percent

Cleveland Series

Major Land Resource Area: 130B
Map unit(s):
CkF—Chestnut-Cleveland-Rock outcrop complex, 30 to 95 percent slopes, very stony
Depth class: Shallow
Drainage class: Somewhat excessively drained
Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Mountain slope on intermediate mountains and ridge on intermediate mountains
Landform position(s) (three-dimensional): Free face
Parent material: Loamy residuum weathered from igneous and metamorphic rock
Elevation: 301 to 1,280 meters
Slope: 30 to 95 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Loamy, mixed, active, mesic Lithic Dystrudepts

Typical Pedon

This pedon of Cleveland soil is located outside of Great Smoky Mountains National Park in an area of Cleveland-Chestnut-Rock outcrop complex, windswept, 15 to 30 percent slopes; Macon County, North Carolina; USGS Highlands topographic quadrangle; latitude 35 degrees 3 minutes 59.92 seconds north and longitude 83 degrees 8 minutes 0.02 seconds west; UTM Zone 17, 305472 meters easting, 3882517 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oi—0 to 5 centimeters; slightly decomposed plant material.

A—5 to 18 centimeters; black (10YR 2/1) sandy loam; weak fine granular and weak medium granular structure; very friable; common fine, common medium, and common coarse roots throughout; 1 percent fine mica flakes throughout; 10 percent nonflat unspecified fragments; very strongly acid, pH 4.7; clear wavy boundary.

Bw—18 to 48 centimeters; yellowish brown (10YR 5/8) loam; weak medium subangular blocky structure; very friable; common fine, common medium, and common coarse roots throughout; 1 percent fine mica flakes throughout; 10 percent nonflat unspecified fragments; strongly acid, pH 5.3; abrupt wavy boundary.

R—48 centimeters; indurated granodiorite bedrock.

Range in Characteristics

Depth to restrictive feature: 25 to 51 centimeters to lithic bedrock
Diagnostic feature(s): Ochric epipedon, cambic horizon, and lithic contact
Surface fragments: None
Depth to seasonal high water table: Greater than 183 centimeters

A horizon:
Hue—7.5YR to 2.5Y
Value—2 to 6
Chroma—1 to 6
Texture (fine-earth fraction)—loam, fine sandy loam, sandy loam
Fragment content—6 to 34 percent
Reaction—pH 4.5 to 6.0
Organic matter content—0.5 to 8.0 percent

Bw horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture (fine-earth fraction)—loam, fine sandy loam, sandy loam
Fragment content—6 to 45 percent
Reaction—pH 4.5 to 6.0

R horizon:
Texture—unweathered bedrock

Clifton Series

Major Land Resource Area: 130B
Map unit(s):
CnF—Clifton clay loam, 50 to 95 percent slopes
Depth class: Very deep
Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): Moderately high
Landform(s): Mountain slope on low and intermediate mountains and ridge on low and intermediate mountains
Landform position(s) (three-dimensional): Mountainflank (upper third)
Parent material: Creep deposits over residuum weathered from igneous and metamorphic rock
Elevation: 458 to 1,280 meters
Slope: 50 to 95 percent

Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Fine, mixed, semiactive, mesic Typic Hapludults

Typical Pedon

This pedon of Clifton soil is located outside of Great Smoky Mountains National Park in an area of Clifton loam, 2 to 8 percent slopes; Ashe County, North Carolina; USGS Laurel Springs topographic quadrangle; latitude 36 degrees 22 minutes 57.00 seconds north and longitude 81 degrees 20 minutes 41.00 seconds west; UTM Zone 17, 469082 meters easting, 4026430 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Ap—0 to 13 centimeters; brown (7.5YR 4/4) loam; weak medium granular structure; very friable; common fine roots throughout; many fine pores; 1 percent fine mica flakes throughout; 5 percent nonflat unspecified fragments; strongly acid, pH 5.3; clear smooth boundary.

BA—13 to 25 centimeters; yellowish red (5YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable; few fine roots throughout; 1 percent fine mica flakes; strongly acid, pH 5.3; clear smooth boundary.

Bt1—25 to 58 centimeters; red (2.5YR 5/6) clay; moderate medium subangular blocky structure; friable; 15 percent continuous clay films on all faces of peds; 1 percent fine mica flakes; strongly acid, pH 5.3; clear smooth boundary.

Bt2—58 to 97 centimeters; red (2.5YR 4/6) clay; moderate medium subangular blocky structure; firm; 15 percent continuous clay films on all faces of peds; 11 percent fine mica flakes throughout; very strongly acid, pH 4.7; gradual smooth boundary.

BC—97 to 114 centimeters; red (2.5YR 4/6) clay loam; 11 percent medium distinct strong brown (7.5YR 5/8) mottles; weak medium subangular blocky structure; friable; 11 percent fine mica flakes throughout; strongly acid, pH 5.3; gradual wavy boundary.

C—114 to 165 centimeters; 50 percent yellowish red (5YR 5/6) and 50 percent strong brown (7.5YR 5/8) fine sandy loam; 11 percent fine mica flakes throughout; strongly acid, pH 5.3.

Range in Characteristics

Depth to restrictive feature: Greater than 203 centimeters
Diagnostic feature(s): Argillic horizon
Surface fragments: None
Depth to seasonal high water table: Greater than 183 centimeters

A horizon:
Hue—5YR to 10YR
Value—3 to 5
Chroma—2 to 6
Texture (fine-earth fraction)—loam, fine sandy loam
Fragment content—0 to 14 percent
Reaction—pH 4.5 to 6.5
Organic matter content—0.5 to 4.0 percent

Bt horizon:
Hue—10YR to 5YR
Value—4 or 5
Chroma—6 to 8
Texture (fine-earth fraction)—clay loam, clay, sandy clay
Fragment content—0 to 14 percent

Reaction—pH 4.5 to 6.5
Organic matter content—0.0 to 0.5 percent

C horizon:
Hue—10YR to 5YR
Value—4 to 6
Chroma—6 to 8
Texture (fine-earth fraction)—fine sandy loam, loam
Fragment content—0 to 28 percent
Reaction—pH 4.5 to 6.5
Organic matter content—0.0 to 0.5 percent

Clingman Series

Major Land Resource Area: 130B
Map unit(s):
BrE—Breakneck-Luftee-Clingman-Pinnacle complex, 15 to 50 percent slopes, very stony
BrF—Breakneck-Luftee-Clingman-Pinnacle complex, 50 to 95 percent slopes, rocky
Depth class: Very shallow and shallow
Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Mountainside on mountains
Landform position(s) (three-dimensional): Mountainflank
Parent material: Organic material over thin layers weathered from metasedimentary rock
Elevation: 1,060 to 2,030 meters
Slope: 15 to 95 percent
Climatic data:
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1.0 to 13.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Dysic, frigid Lithic Udifolists

Typical Pedon

This pedon of Clingman soil is located outside of Great Smoky Mountains National Park in an area of Clingman-Craggey-Rock outcrop complex, windswept, 15 to 95 percent slopes, extremely bouldery; Watauga County, North Carolina; USGS Grandfather Mountain topographic quadrangle; latitude 36 degrees 6 minutes 58.00 seconds north and longitude 81 degrees 47 minutes 28.00 seconds west; UTM Zone 17, 428803 meters easting, 3997117 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oi—0 to 15 centimeters; black (N 2/0) peat; 80 percent unrubbed fiber, 50 percent rubbed; very dark brown (7.5YR 2/2) mottles; massive; loose; many fine and medium roots; 5 percent wood fragments; extremely acid, pH 4.0; clear smooth boundary.
Oe—15 to 36 centimeters; very dark brown (10YR 2/2) mucky peat; 60 percent unrubbed fiber, 20 percent rubbed; very dark grayish brown (10YR 3/2) mottles; massive; friable; many fine and many very fine roots throughout; extremely acid, pH 4.0; clear smooth boundary.
A—36 to 46 centimeters; dark grayish brown (10YR 4/2) loamy sand; weak fine granular structure; very friable; common fine roots throughout; 5 percent nonflat

rounded 2- to 75-millimeter unspecified fragments; extremely acid, pH 4.0; abrupt smooth boundary.

R—46 to 61 centimeters; indurated arkose bedrock.

Range in Characteristics

Depth to restrictive feature: 8 to 51 centimeters to lithic bedrock
Diagnostic feature(s): Lithic contact and folistic epipedon
Surface fragments: None
Depth to seasonal high water table: Greater than 183 centimeters

O horizon:
Hue—neutral or 5YR
Value—2.5
Chroma—0 to 2
Texture—peat
Fragment content—0 to 7 percent
Reaction—pH 2.0 to 3.5
Organic matter content—20.0 to 90.0 percent

A horizon:
Hue—10YR to 5YR
Value—2.5 to 5
Chroma—1 to 6
Texture (fine-earth fraction)—loam, sandy loam, silt loam
Fragment content—0 to 14 percent
Reaction—pH 2.0 to 4.0
Organic matter content—5.0 to 15.0 percent

R horizon(s):
Texture—unweathered bedrock

Cotaco Series

Major Land Resource Area: 130B
Map unit(s):
CoB—Cotaco silty clay loam, 2 to 8 percent slopes
Depth class: Very deep
Drainage class: Moderately well drained
Saturated hydraulic conductivity (K_{sat}): Moderately high
Landform(s): Stream terrace in valley
Landform position(s) (three-dimensional): Tread
Parent material: Loamy alluvium derived from metasedimentary rock
Elevation: 300 to 920 meters
Slope: 2 to 8 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Fine-loamy, mixed, semiactive, mesic Aquic Hapludults

Typical Pedon

This pedon of Cotaco soil is located in Great Smoky Mountains National Park in an area of Cotaco silt loam, 2 to 8 percent slopes; Blount County, Tennessee; USGS Cades Cove topographic quadrangle; latitude 35 degrees 35 minutes 36.00 seconds north and longitude 83 degrees 50 minutes 21.00 seconds west; UTM Zone 17, 242802 meters easting, 3942365 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

A—0 to 10 centimeters; olive brown (2.5Y 4/3) silt loam; moderate fine and medium granular structure; very friable; many very fine and fine roots; strongly acid, pH 5.3; clear wavy boundary. Lab sample # 01P00158

AB—10 to 20 centimeters; olive brown (2.5Y 4/4) silt loam; 30 percent fine faint light olive brown (2.5Y 5/4) mottles; moderate medium subangular blocky structure; very friable; common very fine and fine roots; strongly acid, pH 5.4; clear wavy boundary. Lab sample # 01P00159

Bt1—20 to 48 centimeters; light olive brown (2.5Y 5/6) silt loam; moderate medium subangular blocky structure; friable; few very fine and fine roots; strongly acid, pH 5.5; clear smooth boundary. Lab sample # 01P00160

Bt2—48 to 61 centimeters; light olive brown (2.5Y 5/6) silt loam, brownish yellow (10YR 6/8) dry; 20 percent fine faint light yellowish brown (2.5Y 6/3) mottles; moderate medium subangular blocky structure; friable; few very fine roots; strongly acid, pH 5.2; clear smooth boundary. Lab sample # 01P00161

Bt3—61 to 80 centimeters; light yellowish brown (2.5Y 6/3) loam; 5 percent fine faint light brownish gray (2.5Y 6/2) and 10 percent fine distinct brownish yellow (10YR 6/8) mottles; moderate medium subangular blocky structure; friable; few very fine roots; strongly acid, pH 5.4; clear smooth boundary. Lab sample # 01P00162

2BCg1—80 to 103 centimeters; light brownish gray (2.5Y 6/2) loam; 45 percent medium distinct brownish yellow (10YR 6/8) mottles; weak coarse subangular blocky structure; friable; strongly acid, pH 5.4; clear smooth boundary. Lab sample # 01P00163

2BCg2—103 to 132 centimeters; light olive gray (5Y 6/2) loam; 10 percent fine distinct brownish yellow (10YR 6/8) mottles; weak coarse subangular blocky structure; friable; strongly acid, pH 5.4; abrupt smooth boundary. Lab sample # 01P00164

2BC—132 to 142 centimeters; brownish yellow (10YR 6/8) loam; 5 percent fine distinct gray (2.5Y 6/1) mottles; massive; friable; strongly acid, pH 5.5; abrupt smooth boundary. Lab sample # 01P00165

2Cg—142 to 172 centimeters; dark gray (N 4/0) loamy sand; massive; very friable; moderately acid, pH 5.7. Lab sample # 01P00166

Range in Characteristics

Depth to restrictive feature: Greater than 203 centimeters
Diagnostic feature(s): Ochric epipedon and argillic horizon
Surface fragments: None
Seasonal high water table: January, February, March, April, May, June, July, August, September, October, November, December
Depth to top of water table: 45 to 76 centimeters

A horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture (fine-earth fraction)—loam, silt loam, sandy clay loam
Fragment content—0 to 14 percent
Reaction—pH 4.5 to 6.0
Organic matter content—2.0 to 7.0 percent

AB horizon (if present):
Color—similar to the A horizon
Texture—similar to the A horizon

Bt horizon:
Hue—2.5Y to 5YR
Value—4 to 6
Chroma—3 to 8
Texture (fine-earth fraction)—silt loam, clay loam, loam, silty clay loam, sandy clay loam
Fragment content—0 to 30 percent
Reaction—pH 4.5 to 6.0
Organic matter content—0.5 to 2.0 percent

2BCg horizon:
Hue—2.5Y or 5Y
Value—6
Chroma—2
Texture (fine-earth fraction)—clay loam, loam, silt loam
Fragment content—0 to 30 percent
Reaction—pH 4.5 to 6.0
Organic matter content—0.0 to 1.0 percent

2BC horizon:
Hue—10YR
Value—6
Chroma—8
Texture (fine-earth fraction)—loam
Fragment content—0 to 10 percent
Reaction—pH 4.5 to 6.0
Organic matter content—0 to 1.0 percent

2Cg horizon:
Hue—neutral or 7.5YR to 2.5Y
Value—4 to 8
Chroma—1 or 2
Texture (fine-earth fraction)—loam, clay loam, silt loam
Fragment content—0 percent
Reaction—pH 4.5 to 6.0
Organic matter content—0.0 to 1.0 percent

Cowee Series

Major Land Resource Area: 130B
Map unit(s):
EpD—Evard-Cowee complex, 15 to 30 percent slopes, stony, windswept
EpE—Evard-Cowee complex, 30 to 50 percent slopes, stony, windswept
EvD—Evard-Cowee complex, 15 to 30 percent slopes, stony
EvE—Evard-Cowee complex, 30 to 50 percent slopes, stony
EvF—Evard-Cowee complex, 50 to 95 percent slopes, stony
Local phase(s): Windswept
Depth class: Moderately deep
Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): Moderately high
Landform(s): Mountain slope on low and intermediate mountains and ridge on low and intermediate mountains
Landform position(s) (three-dimensional): Mountainflank (upper third)
Parent material: Loamy residuum weathered from igneous and metamorphic rock

Elevation: 301 to 1,280 meters
Slope: 15 to 95 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Fine-loamy, parasesquic, mesic Typic Hapludults

Typical Pedon

This pedon of Cowee soil is located outside of Great Smoky Mountains National Park in an area of Evard-Cowee complex, 15 to 30 percent slopes; Jackson County, North Carolina; USGS Sylva South topographic quadrangle; latitude 35 degrees 21 minutes 4.00 seconds north and longitude 83 degrees 8 minutes 7.00 seconds west; UTM Zone 17, 305973 meters easting, 3914074 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oi—0 to 5 centimeters; slightly decomposed plant material.
A—5 to 18 centimeters; reddish brown (5YR 4/4) gravelly sandy loam; weak fine granular structure; very friable; common fine and common medium roots throughout; 11 percent fine and 11 percent medium mica flakes throughout; 20 percent nonflat gneiss fragments; strongly acid, pH 5.3; clear wavy boundary.
Bt1—18 to 38 centimeters; red (2.5YR 4/8) gravelly sandy loam; weak medium subangular blocky structure; friable; common fine roots throughout; 15 percent faint clay films on all faces of peds; 11 percent fine and 11 percent medium mica flakes throughout; 20 percent nonflat gneiss fragments; strongly acid, pH 5.3; gradual wavy boundary.
Bt2—38 to 74 centimeters; red (2.5YR 5/8) gravelly sandy clay loam; weak medium subangular blocky structure; friable; few fine roots throughout; 11 percent fine and 11 percent medium mica flakes throughout; 30 percent nonflat gneiss fragments; strongly acid, pH 5.3; abrupt wavy boundary.
Cr—74 to 158 centimeters; very strongly cemented hornblende gneiss bedrock.

Range in Characteristics

Depth to restrictive feature: 51 to 102 centimeters to paralithic bedrock
Diagnostic feature(s): Ochric epipedon, argillic horizon, and paralithic contact
Surface fragments: None
Depth to seasonal high water table: Greater than 183 centimeters

A horizon:
Hue—10YR to 5YR
Value—3 to 5
Chroma—2 to 8
Texture (fine-earth fraction)—loam, fine sandy loam, sandy loam
Fragment content—0 to 14 percent
Reaction—pH 4.5 to 6.0
Organic matter content—1.0 to 5.0 percent

Bt horizon:
Hue—2.5YR or 5YR
Value—4 to 6
Chroma—4 to 8
Texture (fine-earth fraction)—loam, fine sandy loam, clay loam, sandy clay loam, sandy loam
Fragment content—1 to 27 percent
Reaction—pH 4.5 to 6.0
Organic matter content—0.5 to 1.0 percent

Cr horizon(s):
Texture—weathered bedrock

Craggey Series

Major Land Resource Area: 130B
Map unit(s):
BuF—Burton-Craggey-Rock outcrop complex, 30 to 95 percent slopes, very stony
Depth class: Shallow
Drainage class: Somewhat excessively drained
Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Mountain slope on high mountains and ridge on high mountains
Landform position(s) (three-dimensional): Free face
Parent material: Loamy residuum and/or creep deposits derived from igneous and metamorphic rock
Elevation: 1,280 to 1,951 meters
Slope: 30 to 95 percent
Climatic data:
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1.0 to 13.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Loamy, isotic, frigid Humic Lithic Dystrudepts

Typical Pedon

This pedon of Craggey soil is located outside of Great Smoky Mountains National Park in an area of Burton-Craggey-Rock outcrop complex, windswept, 15 to 30 percent slopes, stony; Haywood County, North Carolina; USGS Sylva North topographic quadrangle; latitude 35 degrees 26 minutes 59.92 seconds north and longitude 83 degrees 8 minutes 0.00 seconds west; UTM Zone 17, 306386 meters easting, 3925039 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oe—0 to 3 centimeters; moderately decomposed plant material; 11 percent fine mica flakes throughout.
A1—3 to 18 centimeters; very dark brown (10YR 2/2) gravelly sandy loam, brown (10YR 4/3) dry; weak fine granular structure; very friable; common fine, common medium, and common very fine roots throughout; 16 percent nonflat metamorphic rock fragments; extremely acid, pH 4.0; gradual wavy boundary.
A2—18 to 41 centimeters; very dark brown (10YR 2/2) gravelly sandy loam, brown (10YR 4/3) dry; weak fine granular structure; very friable; common fine and common medium roots throughout; 11 percent fine mica flakes throughout; 11 percent nonflat unspecified fragments; extremely acid, pH 4.0; abrupt wavy boundary.
R—41 centimeters; indurated gneiss bedrock.

Range in Characteristics

Depth to restrictive feature: 25 to 51 centimeters to lithic bedrock
Diagnostic feature(s): Umbric epipedon and lithic contact
Surface fragments: 0 to 3 percent subangular indurated gneiss boulders
Depth to seasonal high water table: Greater than 183 centimeters

O horizon:
Hue—2.5YR to 10YR or neutral
Value—2 or 3
Chroma—1 to 3
Texture—muck

Fragment content—0 to 14 percent
Reaction—pH 3.5 to 5.0
Organic matter content—20.0 to 90.0 percent

A horizon:
Hue—5YR to 10YR
Value—2 or 3
Chroma—1 to 3
Texture (fine-earth fraction)—sandy loam, loam, silt loam, sandy clay loam, mucky loam, fine sandy loam
Fragment content—5 to 25 percent
Reaction—pH 3.5 to 6.0
Organic matter content—8.0 to 20.0 percent

R horizon(s):
Texture—unweathered bedrock

Cullasaja Series

Major Land Resource Area: 130B
Map unit(s):
CuD—Cullasaja-Tuckasegee complex, 15 to 30 percent slopes, very stony
CuE—Cullasaja-Tuckasegee complex, 30 to 50 percent slopes, very stony
CuF—Cullasaja-Rubble land complex, 50 to 95 percent slopes, extremely stony
TuC—Tuckasegee-Cullasaja complex, 8 to 15 percent slopes, stony
Local phase(s): Very stony, extremely stony, and stony
Depth class: Very deep
Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Cove on intermediate mountains, drainageway on intermediate mountains, fan on intermediate mountains, and mountain slope on intermediate mountains
Landform position(s) (three-dimensional): Mountainflank and mountainbase
Parent material: Cobbly and stony colluvium derived from igneous and metamorphic rock
Elevation: 301 to 1,280 meters
Slope: 8 to 95 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Loamy-skeletal, isotic, mesic Humic Dystrudepts

Typical Pedon

This pedon of Cullasaja soil is located outside of Great Smoky Mountains National Park in an area of Cullasaja-Tuckasegee complex, 15 to 30 percent slopes, stony; Jackson County, North Carolina; USGS Glenville topographic quadrangle; latitude 35 degrees 8 minutes 59.93 seconds north and longitude 83 degrees 11 minutes 0.00 seconds west; UTM Zone 17, 301115 meters easting, 3891860 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oi—0 to 5 centimeters; black (10YR 2/1) moderately decomposed plant material.
A1—5 to 18 centimeters; black (10YR 2/1) very cobbly fine sandy loam; weak medium granular structure; very friable; common fine, common medium, and common

coarse roots throughout; 1 percent fine mica flakes throughout; 50 percent nonflat unspecified fragments; very strongly acid, pH 4.7; clear smooth boundary.

A2—18 to 38 centimeters; very dark brown (10YR 2/2) very cobbly fine sandy loam; weak medium granular structure; very friable; common fine, common medium, and common coarse roots throughout; 1 percent fine mica flakes throughout; 50 percent nonflat unspecified fragments; very strongly acid, pH 4.7; clear wavy boundary.

Bw1—38 to 71 centimeters; dark yellowish brown (10YR 4/4) very cobbly fine sandy loam; weak fine subangular blocky and weak medium subangular blocky structure; very friable; common medium and common coarse roots throughout; 1 percent fine mica flakes throughout; 50 percent nonflat unspecified fragments; very strongly acid, pH 4.7; clear wavy boundary.

Bw2—71 to 102 centimeters; yellowish brown (10YR 5/6) very cobbly sandy loam; weak medium subangular blocky structure; very friable; common fine roots throughout; 1 percent fine mica flakes throughout; 55 percent nonflat unspecified fragments; very strongly acid, pH 4.7; gradual wavy boundary.

BC—102 to 156 centimeters; dark yellowish brown (10YR 4/6) very cobbly sandy loam; weak fine subangular blocky structure; very friable; common medium and common coarse roots throughout; 65 percent nonflat unspecified fragments; very strongly acid, pH 4.7.

Range in Characteristics

Depth to restrictive feature: Greater than 203 centimeters
Diagnostic feature(s): Umbric epipedon and cambic horizon
Surface fragments: 3 to 15 percent subangular indurated gneiss stones and 0 to 3 percent subangular indurated gneiss boulders
Depth to seasonal high water table: Greater than 183 centimeters

A horizon:
Hue—5YR to 10YR
Value—2 or 3
Chroma—1 to 3
Texture (fine-earth fraction)—sandy loam, fine sandy loam, loam, sandy clay loam
Fragment content—15 to 34 percent
Reaction—pH 4.5 to 6.0
Organic matter content—5.0 to 15.0 percent

Bw horizon:
Hue—5YR to 10YR
Value—3 to 6
Chroma—3 to 8
Texture (fine-earth fraction)—sandy clay loam, loam, fine sandy loam, sandy loam
Fragment content—25 to 59 percent
Reaction—pH 4.5 to 6.0
Organic matter content—0.0 to 3.0 percent

BC horizon:
Hue—5YR to 10YR
Value—3 to 6
Chroma—4 to 8
Texture (fine-earth fraction)—sandy loam, loamy sand, sandy clay loam
Fragment content—35 to 80 percent
Reaction—pH 4.5 to 6.0
Organic matter content—0.0 to 0.5 percent

Cullowhee Series

Major Land Resource Area: 130B
Map unit(s):
Cw—Cullowhee-Ela complex, 0 to 2 percent slopes, frequently flooded
Depth class: Very deep
Drainage class: Somewhat poorly drained
Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Floodplain in valley
Landform position(s) (three-dimensional): Mountain base
Parent material: Loamy alluvium over sandy and gravelly alluvium
Elevation: 300 to 920 meters
Slope: 0 to 2 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Fluvaquentic Dystrudepts

Typical Pedon

This pedon of Cullowhee soil is located outside of Great Smoky Mountains National Park in an area of Cullowhee fine sandy loam, 0 to 2 percent slopes, occasionally flooded; Jackson County, North Carolina; USGS Sylva South topographic quadrangle; latitude 35 degrees 17 minutes 20.00 seconds north and longitude 83 degrees 10 minutes 55.00 seconds west; UTM Zone 17, 301580 meters easting, 3907264 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Ap—0 to 20 centimeters; very dark grayish brown (10YR 3/2) fine sandy loam; weak fine granular structure; very friable; common fine and common medium roots throughout; 11 percent fine mica flakes throughout; moderately acid, pH 5.7; clear wavy boundary.
A—20 to 33 centimeters; dark brown (10YR 3/3) fine sandy loam and loamy sand; 10 percent medium faint dark brown (7.5YR 3/4) mottles; moderate fine granular structure; very friable; common fine and common medium roots throughout; sand coats; 11 percent fine mica flakes throughout; moderately acid, pH 5.7; clear wavy boundary.
AC—33 to 48 centimeters; dark yellowish brown (10YR 3/4) loamy sand; 1 percent fine distinct strong brown (7.5YR 5/6) mottles; massive; very friable; common fine and common medium roots throughout; 1 percent iron-manganese concretions; moderately acid, pH 5.7; clear wavy boundary.
C—48 to 58 centimeters; dark yellowish brown (10YR 4/4) loamy sand; massive; very friable; 1 percent iron-manganese concretions, 11 percent medium grayish brown (10YR 5/2) iron depletions, and 11 percent medium strong brown (7.5YR 5/6) masses of oxidized iron; moderately acid, pH 5.7; clear wavy boundary.
Ab—58 to 89 centimeters; black (10YR 2/1) loamy fine sand; massive; very friable; 1 percent medium yellowish red (5YR 4/6) masses of oxidized iron and 11 percent medium grayish brown (10YR 5/2) iron depletions; 11 percent fine mica flakes throughout; moderately acid, pH 5.7; clear wavy boundary.
C´—89 to 165 centimeters; extremely gravelly sand; single grain; loose; 11 percent fine mica flakes throughout; 65 percent nonflat well rounded unspecified fragments; slightly acid, pH 6.3.

Range in Characteristics

Depth to restrictive feature: Greater than 203 centimeters

Surface fragments: None
Seasonal high water table: January, February, March, April, May, June, July, August, September, October, November, December
Depth to top of water table: 46 to 61 centimeters

A horizon:
Hue—10YR or 7.5YR
Value—2 or 3
Chroma—1 to 3
Texture (fine-earth fraction)—fine sandy loam, sandy loam, loam
Fragment content—0 to 14 percent
Reaction—pH 4.5 to 6.5
Organic matter content—3.0 to 10.0 percent

AC horizon:
Hue—10YR or 2.5Y
Value—2 or 3
Chroma—1 to 4
Texture (fine-earth fraction)—loamy sand, sand, loamy fine sand
Fragment content—0 to 14 percent
Reaction—pH 4.5 to 6.5
Organic matter content—0.0 to 1.0 percent

C horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture (fine-earth fraction)—sand
Fragment content—12 to 85 percent
Reaction—pH 4.5 to 6.5
Organic matter content—0.0 to 0.5 percent

Dellwood Series

Major Land Resource Area: 130B
Map unit(s):
Dd—Dellwood-Smokemont-Urban land complex, 0 to 5 percent slopes, occasionally flooded
Dg—Dellwood-Smokemont complex, 0 to 5 percent slopes, frequently flooded
DhB—Dellwood-Wesser complex, 0 to 5 percent slopes, frequently flooded
Rd—Reddies-Dellwood complex, 0 to 5 percent slopes, frequently flooded
Depth class: Very deep
Drainage class: Moderately well drained
Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Floodplain on mountains and floodplain in valley
Landform position(s) (three-dimensional): Mountain base
Parent material: Sandy and gravelly alluvium derived from metasedimentary rock
Elevation: 300 to 920 meters
Slope: 0 to 5 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Sandy-skeletal, mixed, mesic Oxyaquic Dystrudepts

Typical Pedon

This pedon of Dellwood soil is located outside of Great Smoky Mountains National Park in an area of Dellwood gravelly fine sandy loam, 0 to 3 percent slopes, occasionally flooded; Jackson County, North Carolina; USGS Tuckasegee topographic quadrangle; latitude 35 degrees 18 minutes 59.92 seconds north and longitude 83 degrees 7 minutes 0.00 seconds west; UTM Zone 17, 307583 meters easting, 3910216 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Ap—0 to 20 centimeters; dark brown (10YR 3/3) gravelly fine sandy loam; weak fine granular and weak medium granular structure; very friable; common fine and common medium roots throughout; 11 percent fine and 11 percent medium mica flakes throughout; 20 percent nonflat unspecified fragments; slightly acid, pH 6.3; clear wavy boundary.

A—20 to 41 centimeters; dark brown (10YR 3/3) cobbly sandy loam; weak fine granular and weak medium granular structure; very friable; common fine and common medium roots throughout; 11 percent fine and 11 percent medium mica flakes throughout; 25 percent nonflat unspecified fragments; moderately acid, pH 5.7; gradual wavy boundary.

C—41 to 102 centimeters; strong brown (7.5YR 4/6) very cobbly loamy sand; massive; very friable; common fine and common medium roots throughout; 11 percent fine and 11 percent medium mica flakes throughout; 55 percent nonflat unspecified fragments.

Range in Characteristics

Depth to restrictive feature: Greater than 203 centimeters
Surface fragments: None
Seasonal high water table: January, February, March, April, December
Depth to top of water table: 60 to 120 centimeters

A1 horizon:
Hue—10YR
Value—2 or 3
Chroma—1 to 3
Texture (fine-earth fraction)—fine sandy loam, sandy loam
Fragment content—15 to 34 percent
Reaction—pH 4.5 to 7.3
Organic matter content—3.0 to 8.0 percent

A2 horizon:
Hue—10YR
Value—2 or 3
Chroma—1 to 3
Texture (fine-earth fraction)—sand, loamy sand
Fragment content—20 to 85 percent
Reaction—pH 4.5 to 7.3
Organic matter content—0.5 to 2.0 percent

C horizon:
Hue—2.5Y or 10YR
Value—3 to 6
Chroma—3 to 8
Texture (fine-earth fraction)—coarse sand, sand, loamy sand
Fragment content—35 to 71 percent
Reaction—pH 4.5 to 7.3
Organic matter content—0.0 to 1.0 percent

Dillard Series

Major Land Resource Area: 130B
Map unit(s):
ThB—Thurmont-Dillard complex, 2 to 8 percent slopes, stony
Local phase(s): Stony
Depth class: Very deep
Drainage class: Moderately well drained
Saturated hydraulic conductivity (K_{sat}): Moderately high
Landform(s): Depression in valley and low stream terrace in valley
Landform position(s) (three-dimensional): Tread
Parent material: Alluvium and/or colluvium derived from igneous and metamorphic rock
Elevation: 458 to 914 meters
Slope: 2 to 6 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Fine-loamy, mixed, semiactive, mesic Aquic Hapludults

Typical Pedon

This pedon of Dillard soil is located outside of Great Smoky Mountains National Park in an area of Thurmont-Dillard complex, 2 to 8 percent slopes, stony; Jackson County, North Carolina; USGS Whittier topographic quadrangle; latitude 35 degrees 25 minutes 59.90 seconds north and longitude 83 degrees 18 minutes 0.00 seconds west; UTM Zone 17, 291215 meters easting, 3923530 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Ap—0 to 23 centimeters; very dark grayish brown (10YR 3/2) loam; 35 percent medium distinct strong brown (7.5YR 5/8) and 35 percent medium prominent yellowish red (5YR 5/8) mottles; moderate fine granular and moderate medium granular structure; very friable; common fine and common medium roots throughout; 1 percent fine mica flakes throughout; slightly acid, pH 6.3; clear smooth boundary.

Bt1—23 to 51 centimeters; yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable; common fine and common medium roots throughout; 15 percent discontinuous clay films on all faces of peds; 1 percent fine mica flakes throughout; moderately acid, pH 5.7; gradual wavy boundary.

Bt2—51 to 76 centimeters; brownish yellow (10YR 6/6) loam; weak medium subangular blocky structure; friable; 15 percent discontinuous clay films on all faces of peds; 25 percent medium distinct iron depletions and 25 percent medium distinct masses of oxidized iron; moderately acid, pH 5.7; gradual wavy boundary.

Bt3—76 to 94 centimeters; brownish yellow (10YR 6/6) loam; weak medium subangular blocky structure; friable; 15 percent discontinuous clay films on all faces of peds; 11 percent medium distinct gray (10YR 6/1) iron depletions; 11 percent fine mica flakes throughout; strongly acid, pH 5.3; gradual wavy boundary.

Btg—94 to 107 centimeters; gray (10YR 6/1) clay loam; weak medium subangular blocky structure; firm; 15 percent discontinuous clay films on all faces of peds; 11 percent medium prominent yellowish brown (10YR 5/8) masses of oxidized iron; 11 percent fine mica flakes throughout; strongly acid, pH 5.3; gradual wavy boundary.

BCg—107 to 178 centimeters; light gray (10YR 7/2) clay loam; weak medium subangular blocky structure; friable; 11 percent fine mica flakes throughout; strongly acid, pH 5.3.

Range in Characteristics

Depth to restrictive feature: Greater than 203 centimeters
Diagnostic feature(s): Ochric epipedon and argillic horizon
Surface fragments: None
Seasonal high water table: January, February, March, April, May, June, July, August, September, October, November, December
Depth to top of water table: 60 to 90 centimeters

A or Ap horizon:
Hue—10YR
Value—3 to 5
Chroma—1 to 3
Texture (fine-earth fraction)—loam
Fragment content—0 to 10 percent
Reaction—pH 5.1 to 6.0
Organic matter content—0.5 to 5.0 percent

Bt horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—4 to 8
Texture (fine-earth fraction)—clay loam, sandy clay loam, loam
Fragment content—0 to 12 percent
Reaction—pH 4.5 to 5.5
Organic matter content—0.5 to 1.0 percent

Btg horizon:
Hue—10YR or 2.5Y
Value—4 to 7
Chroma—1 or 2
Texture (fine-earth fraction)—clay loam, sandy clay loam, loam
Fragment content—0 to 12 percent
Reaction—pH 4.5 to 5.5
Organic matter content—0.5 to 1.0 percent

BCg horizon:
Hue—10YR to 5Y
Value—6 or 7
Chroma—1 or 2
Texture (fine-earth fraction)—loam, sandy clay loam, clay loam
Fragment content—0 percent
Reaction—pH 4.5 to 5.5
Organic matter content—0.0 to 0.5 percent

Ditney Series

Major Land Resource Area: 130B
Map unit(s):
DtD—Ditney-Unicoi complex, 15 to 30 percent slopes, very rocky
DtF—Ditney-Unicoi complex, 30 to 95 percent slopes, very rocky
Depth class: Moderately deep
Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): High

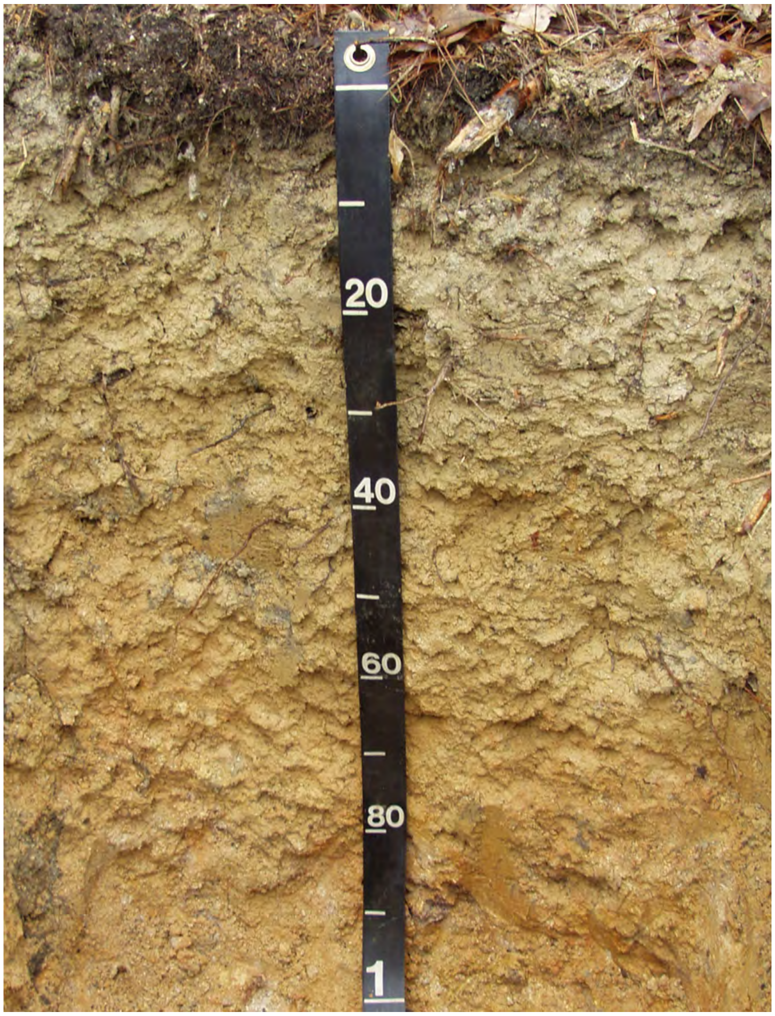


Figure 32.—Profile of Ditney soil series near Chinquapin Knob in Great Smoky Mountains National Park. Scale is in centimeters.

Landform(s): Mountainside on mountains and ridge on mountains
Landform position(s) (three-dimensional): Mountaintop and mountainflank
Parent material: Loamy residuum and/or creep deposits derived from metasedimentary rock
Elevation: 301 to 1,280 meters
Slope: 15 to 95 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Coarse-loamy, mixed, semiactive, mesic Typic Dystrudepts (fig. 32)

Typical Pedon

This pedon of Ditney soil is located in Great Smoky Mountains National Park in an area of Ditney-Unicoi complex, 30 to 95 percent slopes, very rocky; Sevier County, Tennessee; USGS Gatlinburg topographical quadrangle; latitude 35 degrees 39 minutes 55.00 seconds north and longitude 83 degrees 36 minutes 51.00 seconds

west; UTM Zone 17, 263374 meters easting, 3949982 meters northing; NAD27.
(Colors are for moist soil unless otherwise noted.)

Oe—0 to 2 centimeters; moderately decomposed plant material.
A—2 to 10 centimeters; dark brown (10YR 3/3) loam; weak medium granular and weak medium subangular blocky structure; very friable; very strongly acid, pH 4.5; clear smooth boundary. Lab sample # 01N03412
Bw1—10 to 25 centimeters; dark yellowish brown (10YR 4/6) loam; weak medium subangular blocky structure; friable; very strongly acid, pH 4.9; clear smooth boundary. Lab sample # 01N03413
Bw2—25 to 52 centimeters; yellowish brown (10YR 5/6) loam; weak medium subangular blocky structure; friable; 10 percent nonflat subangular 2- to 75-millimeter metasedimentary rock fragments; strongly acid, pH 5.1; clear smooth boundary. Lab sample # 01N03414
Bw3—52 to 82 centimeters; yellowish brown (10YR 5/6) gravelly loam; weak medium subangular blocky structure; friable; 30 percent nonflat subangular 2- to 75-millimeter metasedimentary rock fragments; strongly acid, pH 5.1; clear smooth boundary. Lab sample # 01N03415
Cr—82 to 91 centimeters; bedrock; strongly acid, pH 5.2. Lab sample # 01N03416
R—91 centimeters; weathered indurated metasedimentary bedrock.

Range in Characteristics

Depth to restrictive feature: 51 to 102 centimeters to paralithic bedrock; 51 to 102 centimeters to lithic bedrock
Diagnostic feature(s): Ochric epipedon, cambic horizon, paralithic contact, and lithic contact
Surface fragments: None
Depth to seasonal high water table: Greater than 183 centimeters

A horizon:
Hue—10YR or 2.5Y
Value—3 to 6
Chroma—1 to 4
Texture (fine-earth fraction)—loam, sandy loam, fine sandy loam
Fragment content—8 to 14 percent
Reaction—pH 3.5 to 5.5
Organic matter content—3.0 to 10.0 percent

Bw1 horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture (fine-earth fraction)—loam, sandy loam, fine sandy loam
Fragment content—3 to 34 percent
Reaction—pH 4.5 to 5.5
Organic matter content—2.0 to 5.0 percent

Bw2 horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture (fine-earth fraction)—sandy loam, loam, fine sandy loam
Fragment content—5 to 34 percent
Reaction—pH 4.5 to 5.5
Organic matter content—0.5 to 2.0 percent

Bw3 horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture (fine-earth fraction)—loam, sandy loam, fine sandy loam
Fragment content—15 to 34 percent
Reaction—pH 4.5 to 5.5
Organic matter content—0.0 to 1.0 percent

Cr horizon:
Texture—weathered bedrock

R horizon:
Texture—unweathered bedrock

Ela Series

Major Land Resource Area: 130B
Map unit(s):
Cw—Cullowhee-Ela complex, 0 to 2 percent slopes, frequently flooded
Depth class: Very deep
Drainage class: Very poorly drained
Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Floodplain on mountains
Landform position(s) (three-dimensional): Mountainbase
Parent material: Loamy alluvium over cobbly or gravelly alluvium
Elevation: 300 to 920 meters
Slope: 0 to 2 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Coarse-loamy, siliceous, superactive, acid, mesic Fluvaquentic Humaquepts

Typical Pedon

This pedon of Ela soil is located outside Great Smoky Mountains National Park in an area of Cullowhee-Ela complex, 0 to 2 percent slopes, frequently flooded; Graham County, North Carolina; USGS Hewitt topographic quadrangle; latitude 35 degrees 16 minutes 30.00 seconds north and longitude 83 degrees 41 minutes 52.88 seconds west; UTM Zone 17, 254591 meters easting, 3906680 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oe—3 to 0 centimeters; moderately decomposed plant material; abrupt smooth boundary.
A—0 to 41 centimeters; black (10YR 2/1) silt loam; weak medium subangular blocky structure; very friable; many fine, many very fine, common medium, and few coarse roots throughout; 1 percent fine mica flakes throughout; extremely acid, pH 4.1; clear smooth boundary.
Cg—41 to 81 centimeters; dark grayish brown (10YR 4/2) fine sandy loam; massive; friable; few fine and few very fine roots throughout; 1 percent fine distinct cylindrical iron depletions on surfaces along root channels and 2 percent fine prominent irregular yellowish red (5YR 4/6) masses of oxidized iron in matrix; 1 percent fine mica flakes throughout; 5 percent well rounded 2- to 75-millimeter

unspecified fragments and 5 percent well rounded 75- to 250-millimeter unspecified fragments; very strongly acid, pH 4.9; clear smooth boundary.

2Cg—81 to 155 centimeters; dark grayish brown (10YR 4/2) extremely cobbly sandy loam; massive; very friable; 1 percent fine mica flakes throughout; 10 percent well rounded 250- to 600-millimeter unspecified fragments, 30 percent well rounded 75- to 250-millimeter unspecified fragments, and 35 percent well rounded 2- to 75-millimeter unspecified fragments; strongly acid, pH 5.1.

Range in Characteristics

Depth to restrictive feature: Greater than 203 centimeters
Diagnostic feature(s): Umbric epipedon
Surface fragments: None
Seasonal high water table: January, February, March, April, May, June, July, August, September, October, November, December
Depth to top of water table: 0 to 15 centimeters

A horizon:
Hue—7.5YR to 2.5Y
Value—2 or 3
Chroma—1 to 3
Texture (fine-earth fraction)—sandy loam, loam, fine sandy loam
Fragment content—0 to 14 percent
Reaction—pH 4.0 to 5.5
Organic matter content—3.0 to 10.0 percent

Cg horizon:
Hue—10YR or 2.5Y
Value—4 to 7
Chroma—1 or 2
Texture (fine-earth fraction)—fine sandy loam, sandy loam, loam, coarse sandy loam
Fragment content—5 to 21 percent
Reaction—pH 4.5 to 5.5
Organic matter content—1.0 to 3.0 percent

2Cg horizon:
Hue—10YR or 2.5Y
Value—4 to 7
Chroma—1 or 2
Texture (fine-earth fraction)—sand, loamy coarse sand, loamy sand
Fragment content—30 to 80 percent
Reaction—pH 4.5 to 5.5
Organic matter content—0.5 to 2.0 percent

Evard Series

Major Land Resource Area: 130B
Map unit(s):
EpD—Evard-Cowee complex, 15 to 30 percent slopes, stony, windswept
EpE—Evard-Cowee complex, 30 to 50 percent slopes, stony, windswept
EvD—Evard-Cowee complex, 15 to 30 percent slopes, stony
EvE—Evard-Cowee complex, 30 to 50 percent slopes, stony
EvF—Evard-Cowee complex, 50 to 95 percent slopes, stony
Local phase(s): Windswept
Depth class: Very deep

Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): Moderately high
Landform(s): Mountain slope on low and intermediate mountains and ridge on low and intermediate mountains
Landform position(s) (three-dimensional): Mountainflank (upper third)
Parent material: Loamy residuum weathered from igneous and metamorphic rock
Elevation: 301 to 1,280 meters
Slope: 15 to 95 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Fine-loamy, parasesquic, mesic Typic Hapludults

Typical Pedon

This pedon of Evard soil is located outside of Great Smoky Mountains National Park in an area of Evard-Cowee complex, 50 to 95 percent slopes; Jackson County, North Carolina; USGS Sylva South topographic quadrangle; latitude 35 degrees 17 minutes 59.90 seconds north and longitude 83 degrees 12 minutes 0.01 seconds west; UTM Zone 17, 299965 meters easting, 3908532 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oi—0 to 5 centimeters; slightly decomposed plant material.
A1—5 to 13 centimeters; brown (7.5YR 4/4) gravelly loam; weak fine granular structure; very friable; common fine, common medium, and common coarse roots throughout; 11 percent fine mica flakes throughout; 20 percent nonflat unspecified fragments; strongly acid, pH 5.3; clear wavy boundary.
A2—13 to 20 centimeters; strong brown (7.5YR 4/6) gravelly loam; moderate medium granular structure; very friable; common fine and common medium roots throughout; 11 percent fine and 11 percent medium mica flakes throughout; 20 percent nonflat unspecified fragments; strongly acid, pH 5.3; clear wavy boundary.
Bt1—20 to 41 centimeters; red (2.5YR 4/8) clay loam; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; common medium and common coarse roots throughout; 15 percent discontinuous clay films on all faces of peds; 11 percent fine mica flakes throughout; 10 percent nonflat unspecified fragments; very strongly acid, pH 4.7; gradual wavy boundary.
Bt2—41 to 74 centimeters; red (2.5YR 4/6) clay loam; moderate fine subangular blocky and moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; common medium and common coarse roots throughout; 15 percent discontinuous clay films on all faces of peds; 11 percent fine mica flakes throughout; 10 percent nonflat unspecified fragments; very strongly acid, pH 4.7; gradual wavy boundary.
BC—74 to 94 centimeters; 34 percent red (2.5YR 4/6), 33 percent yellowish red (5YR 4/6), and 33 percent strong brown (7.5YR 4/6) loam; weak medium subangular blocky structure; friable; common medium roots throughout and common coarse roots throughout; 11 percent fine mica flakes throughout; 10 percent nonflat unspecified fragments; very strongly acid, pH 4.7; gradual wavy boundary.
C—94 to 156 centimeters; sandy loam; massive; friable; common coarse roots throughout; 11 percent manganese coatings; 11 percent fine mica flakes throughout; 10 percent nonflat unspecified fragments; very strongly acid, pH 4.7.

Range in Characteristics

Depth to restrictive feature: 152 to 183 centimeters to paralithic bedrock
Diagnostic feature(s): Ochric epipedon and argillic horizon

Surface fragments: None
Depth to seasonal high water table: Greater than 183 centimeters

A horizon:
Hue—5YR to 10YR
Value—3 to 5
Chroma—3 to 6
Texture (fine-earth fraction)—loam, fine sandy loam
Fragment content—0 to 14 percent
Reaction—pH 4.5 to 6.0
Organic matter content—1.0 to 5.0 percent

Bt horizon:
Hue—5YR or 2.5YR
Value—4 to 5
Chroma—4 to 8
Texture (fine-earth fraction)—loam, clay loam, sandy clay loam
Fragment content—0 to 15 percent
Reaction—pH 4.5 to 6.0
Organic matter content—0.0 to 0.5 percent

BC horizon:
Hue—2.5YR to 7.5YR
Value—4 to 6
Chroma—6 to 8
Texture (fine-earth fraction)—clay loam, fine sandy loam, sandy clay loam, loam
Fragment content—0 to 26 percent
Reaction—pH 4.5 to 6.0
Organic matter content—0.0 to 0.5 percent

C horizon:
Color—multicolored
Texture (fine-earth fraction)—sandy loam, loamy sand, loam, loamy fine sand
Fragment content—0 to 28 percent
Reaction—pH 4.5 to 6.0
Organic matter content—0.0 to 0.5 percent

Cr horizon:
Texture—weathered bedrock

Fannin Series

Major Land Resource Area: 130B
Map unit(s):
LeD—Lauada-Fannin complex, 15 to 30 percent slopes
LeE—Lauada-Fannin complex, 30 to 50 percent slopes
LeF—Lauada-Fannin complex, 50 to 95 percent slopes
Depth class: Very deep
Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): Moderately high
Landform(s): Mountain slope on low and intermediate mountains and ridge on low and intermediate mountains
Landform position(s) (three-dimensional): Mountainflank (upper third)
Parent material: Loamy residuum weathered from metamorphic rock and/or loamy creep deposits over residuum weathered from metamorphic rock
Elevation: 458 to 1,280 meters

Slope: 15 to 95 percent
Climatic data:
    Mean annual precipitation: 1,219 to 1,651 millimeters
    Mean annual air temperature: 6.0 to 20.0 degrees C
    Frost-free period: 162 to 176 days
Taxonomic class: Fine-loamy, paramicaceous, mesic Typic Hapludults

Typical Pedon

This pedon of Fannin soil is located outside of Great Smoky Mountains National Park in an area of Fannin fine sandy loam, 30 to 50 percent slopes; Jackson County, North Carolina; USGS Cashiers topographic quadrangle; latitude 35 degrees 0 minutes 59.96 seconds north and longitude 83 degrees 5 minutes 59.99 seconds west; UTM Zone 17, 308396 meters easting, 3876907 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oi—0 to 5 centimeters; slightly decomposed plant material.
A—5 to 13 centimeters; very dark grayish brown (10YR 3/2) fine sandy loam; weak fine granular and weak medium granular structure; very friable; common fine and common medium roots throughout; 11 percent fine mica flakes throughout; very strongly acid, pH 4.7; clear smooth boundary.
BA—13 to 20 centimeters; strong brown (7.5YR 4/6) loam; weak medium subangular blocky structure; very friable; common fine and common medium roots throughout; 11 percent fine and 11 percent medium mica flakes throughout; strongly acid, pH 5.3; clear wavy boundary.
Bt—20 to 66 centimeters; yellowish red (5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; friable; common medium roots throughout; 15 percent discontinuous clay films on all faces of peds; 35 percent fine and 35 percent medium mica flakes throughout; strongly acid, pH 5.3; gradual wavy boundary.
BC—66 to 112 centimeters; yellowish red (5YR 5/8) sandy loam; weak fine subangular blocky structure; very friable; common medium roots throughout; 35 percent fine mica flakes throughout; strongly acid, pH 5.3; gradual wavy boundary.
C—112 to 156 centimeters; yellowish red (5YR 5/8) sandy loam; massive; very friable; 35 percent fine mica flakes throughout; strongly acid, pH 5.3.

Range in Characteristics

Depth to restrictive feature: 153 to 203 centimeters to paralithic bedrock
Diagnostic feature(s): Choric epipedon, argillic horizon, and paralithic contact
Surface fragments: None
Depth to seasonal high water table: Greater than 183 centimeters

Oi horizon:
    Texture—moderately decomposed plant material
    Fragment content—0 to 14 percent
    Reaction—pH 3.0 to 4.5
    Organic matter content—70.0 to 90.0 percent

A horizon:
    Hue—7.5YR or 10YR
    Value—3 to 5
    Chroma—2 to 4
    Texture (fine-earth fraction)—fine sandy loam
    Fragment content—0 percent
    Reaction—pH 3.5 to 5.5
    Organic matter content—1.0 to 3.0 percent

BA horizon (if present):
Color—similar to the Bt horizon
Texture—similar to the Bt horizon

Bt horizon:
Hue—2.5YR or 5YR
Value—4 or 5
Chroma—4 to 8
Texture (fine-earth fraction)—sandy clay loam, loam, clay loam
Fragment content—15 to 25 percent
Reaction—pH 3.5 to 5.5
Organic matter content—0.0 to 1.0 percent

BC horizon:
Hue—2.5YR or 5YR
Value—4 or 5
Chroma—4 to 8
Texture (fine-earth fraction)—sandy loam, loam, fine sandy loam
Fragment content—0 percent
Reaction—pH 3.5 to 6.0
Organic matter content—0.0 to 0.5 percent

C horizon:
Color—multicolored
Texture (fine-earth fraction)—sandy loam, loam, fine sandy loam
Fragment content—1 to 14 percent
Reaction—pH 3.5 to 6.0
Organic matter content—0.0 to 0.5 percent

Cr horizon:
Texture—weathered bedrock

Guyot Series

Major Land Resource Area: 130B
Map unit(s):
OcD—Oconaluftee-Guyot-Heintooga complex, 15 to 30 percent slopes, stony
OwC—Oconaluftee-Guyot-Cataloochee complex, 8 to 15 percent slopes, stony, windswept
OwD—Oconaluftee-Guyot-Cataloochee complex, 15 to 30 percent slopes, stony, windswept
OwE—Oconaluftee-Guyot-Cataloochee complex, 30 to 50 percent slopes, stony, windswept
OwF—Oconaluftee-Guyot-Cataloochie complex, 50 to 95 percent slopes, stony, windswept
Local phase(s): Windswept
Depth class: Deep
Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Ridge on mountains
Landform position(s) (three-dimensional): Mountaintop and mountainflank
Parent material: Creep deposits over residuum weathered from sandstone and/or metaquartzite
Elevation: 1,280 to 2,030 meters
Slope: 8 to 95 percent

Climatic data:
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1.0 to 13.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Fine-loamy, isotic, frigid Humic Dystrudepts

Typical Pedon

This pedon of Guyot soil is located in Great Smoky Mountains National Park in an area of Oconaluftee-Guyot-Cataloochee complex, 8 to 15 percent slopes, stony, windswept; Haywood County, North Carolina; USGS Bunches Bald topographic quadrangle; latitude 35 degrees 33 minutes 44.00 seconds north and longitude 83 degrees 9 minutes 39.00 seconds west; UTM Zone 17, 304159 meters easting, 3937343 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oe—0 to 3 centimeters; moderately decomposed plant material; abrupt smooth boundary. Lab sample # 00P06856

A1—3 to 18 centimeters; very dark brown (10YR 2/2) clay loam; strong fine and medium granular structure; very friable; common very fine and fine and common medium and very coarse roots throughout; 1 percent fine mica flakes throughout; 5 percent flat 2- to 150-millimeter metasedimentary rock fragments; extremely acid, pH 3.7; clear wavy boundary. Lab sample # 00P06857

A2—18 to 28 centimeters; dark brown (10YR 3/3) clay loam; moderate fine granular structure; friable; common very fine and fine and common medium and very coarse roots throughout; 1 percent fine mica flakes throughout; 5 percent flat 2- to 150-millimeter metasedimentary rock fragments; extremely acid, pH 4.3; clear smooth boundary. Lab sample # 0P6858S

Bw—28 to 48 centimeters; dark yellowish brown (10YR 4/6) loam; moderate medium subangular blocky structure; friable; common medium and coarse roots throughout; 1 percent fine mica flakes throughout; 10 percent flat 2- to 150-millimeter metasedimentary rock fragments; very strongly acid, pH 4.8; clear smooth boundary. Lab sample # 0P6859S

BC—48 to 72 centimeters; yellowish brown (10YR 5/4) fine sandy loam; weak medium subangular blocky structure; friable; 1 percent fine mica flakes throughout; 10 percent flat 2- to 150-millimeter metasedimentary rock fragments; very strongly acid, pH 4.8; clear wavy boundary. Lab sample # 0P6860S

C1—72 to 90 centimeters; yellowish brown (10YR 5/4) fine sandy loam; massive; very friable; 1 percent fine mica flakes throughout; 10 percent flat 2- to 150-millimeter metasedimentary rock fragments; very strongly acid, pH 4.9; clear wavy boundary. Lab sample # 0P6861S

C2—90 to 150 centimeters; very pale brown (10YR 8/2), yellowish brown (10YR 5/4), gray (10YR 6/1), and black (10YR 2/1) fine sandy loam; massive; very friable; 1 percent fine mica flakes throughout; 10 percent flat 2- to 150-millimeter metasedimentary rock fragments; very strongly acid, pH 5.0; clear smooth boundary. Lab sample # 0P6862S

Cr—150 to 183 centimeters; metasedimentary bedrock. Lab sample # 00P06863

Range in Characteristics

Depth to restrictive feature: 102 to 152 centimeters to paralithic bedrock
Diagnostic feature(s): Umbric epipedon, cambic horizon, and paralithic contact
Surface fragments: None
Depth to seasonal high water table: Greater than 183 centimeters

A horizon:
Hue—7.5YR or 10YR
Value—2 or 3

Chroma—1 to 3
Texture (fine-earth fraction)—loam, fine sandy loam, clay loam
Fragment content—0 to 14 percent
Reaction—pH 3.6 to 3.8
Organic matter content—11.0 to 23.5 percent

Bw horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture (fine-earth fraction)—fine sandy loam, loam
Fragment content—0 to 14 percent
Reaction—pH 4.3 to 4.8
Organic matter content—0.3 to 2.8 percent

BC horizon (if present):
Color—similar to the Bw horizon
Texture—similar to the Bw horizon

C horizon:
Texture (fine-earth fraction)—loamy sand, sandy loam, fine sandy loam, loam, loamy fine sand
Fragment content—0 to 14 percent
Reaction—pH 4.9 to 5.0
Organic matter content—0.1 to 0.2 percent

Cr horizon:
Texture—weathered bedrock

Heintooga Series

Major Land Resource Area: 130B
Map unit(s):
CmC—Chiltoskie-Heintooga-Horsetrough complex, 8 to 15 percent slopes, very stony
CmD—Chiltoskie-Heintooga complex, 15 to 30 percent slopes, stony
HcE—Heintooga-Chiltoskie complex, 30 to 50 percent slopes, stony
HrF—Heintooga-Rubble land complex, 50 to 95 percent slopes, extremely bouldery
OcD—Oconaluftee-Guyot-Heintooga complex, 15 to 30 percent slopes, stony
OcF—Oconaluftee-Heintooga-Rubble land complex, 30 to 95 percent slopes, stony
Depth class: Very deep
Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Drainageway on mountains and colluvial drainageway on mountains
Landform position(s) (three-dimensional): Mountainflank
Parent material: Loamy colluvium derived from soft metasedimentary sandstone
Elevation: 1,280 to 2,030 meters
Slope: 8 to 95 percent
Climatic data:
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1.0 to 13.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Loamy-skeletal, isotic, frigid Humic Dystrudepts

Typical Pedon

This pedon of Heintooga soil is located in Great Smoky Mountains National Park in an area of Chiltoskie-Heintooga-Horsetrough complex, 8 to 15 percent slopes, very stony; Swain County, North Carolina; USGS Bunches Bald topographic quadrangle: latitude 35 degrees 34 minutes 17.00 seconds north and longitude 83 degrees 10 minutes 48.00 seconds west; UTM Zone 17, 302444 meters easting, 3938399 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oe—0 to 3 centimeters; moderately decomposed plant material; extremely acid, pH 3.6. Lab sample # 00P6885

A1—3 to 10 centimeters; very dark brown (10YR 2/2) very flaggy loam; moderate very coarse granular, moderate coarse granular, moderate medium granular, and moderate fine granular structure; very friable, nonsticky, nonplastic; many medium, many coarse, many very coarse, common fine, and common very fine roots throughout; 1 percent fine mica flakes throughout; 25 percent 150- to 380-millimeter unspecified fragments and 25 percent 2- to 150-millimeter unspecified fragments; ultra acid, pH 3.4; abrupt wavy boundary. Lab sample # 00P6886

A2—10 to 31 centimeters; dark brown (10YR 3/3) very flaggy loam; moderate very fine granular, moderate coarse granular, moderate medium granular, and moderate fine granular structure; friable, nonsticky, nonplastic; many medium, many coarse, and many very coarse roots throughout; 1 percent fine mica flakes throughout; 20 percent 150- to 380-millimeter unspecified fragments and 25 percent 2- to 150-millimeter unspecified fragments; extremely acid, pH 4.0; gradual wavy boundary. Lab sample # 00P6887

Bw—31 to 64 centimeters; brown (10YR 4/3) extremely channery loam; moderate very fine subangular blocky, moderate coarse subangular blocky, moderate medium subangular blocky, and moderate fine subangular blocky structure; friable, nonsticky, nonplastic; common medium and common coarse roots throughout; 1 percent fine mica flakes throughout; 10 percent 150- to 380-millimeter unspecified fragments and 60 percent 2- to 150-millimeter unspecified fragments; extremely acid, pH 4.4; gradual wavy boundary. Lab sample # 00P6888

BC—64 to 155 centimeters; yellowish brown (10YR 5/6) extremely flaggy coarse sandy loam; 3 percent very coarse prominent irregular yellowish red (5YR 4/6), 3 percent coarse prominent irregular yellowish red (5YR 4/6), and 3 percent medium prominent irregular yellowish red (5YR 4/6) mottles; weak coarse subangular blocky, weak medium subangular blocky, and weak fine subangular blocky structure; very friable, nonsticky, nonplastic; 1 percent fine mica flakes throughout; 35 percent 2- to 150-millimeter unspecified fragments and 35 percent 150- to 380-millimeter unspecified fragments; very strongly acid, pH 4.9. Lab sample # 00P6889

Range in Characteristics

Depth to restrictive feature: Greater than 203 centimeters
Diagnostic feature(s): Umbric epipedon and cambic horizon
Surface fragments: 3 to 15 percent rounded sandstone boulders
Depth to seasonal high water table: Greater than 183 centimeters

Oe horizon:
Texture—peat
Fragment content—0 percent
Reaction—pH 3.0 to 4.5
Organic matter content—30.0 to 50.0 percent

A1 horizon:
Hue—7.5YR or 10YR

Value—2 or 3
Chroma—1 to 3
Texture (fine-earth fraction)—loam, sandy loam
Fragment content—35 to 59 percent
Reaction—pH 3.0 to 5.5
Organic matter content—10.0 to 30.0 percent

A2 horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 to 3
Texture (fine-earth fraction)—fine sandy loam, loam
Fragment content—35 to 59 percent
Reaction—pH 3.0 to 5.5
Organic matter content—2.0 to 10.0 percent

Bw horizon:
Hue—7.5YR to 2.5Y
Value—3 to 6
Chroma—3 to 8
Texture (fine-earth fraction)—loam, extremely fine sandy loam
Fragment content—60 to 80 percent
Reaction—pH 3.0 to 5.5
Organic matter content—1.0 to 5.0 percent

BC horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—4 to 8
Texture (fine-earth fraction)—coarse sandy loam, sandy loam
Fragment content—60 to 80 percent
Reaction—pH 3.0 to 5.5
Organic matter content—0.0 to 2.0 percent

Horsetrough Series

Major Land Resource Area: 130B
Map unit(s):
CmC—Chiltoskie-Heintooga-Horsetrough complex, 8 to 15 percent slopes, very stony
Depth class: Deep
Drainage class: Poorly drained
Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Colluvial drainageway on mountains
Landform position(s) (three-dimensional): Mountainflank
Parent material: Sandy colluvium over residuum weathered from metasedimentary rock
Elevation: 1,280 to 2,030 meters
Slope: 8 to 15 percent
Climatic data:
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1.0 to 13.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Sandy-skeletal, isotic, frigid Typic Humaquepts

Typical Pedon

This pedon of Horsetrough soil is located in Great Smoky Mountains National Park in an area of Chiltoskie-Heintooga-Horsetrough complex, 8 to 15 percent slopes, very stony; Haywood County, North Carolina; USGS Bunches Bald topographic quadrangle; latitude 35 degrees 33 minutes 52.00 seconds north and longitude 83 degrees 9 minutes 6.00 seconds west; UTM Zone 17, 304995 meters easting, 3937572 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oe—0 to 3 centimeters; moderately decomposed plant material.

A1—3 to 18 centimeters; very dark grayish brown (10YR 3/2) flaggy loam; moderate very coarse subangular blocky structure parting to strong fine and medium granular; very friable; common medium and common very fine, fine, and very coarse roots throughout; 5 percent nonflat 250- to 600-millimeter metasedimentary rock fragments and 35 percent nonflat 2- to 75-millimeter metasedimentary rock fragments; extremely acid, pH 3.8; clear smooth boundary. Lab sample # 00P06905

A2—18 to 33 centimeters; dark brown (10YR 3/3) extremely channery sandy loam; weak very coarse granular structure; very friable; common medium and coarse roots throughout; 10 percent nonflat 250- to 600-millimeter metasedimentary rock fragments, 35 percent flat 2- to 75-millimeter metasedimentary rock fragments, and 35 percent flat 75- to 150-millimeter metasedimentary rock fragments; very strongly acid, pH 4.6; clear smooth boundary. Lab sample # 00P06906

BCg1—33 to 58 centimeters; dark gray (10YR 4/1) extremely channery loamy sand; weak fine and medium granular structure; very friable; 10 percent nonflat 250- to 600-millimeter metasedimentary rock fragments, 35 percent flat 75- to 150-millimeter metasedimentary rock fragments, and 35 percent flat 2- to 75-millimeter metasedimentary rock fragments; very strongly acid, pH 5.0; clear smooth boundary. Lab sample # 00P06907

BCg2—58 to 71 centimeters; dark gray (10YR 4/1) extremely channery loamy coarse sand; single grain; 10 percent nonflat 250- to 600-millimeter metasedimentary rock fragments, 35 percent flat 75- to 150-millimeter metasedimentary rock fragments, and 35 percent flat 2- to 75-millimeter metasedimentary rock fragments; very strongly acid, pH 5.0; clear smooth boundary. Lab sample # 00P06908

C1—71 to 84 centimeters; gray (10YR 5/1), strong brown (7.5YR 5/8), and brown (10YR 5/3) very gravelly loamy coarse sand; single grain; 40 percent nonflat 2- to 75-millimeter metasedimentary rock fragments; strongly acid, pH 5.4; abrupt wavy boundary. Lab sample # 00P06909

C2—84 to 102 centimeters; light olive brown (2.5Y 5/3) loamy sand; single grain; 5 percent nonflat 2- to 75-millimeter metasedimentary rock fragments; strongly acid, pH 5.3; abrupt wavy boundary. Lab sample # 00P06910

2C—102 to 117 centimeters; yellowish red (5YR 5/8) clay loam; massive; 5 percent nonflat 2- to 75-millimeter metasedimentary rock fragments; strongly acid, pH 5.4; clear wavy boundary. Lab sample # 00P06911

Cr—117 to 158 centimeters; metasedimentary bedrock.

Range in Characteristics

Depth to restrictive feature: 102 to 152 centimeters to paralithic bedrock
Diagnostic feature(s): Umbric epipedon and paralithic contact
Surface fragments: 0 to 3 percent rounded indurated sandstone fragments
Seasonal high water table: January, February, March, April, May, June, July, August, September, October, November, December
Depth to top of water table: 15 to 40 centimeters

A1 horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 to 3
Texture (fine-earth fraction)—fine sandy loam, sandy loam, loamy sand, loamy coarse sand, sand
Fragment content—15 to 34 percent
Reaction—pH 3.0 to 4.5
Organic matter content—2.0 to 10.0 percent

A2 horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 to 3
Texture (fine-earth fraction)—loamy coarse sand, sandy loam
Fragment content—60 to 85 percent
Reaction—pH 3.0 to 5.5
Organic matter content—1.0 to 3.0 percent

BCg horizon:
Hue—10YR or 2.5Y
Value—3 to 5
Chroma—1 or 2
Texture (fine-earth fraction)—loamy coarse sand, sand, coarse sand, loamy sand
Fragment content—60 to 85 percent
Reaction—pH 3.0 to 5.5
Organic matter content—1.0 to 2.0 percent

C1 horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 8
Texture (fine-earth fraction)—sand, loamy sand, loamy coarse sand, coarse sand
Fragment content—15 to 34 percent
Reaction—pH 3.0 to 5.5
Organic matter content—0.5 to 2.0 percent

C2 horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 8
Texture (fine-earth fraction)—fine sandy loam, loamy sand, sand
Fragment content—10 to 59 percent
Reaction—pH 3.0 to 5.5
Organic matter content—0.0 to 1.0 percent

2C horizon:
Hue—5YR to 2.5Y
Value—4 to 6
Chroma—1 to 8
Texture (fine-earth fraction)—loamy coarse sand, loamy sand, sand
Fragment content—10 to 59 percent
Reaction—pH 3.0 to 5.5
Organic matter content—0.0 to 1.0 percent

2Cr horizon:
Texture—weathered bedrock

Junaluska Series

Major Land Resource Area: 130B
Map unit(s):
JbD—Junaluska-Brasstown complex, 15 to 30 percent slopes, stony
JbE—Junaluska-Brasstown complex, 30 to 50 percent slopes, stony
JtC—Junaluska-Tsali complex, 8 to 15 percent slopes
JtD—Junaluska-Tsali complex, 15 to 30 percent slopes
JtF—Junaluska-Tsali complex, 30 to 95 percent slopes
Depth class: Moderately deep
Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): Moderately high
Landform(s): Mountainside on mountains and ridge on mountains
Landform position(s) (three-dimensional): Side slope and crest
Parent material: Loamy residuum weathered from metasedimentary rock
Elevation: 301 to 1,280 meters
Slope: 8 to 95 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Fine-loamy, mixed, subactive, mesic Typic Hapludults

Typical Pedon

This pedon of Junaluska soil is located outside of Great Smoky Mountains National Park in an area of Brasstown-Junaluska complex, 30 to 50 percent slopes; Macon County, North Carolina; USGS Alarka topographic quadrangle; latitude 35 degrees 17 minutes 34.42 seconds north and longitude 83 degrees 29 minutes 15.82 seconds west; UTM Zone 17, 273799 meters easting, 3908367 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oi—0 to 3 centimeters; slightly decomposed plant material.
A—3 to 15 centimeters; yellowish red (5YR 4/6) channery fine sandy loam; moderate medium granular structure; friable; common fine, common medium, and common coarse roots throughout; 1 percent fine mica flakes throughout; 15 percent flat unspecified fragments; strongly acid, pH 5.3; clear smooth boundary.
Bt—15 to 56 centimeters; red (2.5YR 4/6) sandy clay loam; weak fine subangular blocky and weak medium subangular blocky structure; friable; 15 percent discontinuous clay films on all faces of peds; 11 percent fine mica flakes throughout and 11 percent medium mica flakes at top of horizon; 10 percent flat unspecified fragments; strongly acid, pH 5.3; gradual wavy boundary.
C—56 to 94 centimeters; flaggy sandy loam; massive; very friable; 1 percent fine mica flakes throughout; 20 percent flat unspecified fragments; strongly acid, pH 5.3; gradual wavy boundary.
Cr—94 to 117 centimeters; very strongly cemented metasedimentary bedrock; 15 percent yellowish red (5YR 5/8) silica on bedrock.

Range in Characteristics

Depth to restrictive feature: 51 to 102 centimeters to paralithic bedrock
Diagnostic feature(s): Ochric epipedon, argillic horizon, and paralithic contact
Surface fragments: None
Depth to seasonal high water table: Greater than 183 centimeters

A horizon:
Hue—7.5YR or 10YR

Value—3 to 5
Chroma—3 to 8
Texture (fine-earth fraction)—fine sandy loam, loam
Fragment content—0 to 14 percent
Reaction—pH 3.5 to 6.0
Organic matter content—1.0 to 5.0 percent

Bt horizon:
Hue—2.5YR to 7.5YR
Value—4 to 6
Chroma—4 to 8
Texture (fine-earth fraction)—clay loam, loam, sandy clay loam
Fragment content—3 to 22 percent
Reaction—pH 3.5 to 6.0
Organic matter content—0.5 to 1.0 percent

C horizon:
Color—multicolored
Texture (fine-earth fraction)—fine sandy loam, sandy loam
Fragment content—3 to 22 percent
Reaction—pH 3.5 to 6.0
Organic matter content—0.0 to 0.5 percent

Cr horizon:
Texture—weathered bedrock

Lauada Series

Major Land Resource Area: 130B
Map unit(s):
LeD—Lauada-Fannin complex, 15 to 30 percent slopes
LeE—Lauada-Fannin complex, 30 to 50 percent slopes
LeF—Lauada-Fannin complex, 50 to 95 percent slopes
Depth class: Moderately deep
Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): Moderately high
Landform(s): Mountain slope on low and intermediate mountains and ridge on low and intermediate mountains
Landform position(s) (three-dimensional): Mountainflank (upper third)
Parent material: Loamy residuum and/or loamy creep deposits derived from metamorphic rock
Elevation: 458 to 1,280 meters
Slope: 15 to 95 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Fine-loamy, micaceous, mesic Typic Hapludults (fig. 33)

Typical Pedon

This pedon of Lauada soil is located outside of Great Smoky Mountains National Park in an area of Lauada-Fannin complex, 30 to 50 percent slopes; Swain County, North Carolina; USGS Bryson City topographic quadrangle; latitude 35 degrees 23 minutes 4.00 seconds north and longitude 83 degrees 26 minutes 10.00 seconds west; UTM

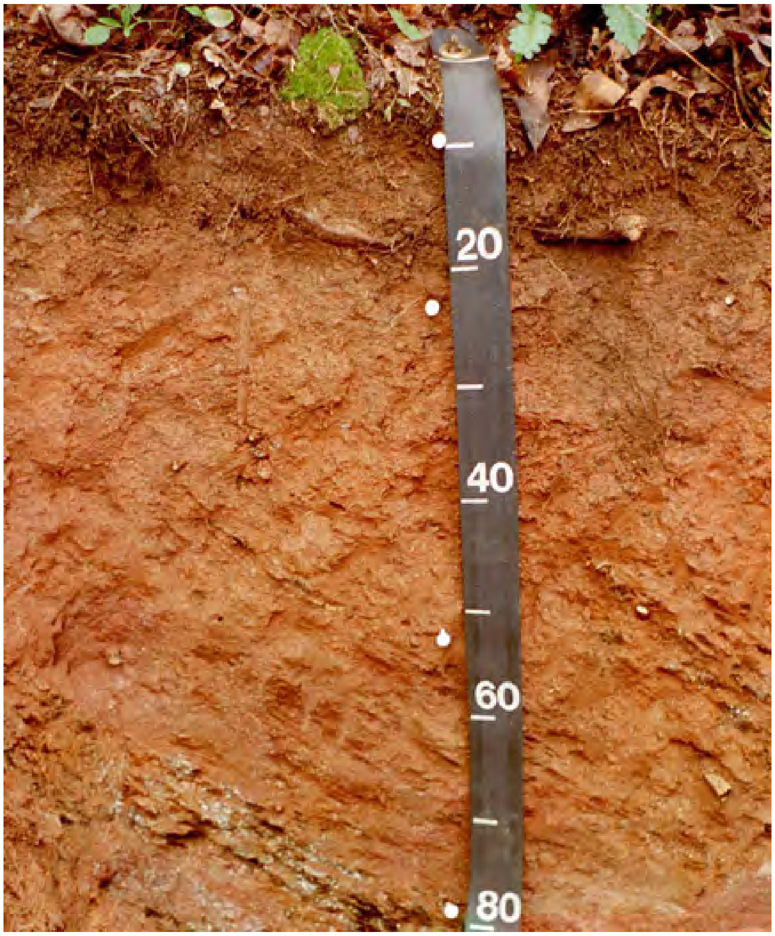


Figure 33.—Profile of Lauada soil series near Deep Creek campground in Great Smoky Mountains National Park. Scale is in centimeters.

Zone 17, 278718 meters easting, 3918204 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oe—0 to 3 centimeters; moderately decomposed plant material.

A—3 to 20 centimeters; dark yellowish brown (10YR 4/6) sandy loam; moderate medium and coarse granular structure; very friable, nonsticky, nonplastic; common fine to coarse roots throughout; 25 percent fine and medium mica flakes throughout; 7 percent nonflat 2- to 75-millimeter mica schist fragments; clear wavy boundary. Lab sample # 02N04918

Bt1—20 to 64 centimeters; red (2.5YR 4/8) loam; moderate medium and coarse subangular blocky structure; friable, slightly sticky, slightly plastic; few fine roots throughout; 1 percent discontinuous faint clay films on all faces of peds; 40 percent fine mica flakes throughout; 3 percent nonflat 2- to 75-millimeter mica schist fragments; gradual wavy boundary. Lab sample # 02N04919

Bt2—64 to 86 centimeters; yellowish red (5YR 4/6) loam; moderate medium and coarse subangular blocky structure; friable, slightly sticky, slightly plastic; 1 percent discontinuous faint clay films on all faces of peds; 50 percent fine and medium mica flakes throughout; 13 percent nonflat 2- to 75-millimeter mica schist fragments; abrupt wavy boundary. Lab sample # 02N04920

Cr—86 to 157 centimeters; mica schist bedrock; fractured at intervals of 4 to less than 18 inches. Lab sample # 02N04921

Range in Characteristics

Depth to restrictive feature: 51 to 102 centimeters to paralithic bedrock
Diagnostic feature(s): Ochric epipedon, argillic horizon, and paralithic contact
Surface fragments: None
Depth to seasonal high water table: Greater than 183 centimeters

Oe horizon:
Texture—moderately decomposed plant material
Fragment content—0 percent
Reaction—pH 3.0 to 4.0
Organic matter content—70.0 to 90.0 percent

A horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—2 to 4
Texture (fine-earth fraction)—loam, sandy loam, fine sandy loam
Fragment content—0 to 10 percent
Reaction—pH 3.5 to 5.5
Organic matter content—2.0 to 7.0 percent

Bt1 horizon:
Hue—2.5YR or 5YR
Value—4 or 5
Chroma—4 to 8
Texture (fine-earth fraction)—loam, clay loam, sandy clay loam
Fragment content—0 to 10 percent
Reaction—pH 3.5 to 5.5
Organic matter content—0.0 to 2.0 percent

Bt2 horizon:
Hue—2.5YR or 5YR
Value—4 or 5
Chroma—4 to 8
Texture (fine-earth fraction)—loam, clay loam, fine sandy loam
Fragment content—0 to 14 percent
Reaction—pH 3.5 to 5.5
Organic matter content—0.0 to 1.0 percent

Cr horizon:
Texture—weathered bedrock

Leatherwood Series

Major Land Resource Area: 130B
Map unit(s):
LfD—Leatherwood cobbly clay, 15 to 30 percent slopes, stony
LfE—Leatherwood cobbly clay, 30 to 50 percent slopes, stony
LfF—Leatherwood cobbly clay, 50 to 95 percent slopes, stony
Local phase(s): Stony
Depth class: Very deep
Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Mountain slope on low and intermediate mountains and ridge on low and intermediate mountains
Landform position(s) (three-dimensional): Mountainflank (upper third)

Parent material: Creep deposits and residuum weathered from igneous and metamorphic rock
Elevation: 975 to 1,463 meters
Slope: 15 to 95 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Fine, mixed, semiactive, mesic Humic Dystrudepts

Typical Pedon

This pedon of Leatherwood soil is located outside of Great Smoky Mountains National Park in an area of Leatherwood cobbly clay, 30 to 50 percent slopes, stony; Swain County, North Carolina; USGS Greens Creek topographical quadrangle; latitude 35 degrees 20 minutes 54.00 seconds north and longitude 83 degrees 20 minutes 38.00 seconds west; UTM Zone 17, 287002 meters easting, 3913996 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oe—0 to 3 centimeters; moderately decomposed plant material.
A1—3 to 18 centimeters; very dark grayish brown (10YR 3/2) cobbly clay; strong fine and very coarse granular structure; very friable; common very fine to coarse and common very coarse roots throughout; 17 percent nonflat subrounded 75- to 250-millimeter hornblende gneiss fragments; extremely acid, pH 4.2; gradual wavy boundary. Lab sample # 00P01721
A2—18 to 39 centimeters; dark brown (10YR 3/3) clay; moderate fine and very coarse granular structure; very friable; common medium and very coarse roots throughout; 12 percent nonflat subrounded 75- to 250-millimeter hornblende gneiss fragments; extremely acid, pH 4.4; gradual wavy boundary. Lab sample # 00P01722
Bw1—39 to 74 centimeters; yellowish brown (10YR 5/6) clay; moderate very fine and coarse subangular blocky structure; friable; common medium and very coarse roots throughout; 12 percent nonflat subrounded 75- to 250-millimeter hornblende gneiss fragments; very strongly acid, pH 4.9; gradual wavy boundary. Lab sample # 00P01723
Bw2—74 to 98 centimeters; yellowish brown (10YR 5/6) clay; moderate very fine and coarse subangular blocky structure; friable; common medium and very coarse roots throughout; 12 percent nonflat subrounded 75- to 250-millimeter hornblende gneiss fragments; very strongly acid, pH 4.9; gradual wavy boundary. Lab sample # 00P01724
Bw3—98 to 139 centimeters; strong brown (7.5YR 5/8) clay loam; moderate very fine and coarse subangular blocky structure; friable; common medium and coarse roots throughout; 12 percent nonflat subrounded 75- to 250-millimeter hornblende gneiss fragments; very strongly acid, pH 4.9; gradual wavy boundary. Lab sample # 00P01725
BC1—139 to 156 centimeters; strong brown (7.5YR 5/8) cobbly sandy clay loam; weak fine and coarse subangular blocky structure; friable; 17 percent nonflat subrounded 75- to 250-millimeter hornblende gneiss fragments; strongly acid, pH 5.2. Lab sample # 00P01726
BC2—156 to 200 centimeters; strong brown (7.5YR 5/8) cobbly sandy clay loam; weak fine and coarse subangular blocky structure; friable; 17 percent nonflat subrounded 75- to 250-millimeter hornblende gneiss fragments; strongly acid, pH 5.2. Lab sample # 00P01727

Range in Characteristics

Depth to restrictive feature: Greater than 203 centimeters

Diagnostic feature(s): Umbric epipedon and cambic horizon
Surface fragments: None
Depth to seasonal high water table: Greater than 183 centimeters

A1 horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 to 3
Texture (fine-earth fraction)—clay, clay loam
Fragment content—0 to 30 percent
Reaction—pH 3.5 to 4.5
Organic matter content—5.0 to 15.0 percent

A2 horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 to 3
Texture (fine-earth fraction)—clay loam, clay
Fragment content—0 to 30 percent
Reaction—pH 3.5 to 4.5
Organic matter content—3.0 to 10.0 percent

Bw1 horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—6 to 8
Texture (fine-earth fraction)—clay, sandy clay, clay loam
Fragment content—0 to 30 percent
Reaction—pH 3.5 to 5.5
Organic matter content—1.0 to 3.0 percent

Bw2 horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—6 to 8
Texture (fine-earth fraction)—clay loam, sandy clay, clay
Fragment content—0 to 30 percent
Reaction—pH 4.0 to 5.5
Organic matter content—0.0 to 1.0 percent

BC horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—6 to 8
Texture (fine-earth fraction)—loam, clay loam, sandy clay loam
Fragment content—10 to 34 percent
Reaction—pH 4.0 to 5.5
Organic matter content—0.0 to 1.0 percent

Lonon Taxadjunct

Major Land Resource Area: 130B
Map unit(s):
LoB—Lonon silty clay loam, 2 to 8 percent slopes
LoC—Lonon silty clay loam, 8 to 15 percent slopes

LoD—Lonon silty clay loam, 15 to 30 percent slopes
LoE—Lonon-Rock outcrop complex, 30 to 50 percent slopes

Depth class: Very deep
Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): Moderately high
Landform(s): Foothills in valley and alluvial terrace in valley
Landform position(s) (three-dimensional): Tread
Parent material: Loamy colluvium and/or alluvium derived from metasedimentary rock
Elevation: 300 to 920 meters
Slope: 2 to 50 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Fine, mixed, semiactive, mesic Typic Hapludults (fig. 34)

Typical Pedon

This pedon of Lonon soil is located in Great Smoky Mountains National Park in an area of Lonon silty clay loam, 8 to 15 percent slopes; Blount County, Tennessee; USGS Cades Cove topographical quadrangle; latitude 35 degrees 36 minutes 29.00 seconds north and longitude 83 degrees 49 minutes 7.00 seconds west; UTM Zone 17, 242334 meters easting, 3941935 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Ap—0 to 21 centimeters; dark brown (10YR 3/3) silt loam; moderate medium granular structure; friable; many fine and common medium roots; moderately acid, pH 5.7; abrupt smooth boundary. Lab sample # 01P00175

Bt1—21 to 37 centimeters; strong brown (7.5YR 4/6) silty clay loam; moderate medium subangular blocky structure; friable; common very fine and fine roots; moderately acid, pH 5.9; clear smooth boundary. Lab sample # 01P00176

Bt2—37 to 61 centimeters; strong brown (7.5YR 5/6) silty clay loam; moderate medium subangular blocky structure; friable; few very fine roots; 5 percent nonflat rounded 2- to 75-millimeter metasedimentary rock fragments; strongly acid, pH 5.4; clear smooth boundary. Lab sample # 01P00177

Bt3—61 to 94 centimeters; red (2.5YR 4/6) silty clay loam; moderate medium subangular blocky structure; friable; few very fine roots; 5 percent nonflat rounded 2- to 75-millimeter metasedimentary rock fragments; very strongly acid, pH 5.0; gradual smooth boundary. Lab sample # 01P00178

Bt4—94 to 123 centimeters; red (2.5YR 4/6) very channery silty clay loam; moderate fine subangular blocky structure; friable; few very fine roots; 20 percent nonflat rounded 2- to 75-millimeter metasedimentary rock fragments and 20 percent flat rounded 2- to 150-millimeter metasedimentary rock fragments; strongly acid, pH 5.2; gradual smooth boundary. Lab sample # 01P00179

Bt5—123 to 152 centimeters; red (2.5YR 4/6) very channery loam; moderate fine subangular blocky structure; friable; 20 percent nonflat rounded 2- to 75-millimeter metasedimentary rock fragments and 20 percent flat rounded 2- to 150-millimeter metasedimentary rock fragments; strongly acid, pH 5.2; clear smooth boundary. Lab sample # 01P00180

BC—152 to 170 centimeters; yellowish red (5YR 5/6) extremely channery loam; 3 percent medium distinct strong brown (7.5YR 5/6) mottles; weak fine subangular blocky structure; friable; 45 percent nonflat rounded 2- to 75-millimeter metasedimentary rock fragments and 45 percent flat rounded 75- to 250-millimeter metasedimentary rock fragments; strongly acid, pH 5.3. Lab sample # 01P00181

Figure 34.—Profile of Lonon soil series in Cades Cove in Great Smoky Mountains National Park. Scale is in centimeters.

Range in Characteristics

Depth to restrictive feature: Greater than 203 centimeters
Diagnostic feature(s): Ochric epipedon and argillic horizon
Surface fragments: None
Depth to seasonal high water table: Greater than 183 centimeters

A or Ap horizon:
Hue—10YR or 7.5YR
Value—4 or 5
Chroma—4 to 6
Texture (fine-earth fraction)—silt loam, silty clay loam
Fragment content—0 to 19 percent
Reaction—pH 3.5 to 6.0
Organic matter content—0.5 to 2.0 percent

Bt horizon:
Hue—2.5YR to 7.5YR
Value—4 or 5
Chroma—6
Texture (fine-earth fraction)—clay loam, silty clay loam, loam
Fragment content—0 to 60 percent
Reaction—pH 3.5 to 6.0
Organic matter content—0.0 to 0.5 percent

BC horizon:
Hue—2.5YR to 7.5YR
Value—4 or 6
Chroma—6
Texture (fine-earth fraction)—clay loam, sandy clay loam, loam, silty clay loam
Fragment content—5 to 70 percent
Reaction—pH 3.5 to 6.0
Organic matter content—0.0 to 0.5 percent

The Lonon soils in the survey area are considered taxadjuncts to the series because they have greater than 35 percent and less than 60 percent, by weight, clay contents in the fine-earth fraction. This difference, however, does not affect the use and management of the soils.

Luftee Series

Major Land Resource Area: 130B
Map unit(s):
BrE—Breakneck-Luftee-Clingman-Pinnacle complex, 15 to 50 percent slopes, very stony
BrF—Breakneck-Luftee-Clingman-Pinnacle complex, 50 to 95 percent slopes, rocky
LrD—Luftee-Anakeesta complex, 15 to 30 percent slopes, very rocky
LrF—Luftee-Anakeesta complex, 30 to 95 percent slopes, very rocky
RtF—Rock outcrop-Luftee complex, 30 to 95 percent slopes, very stony
Depth class: Moderately deep
Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Mountainside on mountains and ridge on mountains
Landform position(s) (three-dimensional): Mountainflank
Parent material: Loamy residuum weathered from metasedimentary slate and phyllite
Elevation: 1,060 to 2,030 meters
Slope: 15 to 95 percent
Climatic data:
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1.0 to 13.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Loamy-skeletal, isotic, frigid Humic Dystrudepts (fig. 35)

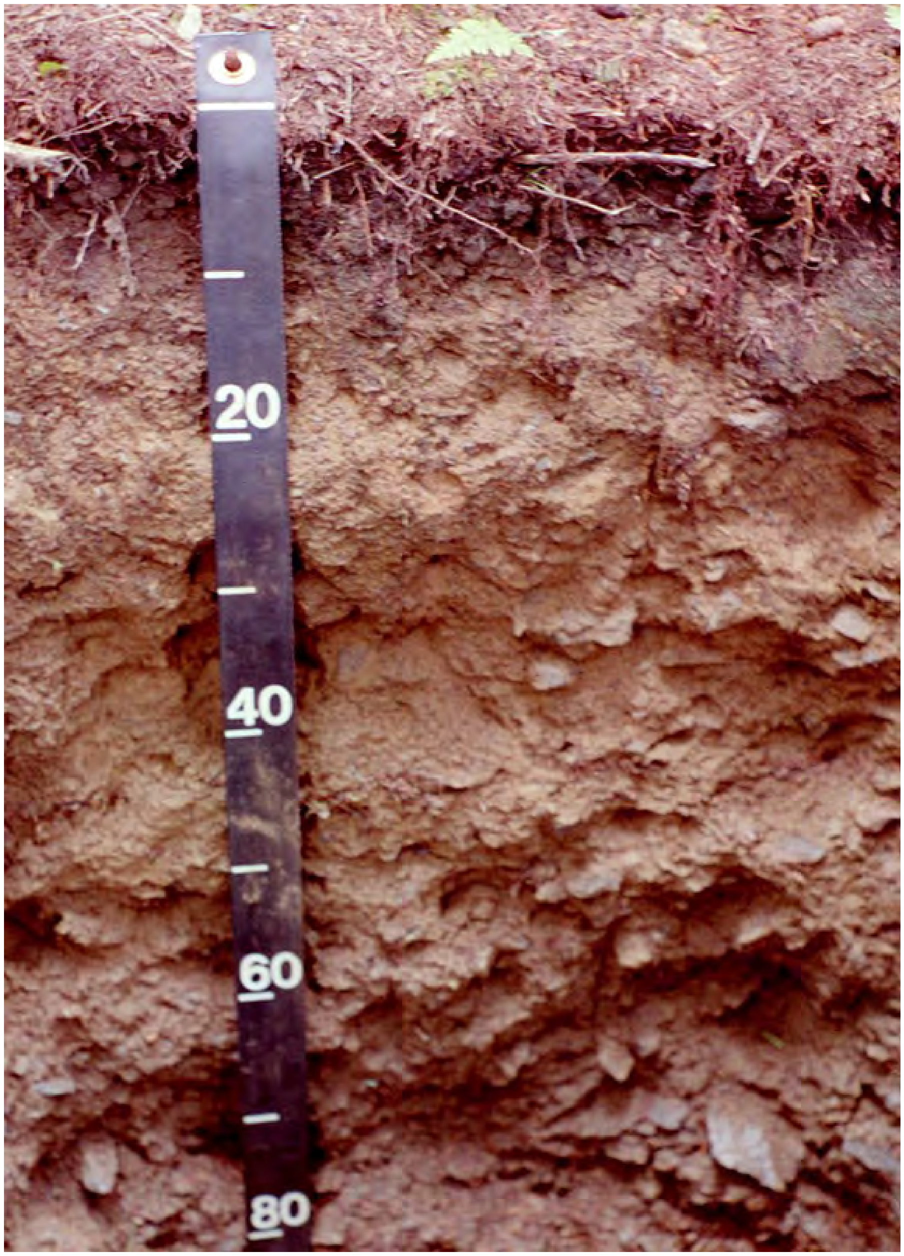


Figure 35.—Profile of Luftee soil series near Noland Creek Trail and Lakeview Drive in Great Smoky Mountains National Park. Scale is in centimeters.

Typical Pedon

This pedon of Luftee soil is located in Great Smoky Mountains National Park in an area of Luftee-Anakeesta complex, 30 to 95 percent slopes, very rocky; Sevier County, Tennessee; USGS Clingman's Dome topographic quadrangle; latitude 35 degrees 36 minutes 48.00 seconds north and longitude 83 degrees 25 minutes 21.00 seconds west; UTM Zone 17, 280579 meters easting, 3943596 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oe—0 to 3 centimeters; moderately decomposed plant material.
A—3 to 28 centimeters; very dark brown (10YR 2/2) channery loam; moderate

medium granular structure; very friable; many medium, many coarse, many very coarse, common fine, and common very fine roots throughout; 5 percent flat subangular strongly cemented 2- to 150-millimeter metasedimentary rock fragments and 20 percent flat subangular strongly cemented 2- to 150-millimeter slate fragments; extremely acid, pH 4.2; clear wavy boundary.

Bw1—28 to 51 centimeters; very dark grayish brown (10YR 3/2) extremely channery loam; weak coarse subangular blocky and weak medium subangular blocky structure; friable; 10 percent nonflat subangular very strongly cemented 2- to 75-millimeter quartz fragments, 15 percent flat subangular strongly cemented 2- to 150-millimeter metasedimentary rock fragments, and 40 percent flat subangular strongly cemented 2- to 150-millimeter slate fragments; very strongly acid, pH 4.5; gradual wavy boundary.

Bw2—51 to 86 centimeters; yellowish brown (10YR 5/4) extremely channery loam; weak coarse subangular blocky and weak medium subangular blocky structure; friable; 10 percent nonflat subangular very strongly cemented 2- to 75-millimeter quartz fragments, 15 percent flat subangular strongly cemented 2- to 150-millimeter metasedimentary rock fragments, and 40 percent flat subangular strongly cemented 2- to 150-millimeter slate fragments; very strongly acid, pH 4.9; abrupt wavy boundary.

R—86 centimeters; indurated slate bedrock; very strongly cemented; very high excavation difficulty.

Range in Characteristics

Depth to restrictive feature: 51 to 102 centimeters to lithic bedrock
Diagnostic feature(s): Lithic contact, umbric epipedon, and cambic horizon
Surface fragments: 0 to 3 percent subangular very strongly cemented slate flagstones
Depth to seasonal high water table: Greater than 183 centimeters

A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 to 3
Texture (fine-earth fraction)—loam
Fragment content—15 to 59 percent
Reaction—pH 3.0 to 5.5
Organic matter content—10.0 to 15.0 percent

Bw1 horizon:
Hue—10YR
Value—3 or 4
Chroma—2 to 6
Texture (fine-earth fraction)—loam, clay loam
Fragment content—15 to 65 percent
Reaction—pH 3.0 to 5.5
Organic matter content—5.0 to 10.0 percent

Bw2 horizon:
Hue—10YR
Value—3 to 5
Chroma—3 to 6
Texture (fine-earth fraction)—loam, sandy loam, clay loam
Fragment content—20 to 75 percent
Reaction—pH 3.0 to 5.5
Organic matter content—1.0 to 3.0 percent

R horizon:
Texture—unweathered bedrock

Maymead Series

Major Land Resource Area: 130B
Map unit(s):
NtC—Northcove-Maymead-Nowhere complex, 8 to 15 percent slopes, very stony
NtD—Northcove-Maymead complex, 15 to 30 percent slopes, very stony
NtE—Northcove-Maymead complex, 30 to 50 percent slopes, very stony
Depth class: Very deep
Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Colluvial drainageway on mountains
Landform position(s) (three-dimensional): Mountainbase and mountainflank (lower third)
Parent material: Loamy colluvium derived from metasedimentary rock
Elevation: 458 to 1,280 meters
Slope: 8 to 50 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Coarse-loamy, mixed, semiactive, mesic Typic Dystrudepts

Typical Pedon

This pedon of Maymead soil is located outside of Great Smoky Mountains National Park in an area of Northcove-Maymead complex, 15 to 30 percent slopes, very stony; Unicoi County, Tennessee; USGS Moll Creek topographic quadrangle; latitude 36 degrees 6 minutes 34.00 seconds north and longitude 82 degrees 21 minutes 59.00 seconds west; UTM Zone 17, 378086 meters easting, 4072324 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oi—0 to 10 centimeters; slightly decomposed plant material.
A1—10 to 13 centimeters; dark grayish brown (10YR 4/2) loam; weak fine granular and weak medium granular structure; very friable; common fine and common medium roots throughout; 10 percent nonflat quartzite fragments; strongly acid, pH 5.3; abrupt smooth boundary.
A2—13 to 23 centimeters; dark yellowish brown (10YR 4/4) loam; weak medium granular structure; very friable; common fine and common medium roots throughout; 10 percent nonflat quartzite fragments; strongly acid, pH 5.3; clear smooth boundary.
BA—23 to 38 centimeters; yellowish brown (10YR 5/4) loam; weak fine subangular blocky structure; friable; common fine and common medium roots throughout; 10 percent nonflat quartzite fragments; strongly acid, pH 5.3; clear smooth boundary.
Bw1—38 to 122 centimeters; yellowish brown (10YR 5/6) cobbly loam; weak medium subangular blocky structure; friable; common fine and common medium roots throughout; 20 percent nonflat quartzite fragments; strongly acid, pH 5.3; gradual smooth boundary.
Bw2—122 to 167 centimeters; yellowish brown (10YR 5/6) cobbly loam; weak medium subangular blocky structure; very friable; common fine roots throughout; 35 percent nonflat quartzite fragments; strongly acid, pH 5.3; gradual smooth boundary.
R—167 centimeters; unweathered bedrock.

Range in Characteristics

Depth to restrictive feature: Greater than 203 centimeters
Diagnostic feature(s): Ochric epipedon and cambic horizon
Surface fragments: 0 to 3 percent subangular indurated sandstone stones
Depth to seasonal high water table: Greater than 183 centimeters

A horizon:
Hue—10YR
Value—4 or 5
Chroma—2 or 3
Texture (fine-earth fraction)—loam
Fragment content—10 to 30 percent
Reaction—pH 4.5 to 5.5
Organic matter content—1.0 to 3.0 percent

BA horizon (if present):
Color—similar to the Bw horizon
Texture—similar to the Bw horizon

Bw horizon:
Hue—10YR or 7.5YR
Value—4 or 5
Chroma—4 to 6
Texture (fine-earth fraction)—loam, sandy loam, fine sandy loam
Fragment content—10 to 34 percent
Reaction—pH 4.5 to 5.5
Organic matter content—0.5 to 1.0 percent

R horizon:
Texture—unweathered bedrock

Northcove Series

Major Land Resource Area: 130B
Map unit(s):
NtC—Northcove-Maymead-Nowhere complex, 8 to 15 percent slopes, very stony
NtD—Northcove-Maymead complex, 15 to 30 percent slopes, very stony
NtE—Northcove-Maymead complex, 30 to 50 percent slopes, very stony
Depth class: Very deep
Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Colluvial drainageway on mountains
Landform position(s) (three-dimensional): Mountainbase and mountainflank (lower third)
Parent material: Cobbly colluvium derived from metasedimentary rock
Elevation: 458 to 1,280 meters
Slope: 8 to 50 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Loamy-skeletal, mixed, semiactive, mesic Typic Dystrudepts

Typical Pedon

This pedon of Northcove soil is located outside of Great Smoky Mountains National

Park in an area of Northcove-Maymead complex, 15 to 30 percent slopes, very stony; McDowell County, North Carolina; USGS Little Switzerland topographic quadrangle; latitude 35 degrees 47 minutes 20.00 seconds north and longitude 82 degrees 0 minutes 24.00 seconds west; UTM Zone 17, 409029 meters easting, 3961001 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oi—0 to 2 centimeters; slightly decomposed plant material.

Oe—2 to 8 centimeters; moderately decomposed plant material.

A—8 to 15 centimeters; dark grayish brown (10YR 4/2) very cobbly sandy loam; weak fine granular structure; very friable; common fine and common medium roots throughout; 35 percent nonflat quartzite fragments; extremely acid, pH 4.0; clear wavy boundary.

BA—15 to 23 centimeters; yellowish brown (10YR 5/4) very cobbly sandy loam; weak medium granular structure; very friable; common fine and common medium roots throughout; 40 percent nonflat quartzite fragments; extremely acid, pH 4.0; clear wavy boundary.

Bw1—23 to 84 centimeters; light yellowish brown (10YR 6/4) very cobbly sandy loam; weak medium subangular blocky structure; friable; common fine and common medium roots throughout; 45 percent nonflat quartzite fragments; extremely acid, pH 4.0; gradual wavy boundary.

Bw2—84 to 160 centimeters; yellowish brown (10YR 5/6) very cobbly loam; weak medium subangular blocky structure; friable; 50 percent nonflat quartzite fragments; extremely acid, pH 4.0; gradual wavy boundary.

C—160 to 211 centimeters; light yellowish brown (10YR 6/4) very cobbly sandy loam; massive; very friable; common fine and common very fine roots throughout; 60 percent nonflat quartzite fragments.

Range in Characteristics

Depth to restrictive feature: Greater than 203 centimeters
Diagnostic feature(s): Ochric epipedon and cambic horizon
Surface fragments: 0 to 3 percent subangular indurated sandstone stones
Depth to seasonal high water table: Greater than 183 centimeters

A horizon:
Hue—10YR or 7.5YR
Value—2 to 5
Chroma—2 to 4
Texture (fine-earth fraction)—sandy loam
Fragment content—35 to 59 percent
Reaction—pH 3.5 to 6.0
Organic matter content—0.5 to 2.0 percent

BA horizon (if present):
Color—similar to the Bw horizon
Texture—similar to the Bw horizon

Bw horizon:
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—3 to 8
Texture (fine-earth fraction)—sandy loam, loam
Fragment content—35 to 59 percent
Reaction—pH 3.5 to 6.0
Organic matter content—0.0 to 1.0 percent

C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 8
Texture (fine-earth fraction)—loamy sand, sandy loam
Fragment content—35 to 80 percent
Reaction—pH 3.5 to 6.0
Organic matter content—0.0 to 0.5 percent

Nowhere Series

Major Land Resource Area: 130B
Map unit(s):
NtC—Northcove-Maymead-Nowhere complex, 8 to 15 percent slopes, very stony
SsB—Spivey-Santeetlah-Nowhere complex, 2 to 8 percent slopes, very stony
SsC—Spivey-Santeetlah-Nowhere complex, 8 to 15 percent slopes, very stony
Depth class: Very deep
Drainage class: Poorly drained and somewhat poorly drained
Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Colluvium cove on mountains
Landform position(s) (three-dimensional): Mountain base
Parent material: Cobbly colluvium derived from metasedimentary rock
Elevation: 458 to 1,280 meters
Slope: 2 to 15 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Loamy-skeletal, isotic, acid, mesic Typic Humaquepts (fig. 36)

Typical Pedon

This pedon of Nowhere soil is located in Great Smoky Mountians National Park in an area of Spivey-Santeetlah-Nowhere complex, 8 to 15 percent slopes, very stony; Swain County, North Carolina; USGA Noland Creek topographic quadrangle; latitude 35 degrees 27 minutes 55.00 seconds north and longitude 83 degrees 30 minutes 10.00 seconds west; UTM Zone 17, 273115 meters easting, 3927317 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oe—0 to 3 centimeters; moderately decomposed plant material; 5 percent nonflat subrounded indurated 2- to 75-millimeter metasedimentary rock fragments. Lab sample # 02N04906

A—3 to 44 centimeters; very dark grayish brown (10YR 3/2) cobbly loam; moderate medium granular structure; very friable; many fine to coarse roots throughout; 10 percent fine mica flakes throughout; 15 percent nonflat 2- to 75-millimeter metasedimentary rock fragments and 15 percent nonflat 75- to 250-millimeter metasedimentary rock fragments; very strongly acid, pH 5.0; clear wavy boundary. Lab sample # 02N04906

Bg—44 to 74 centimeters; 80 percent gray (10YR 5/1) and 20 percent very dark grayish brown (10YR 3/2) very cobbly fine sandy loam; weak coarse subangular blocky structure; friable; few fine roots throughout; 15 percent medium prominent irregular yellowish brown (10YR 5/8) masses of oxidized iron throughout; 10 percent fine mica flakes throughout; 10 percent nonflat 600- to 1,000-millimeter metasedimentary rock fragments, 10 percent nonflat 2- to 75-millimeter metasedimentary rock fragments, 15 percent nonflat 250- to 600-millimeter

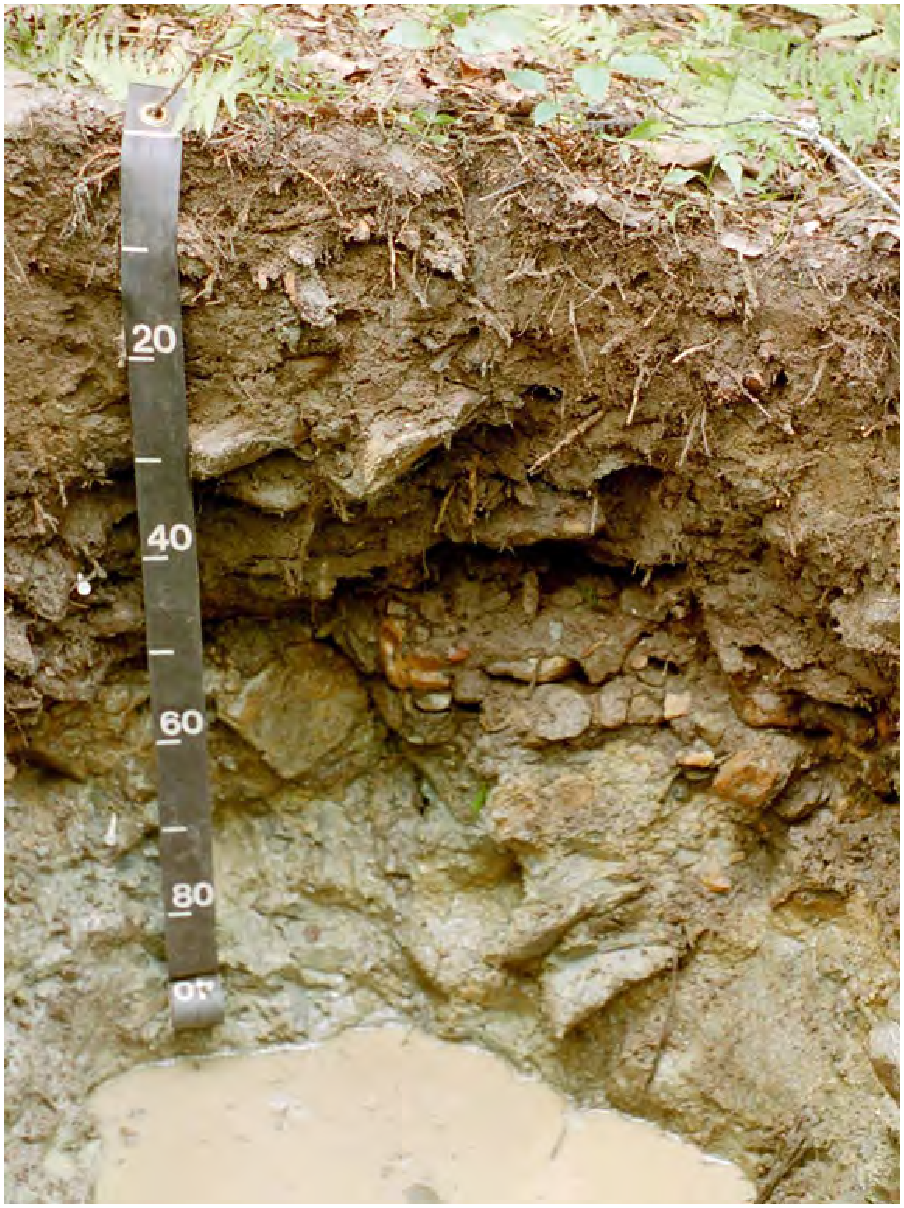


Figure 36.—Profile of Nowhere soil series near Lakeview Drive in Great Smoky Mountains National Park. Scale is in centimeters.

metasedimentary rock fragments, and 30 percent nonflat 75- to 250-millimeter metasedimentary rock fragments; strongly acid, pH 5.3; clear wavy boundary. Lab sample # 02N04907

Cg—74 to 158 centimeters; gray (10YR 5/1) extremely cobbly fine sandy loam; massive; friable; 1 percent fine distinct cylindrical clay depletions on surfaces along root channels; 10 percent fine mica flakes throughout; 5 percent nonflat 2- to 75-millimeter metasedimentary rock fragments, 15 percent nonflat 250- to 600-millimeter metasedimentary rock fragments, 15 percent nonflat 600- to 1,000-millimeter metasedimentary rock fragments, and 40 percent nonflat 75- to 250-millimeter metasedimentary rock fragments; strongly acid, pH 5.3; clear smooth boundary. Lab sample # 02N04908

Range in Characteristics

Depth to restrictive feature: Greater than 203 centimeters
Diagnostic feature(s): Umbric epipedon
Surface fragments: 0 to 3 percent rounded indurated sandstone stones; 0 to 3 percent subangular indurated sandstone stones
Seasonal high water table: January, February, March, April, May, June, July, August, September, October, November, December
Depth to top of water table: 15 to 40 centimeters

A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture (fine-earth fraction)—fine sandy loam
Fragment content—35 to 59 percent
Reaction—pH 3.5 to 5.5
Organic matter content—2.0 to 10.0 percent

Bg horizon:
Hue—10YR
Value—3 to 5
Chroma—1 to 8
Texture (fine-earth fraction)—loam, sandy loam, fine sandy loam
Fragment content—40 to 80 percent
Reaction—pH 3.5 to 5.5
Organic matter content—0.0 to 2.0 percent

Cg horizon:
Hue—7.5YR or 10YR
Value—5
Chroma—1 or 2
Texture (fine-earth fraction)—loam, fine sandy loam, sandy loam
Fragment content—40 to 80 percent
Reaction—pH 3.5 to 5.5
Organic matter content—0.0 to 1.0 percent

Oconaluftee Series

Major Land Resource Area: 130B
Map unit(s):
OcD—Oconaluftee-Guyot-Heintooga complex, 15 to 30 percent slopes, stony
OcF—Oconaluftee-Heintooga-Rubble land complex, 30 to 95 percent slopes, stony
OwC—Oconaluftee-Guyot-Cataloochee complex, 8 to 15 percent slopes, stony, windswept
OwD—Oconaluftee-Guyot-Cataloochee complex, 15 to 30 percent slopes, stony, windswept
OwE—Oconaluftee-Guyot-Cataloochee complex, 30 to 50 percent slopes, stony, windswept
OwF—Oconaluftee-Guyot-Cataloochie complex, 50 to 95 percent slopes, stony, windswept
Local phase(s): Windswept
Depth class: Very deep
Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): High

Figure 37.—Profile of Oconaluftee soil series (outside Great Smoky Mountains National Park). Scale is in centimeters.

Landform(s): Mountain slope on high mountains and ridge on high mountains
Landform position(s) (three-dimensional): Mountaintop and mountainflank (upper third)
Parent material: Creep deposits over residuum weathered from sandstone and/or metaquartzite
Elevation: 1,280 to 2,030 meters
Slope: 8 to 95 percent
Climatic data:
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1.0 to 13.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Fine-loamy, isotic, frigid Humic Dystrudepts (fig. 37)

Typical Pedon

This pedon of Oconaluftee soil is located in Great Smoky Mountains National Park in an area of Oconaluftee-Heintooga-Rubble land complex, 30 to 95 percent slopes, stony; Swain County, North Carolina; USGS Bunches Bald topographic quadrangle; latitude 35 degrees 34 minutes 24.00 seconds north and longitude 83 degrees 10 minutes 48.00 seconds west; UTM Zone 17, 302449 meters easting, 3938614 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oe—0 to 5 centimeters; moderately decomposed plant material. Lab sample # 00P06871

A1—5 to 18 centimeters; black (10YR 2/1) loam; moderate fine and medium granular structure; very friable; common very fine and fine and common medium and very coarse roots throughout; clear wavy boundary. Lab sample # 00P06872

A2—18 to 36 centimeters; very dark grayish brown (10YR 3/2) loam; moderate fine and medium granular structure; very friable; common fine and common medium and coarse roots throughout; clear smooth boundary. Lab sample # 00P06873

Bw1—36 to 66 centimeters; brown (10YR 4/3) loam; weak fine and coarse subangular blocky structure; friable; common medium roots throughout; gradual wavy boundary. Lab sample # 00P06874

Bw2—66 to 129 centimeters; brown (10YR 5/3) sandy loam; weak fine and coarse subangular blocky structure; friable; gradual wavy boundary. Lab sample # 00P06875

C—129 to 185 centimeters; brown (10YR 4/3) sandy loam; massive; very friable; gradual wavy boundary. Lab sample # 00P06877

Cr—185 centimeters; light olive brown (2.5Y 5/3) loamy sand.

Range in Characteristics

Depth to restrictive feature: Greater than 203 centimeters
Diagnostic feature(s): Umbric epipedon, cambic horizon, and paralithic contact
Surface fragments: None
Depth to seasonal high water table: Greater than 183 centimeters

A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture (fine-earth fraction)—loam
Fragment content—15 to 34 percent
Reaction—pH 3.5 to 5.5
Organic matter content—8.0 to 15.0 percent

Bw horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—3 or 4
Texture (fine-earth fraction)—loam, sandy loam
Fragment content—5 to 34 percent
Reaction—pH 3.5 to 6.0
Organic matter content—0.5 to 2.0 percent

C horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—3 or 4
Texture (fine-earth fraction)—sandy loam, loam
Fragment content—3 to 34 percent

Reaction—pH 3.5 to 6.0
Organic matter content—0.0 to 0.5 percent

Cr horizon:
Texture—weathered bedrock

Pinnacle Series

Major Land Resource Area: 130B
Map unit(s):
BrE—Breakneck-Luftee-Clingman-Pinnacle complex, 15 to 50 percent slopes, very stony
BrF—Breakneck-Luftee-Clingman-Pinnacle complex, 50 to 95 percent slopes, rocky
Depth class: Moderately deep
Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): Unspecified
Landform(s): Mountainside on mountains
Landform position(s) (three-dimensional): Mountainflank
Parent material: Organic material over thin layers weathered from metasedimentary rock
Elevation: 1,060 to 2,030 meters
Slope: 15 to 95 percent
Climatic data:
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1.0 to 13.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Dysic, frigid Typic Udifolists

Typical Pedon

This pedon of Pinnacle soil is located in Great Smoky Mountains National Park in an area of Breakneck-Luftee-Clingman-Pinnacle complex, 15 to 50 percent slopes, very stony; Sevier County, Tennessee; USGS Mt. LeConte topographic quadrangle; latitude 35 degrees 38 minutes 11.00 seconds north and longitude 83 degrees 26 minutes 32.00 seconds west; UTM Zone 17, 278862 meters easting, 3946398 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oi—0 to 10 centimeters; black (10YR 2/1) peat; 40 percent rubbed fiber; clear smooth boundary. Lab sample # 1P3409S
Oe—10 to 48 centimeters; black (5YR 2.5/1) peat; 75 percent rubbed fiber; ultra acid, pH 2.7; clear smooth boundary. Lab sample # 1P3409S
Oa1—48 to 66 centimeters; dark reddish brown (5YR 2.5/2) muck; 95 percent rubbed fiber; ultra acid, pH 2.5; abrupt smooth boundary. Lab sample # 1P3410S
Oa2—66 to 92 centimeters; black (7.5YR 2.5/1) mucky silt loam; massive; very friable; ultra acid, pH 3.0; abrupt smooth boundary. Lab sample # 1P3411S
R—92 centimeters; indurated slate bedrock.

Range in Characteristics

Depth to restrictive feature: 51 to 102 centimeters to lithic bedrock
Diagnostic feature(s): Folistic epipedon and lithic contact
Surface fragments: None
Depth to seasonal high water table: Greater than 183 centimeters

Oi horizon:
Texture—slightly decomposed organic material (fibric material)

Oe horizon:
Hue—5YR
Value—2.5
Chroma—2
Texture—mucky peat, peat
Fragment content—0 percent
Reaction—pH 2.0 to 3.5
Organic matter content—90.0 to 100.0 percent

Oa horizon:
Hue—5YR to 10YR
Value—2 or 2.5
Chroma—1
Texture—muck
Fragment content—0 percent
Reaction—pH 2.0 to 4.0
Organic matter content—75.0 to 100.0 percent

R horizon:
Texture—unweathered bedrock

Potomac Series

Major Land Resource Area: 130B
Map unit(s):
Po—Potomac very cobbly loamy sand, 0 to 5 percent slopes, extremely bouldery, frequently flooded
Depth class: Very deep
Drainage class: Somewhat excessively drained
Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Floodplain on mountains
Landform position(s) (three-dimensional): Mountainbase
Parent material: Cobbly alluvium
Elevation: 300 to 800 meters
Slope: 0 to 5 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Sandy-skeletal, mixed, mesic Typic Udifluvents (fig. 38)

Typical Pedon

This pedon of Potomac soil is located outside of Great Smoky Mountains National Park in an area of Potomac gravelly loam, 0 to 3 percent slopes; Carter County, Tennessee; USGS Keenburg topographic quadrangle; latitude 36 degrees 25 minutes 57.00 seconds north and longitude 82 degrees 14 minutes 7.00 seconds west; UTM Zone 17, 389229 meters easting, 4028932 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Ap—0 to 15 centimeters; very dark grayish brown (10YR 3/2) gravelly loam; 1 percent fine distinct dark yellowish brown (10YR 3/4) mottles; weak fine granular structure; very friable; common fine and common medium roots throughout; 1 percent fine mica flakes throughout; 15 percent flat unspecified fragments and 25 percent nonflat unspecified fragments; moderately acid, pH 5.7; clear wavy boundary.
C1—15 to 51 centimeters; dark yellowish brown (10YR 4/4) very cobbly loamy sand;

Figure 38.—Profile of Potomac soil series (outside Great Smoky Mountains National Park). Scale is in inches.

35 percent fine faint (10B 5/6) mottles; single grain; loose; common fine and common medium roots throughout; 1 percent fine mica flakes throughout; 60 percent nonflat unspecified fragments; strongly acid, pH 5.3; gradual wavy boundary.

C2—51 to 102 centimeters; dark yellowish brown (10YR 4/4) extremely cobbly sand; 35 percent fine faint yellowish brown (10YR 5/6) mottles; single grain; loose; common fine and common medium roots throughout; 70 percent nonflat unspecified fragments; strongly acid, pH 5.3; gradual wavy boundary.

C3—102 to 152 centimeters; dark yellowish brown (10YR 4/4) extremely cobbly sand; 11 percent fine faint yellowish brown (10YR 5/6) mottles; single grain; loose; 70 percent nonflat unspecified fragments; strongly acid, pH 5.3.

Range in Characteristics

Depth to restrictive feature: Greater than 203 centimeters
Diagnostic feature(s): Ochric epipedon
Surface fragments: 50 to 80 percent well rounded sandstone boulders
Seasonal high water table: January, February, March, April, May, June, July, August, September, October, November, December
Depth to top of water table: 122 to 183 centimeters

A or Ap horizon:
Hue—7.5YR to 10YR
Value—2 to 4
Chroma—2 to 4
Texture (fine-earth fraction)—loam, loamy sand, fine sandy loam, sandy loam
Fragment content—35 to 50 percent
Reaction—pH 5.1 to 7.8
Organic matter content—0.0 to 2.0 percent

C horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—3 or 4
Texture (fine-earth fraction)—loamy sand, sand
Fragment content—35 to 70 percent
Reaction—pH 5.1 to 7.8
Organic matter content—0.0 to 0.5 percent

Pullback Series

Major Land Resource Area: 130B
Map unit(s):
BpC—Breakneck-Pullback complex, 8 to 15 percent slopes, very rocky
BpD—Breakneck-Pullback complex, 15 to 30 percent slopes, very rocky
BpF—Breakneck-Pullback complex, 30 to 95 percent slopes, very rocky
RpF—Rock outcrop-Pullback complex, 30 to 95 percent slopes, stony
Depth class: Shallow
Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Ridge on mountains
Landform position(s) (three-dimensional): Mountaintop and mountainflank
Parent material: Loamy residuum from metasedimentary sandstone
Elevation: 1,280 to 2,030 meters
Slope: 8 to 95 percent
Climatic data:
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1.0 to 13.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Loamy, isotic, frigid Humic Lithic Dystrudepts

Typical Pedon

This pedon of Pullback soil is located in Great Smoky Mountains National Park in an area of Breakneck-Pullback complex, 8 to 15 percent slopes, very rocky; Swain County, North Carolina; USGS Clingmans Dome topographical quadrangle; latitude 35 degrees 33 minutes 24.00 seconds north and longitude 83 degrees 29 minutes 44.00

seconds west; UTM Zone 17, 273800 meters easting, 3937445 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oe—0 to 3 centimeters; moderately decomposed plant material.
A—3 to 20 centimeters; very dark brown (10YR 2/2) loam; moderate fine and medium granular structure; very friable; many medium and coarse and common very fine and fine roots throughout; 5 percent subangular 2- to 150-millimeter unspecified fragments; extremely acid, pH 3.7; abrupt wavy boundary. Lab sample # 02N04909
Bw—20 to 41 centimeters; dark yellowish brown (10YR 4/4) loam; weak medium and coarse subangular blocky structure; friable; few medium roots throughout; 5 percent subangular 2- to 150-millimeter unspecified fragments; very strongly acid, pH 4.7; abrupt wavy boundary. Lab sample # 02N04910
R—41 centimeters; indurated metasedimentary bedrock; fractured at intervals of 4 to less than 18 inches; very high excavation difficulty.

Range in Characteristics

Depth to restrictive feature: 25 to 51 centimeters to lithic bedrock
Diagnostic feature(s): Lithic contact, umbric epipedon, and cambic horizon
Surface fragments: None
Depth to seasonal high water table: Greater than 183 centimeters

Oe horizon:
Texture—peat
Fragment content—0 percent
Reaction—pH 3.0 to 4.0
Organic matter content—80.0 to 95.0 percent

A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 to 3
Texture (fine-earth fraction)—clay loam, loam, sandy loam
Fragment content—0 to 30 percent
Reaction—pH 3.0 to 5.5
Organic matter content—5.0 to 15.0 percent

Bw horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 8
Texture (fine-earth fraction)—loam, sandy loam
Fragment content—0 to 30 percent
Reaction—pH 3.0 to 5.5
Organic matter content—1.0 to 5.0 percent

R horizon:
Texture—unweathered bedrock

Reddies Series

Major Land Resource Area: 130B
Map unit(s):
Rd—Reddies-Dellwood complex, 0 to 5 percent slopes, frequently flooded
Rv—Rosman-Reddies complex, 0 to 5 percent slopes, frequently flooded

Rw—Rosman-Reddies-Urban land complex, 0 to 5 percent slopes, occasionally flooded

Depth class: Very deep
Drainage class: Moderately well drained
Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Floodplain on mountains
Landform position(s) (three-dimensional): Mountainbase
Parent material: Loamy alluvium over gravelly alluvium
Elevation: 300 to 770 meters
Slope: 0 to 5 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Oxyaquic Dystrudepts

Typical Pedon

This pedon of Reddies soil is located outside of Great Smoky Mountains National Park in an area of Reddies fine sandy loam, 0 to 2 percent slopes, occasionally flooded; Jackson County, North Carolina; USGS Mill Spring topographic quadrangle; latitude 35 degrees 18 minutes 12.00 seconds north and longitude 83 degrees 7 minutes 38.00 seconds west; UTM Zone 17, 397518 meters easting, 3907265 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Ap—0 to 36 centimeters; very dark grayish brown (10YR 3/2) fine sandy loam, grayish brown (10YR 5/2) dry; weak fine granular structure; very friable; common fine roots throughout; 11 percent fine mica flakes throughout; 5 percent nonflat rounded unspecified fragments; neutral, pH 7.0; clear smooth boundary.

Bw—36 to 66 centimeters; dark yellowish brown (10YR 4/6) fine sandy loam, dark yellowish brown (10YR 4/6) dry; weak medium subangular blocky structure; very friable; common fine roots throughout; 11 percent fine mica flakes throughout and 11 percent medium mica flakes throughout; slightly acid, pH 6.3; clear irregular boundary.

C1—66 to 104 centimeters; dark yellowish brown (10YR 4/6) very gravelly sand, dark yellowish brown (10YR 4/6) dry; single grain; loose; 11 percent fine mica flakes throughout and 11 percent medium mica flakes throughout; 45 percent nonflat rounded unspecified fragments; slightly acid, pH 6.3; abrupt wavy boundary.

C2—104 to 152 centimeters; very gravelly sand; single grain; loose; 11 percent fine and 11 percent medium mica flakes throughout; 50 percent nonflat rounded unspecified fragments; moderately acid, pH 5.7.

Range in Characteristics

Depth to restrictive feature: Greater than 203 centimeters
Diagnostic feature(s): Cambic horizon
Surface fragments: None
Seasonal high water table: January, February, March, April, December
Depth to top of water table: 61 to 107 centimeters

A or Ap horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—2 or 3
Texture (fine-earth fraction)—fine sandy loam
Fragment content—0 to 14 percent

Reaction—pH 4.5 to 7.3
Organic matter content—3.0 to 8.0 percent

Bw horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Texture (fine-earth fraction)—loam, sandy loam, fine sandy loam
Fragment content—0 to 27 percent
Reaction—pH 4.5 to 7.3
Organic matter content—0.5 to 1.0 percent

C horizon:
Hue—10YR
Value—3 to 6
Chroma—2 to 8
Texture (fine-earth fraction)—sand, loamy sand
Fragment content—35 to 65 percent
Reaction—pH 4.5 to 7.3
Organic matter content—0.0 to 0.5 percent

Rosman Series

Major Land Resource Area: 130B
Map unit(s):
Rv—Rosman-Reddies complex, 0 to 5 percent slopes, frequently flooded
Rw—Rosman-Reddies-Urban land complex, 0 to 5 percent slopes, occasionally flooded
Depth class: Very deep
Drainage class: Moderately well drained
Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Floodplain on mountains
Landform position(s) (three-dimensional): Mountain base
Parent material: Loamy alluvium
Elevation: 300 to 770 meters
Slope: 0 to 5 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Coarse-loamy, mixed, superactive, mesic Fluventic Humic Dystrudepts

Typical Pedon

This pedon of Rosman soil is located in Great Smoky Mountains National Park in an area of Rosman-Reddies complex, 0 to 5 percent slopes, frequently flooded; Blount County, Tennessee; USGS Cades Cove topographic quadrangle; latitude 35 degrees 35 minutes 43.00 seconds north and longitude 83 degrees 49 minutes 15.00 seconds west; UTM Zone 17, 244388 meters easting, 3942553 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

A1—0 to 12 centimeters; very dark grayish brown (10YR 3/2) silt loam; moderate fine and medium granular structure; very friable; many fine roots; strongly acid, pH 5.2; clear smooth boundary. Lab sample # 01P00188

A2—12 to 30 centimeters; dark brown (10YR 3/3) silt loam; weak medium subangular blocky structure; friable; many fine roots; strongly acid, pH 5.4; clear wavy boundary. Lab sample # 01P00189

Bw—30 to 54 centimeters; brown (10YR 5/3) silt loam; weak medium and coarse subangular blocky structure; friable; common fine roots; strongly acid, pH 5.5; clear smooth boundary. Lab sample # 01P00190

2BC—54 to 107 centimeters; brown (10YR 4/3) fine sandy loam; weak coarse subangular blocky structure; very friable; common fine roots; strongly acid, pH 5.2; clear wavy boundary. Lab sample # 01P00191

2C1—107 to 127 centimeters; dark yellowish brown (10YR 4/4) sandy loam; massive; very friable; common fine roots; strongly acid, pH 5.3; clear wavy boundary. Lab sample # 01P00192

2C2—127 to 175 centimeters; yellowish brown (10YR 5/4) sandy loam; massive; very friable; common fine roots; strongly acid, pH 5.2; clear wavy boundary. Lab sample # 01P00193

2C3—175 centimeters; 70 percent dark yellowish brown (10YR 4/4) and 30 percent light olive brown (2.5Y 5/4) very channery loam; massive; very friable; 50 percent nonflat rounded 2- to 75-millimeter metasedimentary rock fragments.

Range in Characteristics

Depth to restrictive feature: Greater than 203 centimeters
Diagnostic feature(s): Umbric epipedon and cambic horizon
Surface fragments: None
Seasonal high water table: January, February, March, April, December
Depth to top of water table: 100 to 152 centimeters

A or Ap horizon:
Hue—7.5YR to 2.5Y
Value—3
Chroma—1 to 3
Texture (fine-earth fraction)—silt loam, very fine sandy loam, fine sandy loam, loam
Fragment content—0 to 9 percent
Reaction—pH 4.5 to 5.5
Organic matter content—2.0 to 10.0 percent

Bw horizon:
Hue—2.5Y to 5YR
Value—4 to 6
Chroma—3 to 8
Texture (fine-earth fraction)—fine sandy loam, loam, sandy loam, very fine sandy loam, silt loam
Fragment content—0 to 9 percent
Reaction—pH 4.5 to 5.5
Organic matter content—1.0 to 3.0 percent

2BC horizon (if present):
Color—similar to the 2C horizon
Texture—similar to the 2C horizon

2C horizon:
Hue—5YR to 10YR
Value—4 to 6
Chroma—4 to 8
Texture (fine-earth fraction)—sandy loam, fine sandy loam, loam

Fragment content—0 percent in upper part of horizon and up to 50 percent in the lower part
Reaction—pH 4.5 to 5.5
Organic matter content—0.0 to 1.0 percent

Santeetlah Series

Major Land Resource Area: 130B
Map unit(s):
SsB—Spivey-Santeetlah-Nowhere complex, 2 to 8 percent slopes, very stony
SsC—Spivey-Santeetlah-Nowhere complex, 8 to 15 percent slopes, very stony
SsD—Spivey-Santeetlah complex, 15 to 30 percent slopes, very stony
SsE—Spivey-Santeetlah complex, 30 to 50 percent slopes, very stony
Depth class: Very deep
Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Colluvium cove on mountains
Landform position(s) (three-dimensional): Mountain base and mountainflank (lower third)
Parent material: Loamy colluvium derived from metasedimentary sandstone, slate, and phyllite
Elevation: 458 to 1,280 meters
Slope: 2 to 50 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Fine-loamy, isotic, mesic Humic Dystrudepts

Typical Pedon

This pedon of Santeetlah soil is located outside of Great Smoky Mountains National Park in an area of Spivey-Santeetlah complex, 30 to 50 percent slopes, stony; Jackson County, North Carolina; USGS Sylva North topographic quadrangle; latitude 35 degrees 23 minutes 59.91 seconds north and longitude 83 degrees 13 minutes 0.00 seconds west; UTM Zone 17, 298698 meters easting, 3919659 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oi—0 to 5 centimeters; slightly decomposed plant material.
A1—5 to 20 centimeters; very dark brown (10YR 2/2) flaggy loam; weak fine granular structure; very friable; common fine, common medium, and common coarse roots throughout; 1 percent fine mica flakes throughout; 20 percent flat unspecified fragments; very strongly acid, pH 4.7; clear smooth boundary.
A2—20 to 36 centimeters; dark brown (10YR 3/3) flaggy loam; weak medium granular structure; very friable; common fine, common medium, and common coarse roots throughout; 11 percent fine and 11 percent medium mica flakes throughout; 15 percent flat unspecified fragments; very strongly acid, pH 4.7; clear wavy boundary.
Bw1—36 to 51 centimeters; dark yellowish brown (10YR 4/4) loam; weak medium subangular blocky structure; friable; common fine and common medium roots throughout; 11 percent fine mica flakes throughout; 5 percent flat unspecified fragments; strongly acid, pH 5.3; gradual wavy boundary.
Bw2—51 to 76 centimeters; strong brown (7.5YR 4/6) loam; moderate medium subangular blocky structure; friable; common fine and common medium roots

throughout; 11 percent fine mica flakes throughout; 5 percent flat unspecified fragments; strongly acid, pH 5.3; gradual wavy boundary.

BC—76 to 156 centimeters; dark yellowish brown (10YR 4/6) channery fine sandy loam; weak medium subangular blocky structure; friable; common fine and common medium roots throughout; 11 percent fine mica flakes throughout; 15 percent flat unspecified fragments; strongly acid, pH 5.3.

Range in Characteristics

Depth to restrictive feature: Greater than 203 centimeters
Diagnostic feature(s): Umbric epipedon and cambic horizon
Surface fragments: 0 to 3 percent rounded indurated sandstone stones
Depth to seasonal high water table: Greater than 183 centimeters

A horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 to 3
Texture (fine-earth fraction)—loam
Fragment content—0 to 14 percent
Reaction—pH 3.5 to 6.0
Organic matter content—5.0 to 10.0 percent

Bw horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture (fine-earth fraction)—loam, sandy loam
Fragment content—0 to 14 percent
Reaction—pH 3.5 to 6.0
Organic matter content—0.5 to 3.0 percent

BC horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—1 to 3
Texture (fine-earth fraction)—loam, fine sandy loam
Fragment content—5 to 59 percent
Reaction—pH 3.5 to 6.0
Organic matter content—0.0 to 0.5 percent

C horizon:
Color—multicolored
Texture (fine-earth fraction)—loam, fine sandy loam
Fragment content—10 to 59 percent
Reaction—pH 3.5 to 6.0
Organic matter content—0.0 to 0.5 percent

Saunook Series

Major Land Resource Area: 130B
Map unit(s):
SaD—Saunook loam, 15 to 30 percent slopes, stony
SdC—Saunook-Urban land complex, 8 to 15 percent slopes, stony
Local phase(s): Stony
Depth class: Very deep
Drainage class: Well drained

Saturated hydraulic conductivity (K_{sat}): Moderately high
Landform(s): Fan on mountains
Landform position(s) (three-dimensional): Mountainbase
Parent material: Loamy colluvium derived from igneous and metamorphic rock
Elevation: 458 to 1,280 meters
Slope: 8 to 30 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Fine-loamy, mixed, superactive, mesic Humic Hapludults

Typical Pedon

This pedon of Saunook soil is located outside of Great Smoky Mountains National Park in an area of Saunook loam, 15 to 30 percent slopes, stony; Haywood County, North Carolina; USGS Waynesville topographic quadrangle; latitude 35 degrees 27 minutes 54.00 seconds north and longitude 82 degrees 57 minutes 14.00 seconds west; UTM Zone 17, 322708 meters easting, 3926366 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Ap—0 to 23 centimeters; dark brown (10YR 3/3) loam, brown (10YR 4/3) dry; weak fine granular and weak medium granular structure; very friable; common fine, common medium, and common coarse roots throughout; 1 percent fine mica flakes throughout; 6 percent nonflat unspecified fragments; moderately acid, pH 5.7; abrupt smooth boundary.

Bt1—23 to 71 centimeters; dark yellowish brown (10YR 4/6) loam; weak medium subangular blocky structure; friable; common fine, common medium, and common coarse roots throughout; 15 percent clay films on all faces of peds; 11 percent fine mica flakes throughout; 8 percent nonflat unspecified fragments; slightly acid, pH 6.3; gradual wavy boundary.

Bt2—71 to 86 centimeters; dark yellowish brown (10YR 4/6) cobbly loam; weak medium subangular blocky structure; friable; common fine roots throughout; 15 percent clay films on all faces of peds; 11 percent fine mica flakes throughout; 30 percent nonflat unspecified fragments; slightly acid, pH 6.3; gradual wavy boundary.

BC—86 to 165 centimeters; yellowish brown (10YR 5/6) cobbly sandy loam; weak fine subangular blocky structure; very friable; 25 percent nonflat unspecified fragments; moderately acid, pH 5.7.

Range in Characteristics

Depth to restrictive feature: Greater than 203 centimeters
Diagnostic feature(s): Umbric epipedon and argillic horizon
Surface fragments: None
Depth to seasonal high water table: Greater than 183 centimeters

A or Ap horizon:
Hue—10YR or 7.5YR
Value—2 or 3
Chroma—2 to 4
Texture (fine-earth fraction)—loam, fine sandy loam, sandy loam, silt loam, sandy clay loam, clay loam
Fragment content—0 to 14 percent
Reaction—pH 3.5 to 6.0
Organic matter content—3.0 to 10.0 percent

Bt horizon:
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—4 to 8
Texture (fine-earth fraction)—clay loam, sandy clay loam, loam, silt loam
Fragment content—0 to 14 percent
Reaction—pH 4.5 to 6.5
Organic matter content—1.0 to 3.0 percent

BC horizon:
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—4 to 8
Texture (fine-earth fraction)—loam, sandy clay loam, coarse sandy loam, fine sandy loam, silt loam
Fragment content—15 to 34 percent
Reaction—pH 4.5 to 6.5
Organic matter content—0.5 to 2.5 percent

C horizon:
Color—multicolored
Texture (fine-earth fraction)—loam, sandy loam
Fragment content—15 to 34 percent
Reaction—pH 4.5 to 6.5
Organic matter content—0.5 to 2.5 percent

Smokemont Series

Major Land Resource Area: 130B
Map unit(s):
Dd—Dellwood-Smokemont-Urban land complex, 0 to 5 percent slopes, occasionally flooded
Dg—Dellwood-Smokemont complex, 0 to 5 percent slopes, frequently flooded
Depth class: Very deep
Drainage class: Excessively drained and well drained
Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Floodplain on mountains
Landform position(s) (three-dimensional): Mountainbase
Parent material: Cobbly alluvium derived from metasedimentary rock
Elevation: 300 to 920 meters
Slope: 0 to 5 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Sandy-skeletal, mixed, mesic Fluventic Humic Dystrudepts

Typical Pedon

This pedon of Smokemount soil is located in Great Smoky Mountains National Park in an area of Dellwood-Smokemont complex, 0 to 5 percent slopes, frequently flooded; Swain County, North Carolina; USGS Smokemont topographical quadrangle; latitude 35 degrees 35 minutes 14.00 seconds north and longitude 83 degrees 19 minutes 28.00 seconds west; UTM Zone 17, 290093 meters easting, 3940206 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oe—0 to 3 centimeters; moderately decomposed plant material.
A1—3 to 18 centimeters; black (10YR 2/1) cobbly sandy loam; moderate fine and very coarse granular structure; very friable; common medium and common very fine, fine, and very coarse roots throughout; clear wavy boundary. Lab sample # 00P01709
A2—18 to 31 centimeters; very dark grayish brown (10YR 3/2) cobbly fine sandy loam; weak fine and very coarse granular structure; very friable; common medium and common very fine, fine, and very coarse roots throughout; clear wavy boundary. Lab sample # 00P01710
C1—31 to 41 centimeters; dark brown (10YR 3/3) very cobbly fine sandy loam; massive; common medium and coarse roots throughout; clear wavy boundary. Lab sample # 00P01711
C2—41 to 69 centimeters; brown (10YR 4/3) very cobbly sandy loam; massive; common medium and coarse roots throughout; gradual wavy boundary. Lab sample # 00P01712
C3—69 to 104 centimeters; brown (10YR 4/3) extremely cobbly loamy sand; single grain; common medium and coarse roots throughout. Lab sample # 00P01713

Range in Characteristics

Depth to restrictive feature: Greater than 203 centimeters
Diagnostic feature(s): Umbric epipedon
Surface fragments: None
Seasonal high water table: January, February, March, April, December
Depth to top of water table: 122 to 183 centimeters

A horizon:
Hue—10YR or 7.5YR
Value—2 or 3
Chroma—1 to 3
Texture (fine-earth fraction)—sandy loam, fine sandy loam, coarse sandy loam
Fragment content—15 to 34 percent
Reaction—pH 4.5 to 6.0
Organic matter content—5.0 to 7.3 percent

C1 horizon:
Hue—7.5YR to 2.5Y
Value—3 to 6
Chroma—3 to 8
Texture (fine-earth fraction)—sand, coarse sand, loamy coarse sand, sandy loam, loamy sand
Fragment content—35 to 75 percent
Reaction—pH 4.5 to 6.0
Organic matter content—1.8 to 3.4 percent

C2 and C3 horizons:
Hue—7.5YR to 2.5Y
Value—3 to 6
Chroma—1 to 3
Texture (fine-earth fraction)—sand, coarse sand, loamy coarse sand, sandy loam, loamy sand
Fragment content—50 to 85 percent
Reaction—pH 4.5 to 6.0
Organic matter content—0.5 to 3.0 percent

Snowbird Series

Major Land Resource Area: 130B
Map unit(s):
SnF—Snowbird loam, 30 to 95 percent slopes, stony
Depth class: Deep
Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): Moderately high
Landform(s): Mountainside on mountains
Landform position(s) (three-dimensional): Head slope
Parent material: Loamy residuum weathered from soft metasedimentary sandstone and siltstone
Elevation: 458 to 1,280 meters
Slope: 30 to 95 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Fine-loamy, mixed, active, mesic Humic Hapludults

Typical Pedon

This pedon of Snowbird soil is located outside of Great Smoky Mountains National Park in an area of Snowbird loam, 30 to 50 percent slopes, stony; Graham County, North Carolina; USGS Santeetlah Creek topographic quadrangle; latitude 35 degrees 21 minutes 37.00 seconds north and longitude 83 degrees 50 minutes 9.00 seconds west; UTM Zone 17, 242324 meters easting, 3916491 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oi—0 to 3 centimeters; slightly decomposed plant material; 11 percent fine mica flakes throughout; abrupt smooth boundary.

Oe—3 to 8 centimeters; moderately decomposed plant material; abrupt smooth boundary.

A1—8 to 20 centimeters; dark brown (7.5YR 3/2) loam; strong fine granular, strong medium granular, and strong coarse granular structure; very friable; common coarse and common very coarse roots throughout; common fine dendritic tubular and common very fine dendritic tubular pores; very strongly acid, pH 4.7; clear smooth boundary.

A2—20 to 25 centimeters; dark brown (7.5YR 3/3) loam; strong fine granular, strong medium granular, and strong coarse granular structure; very friable; common fine, common medium, common very fine, common coarse, and common very coarse roots throughout; common fine dendritic tubular and common very fine dendritic tubular pores; 11 percent fine mica flakes throughout; very strongly acid, pH 4.7; clear smooth boundary.

Bt1—25 to 33 centimeters; dark brown (7.5YR 3/4) loam; strong fine granular, strong medium granular, and strong coarse granular structure; friable; common fine, common medium, and common very fine roots throughout; many fine dendritic tubular and many very fine dendritic tubular pores; 15 percent distinct clay films on all faces of peds and 15 percent distinct clay films on surfaces along pores; 11 percent fine mica flakes throughout; very strongly acid, pH 4.7; abrupt smooth boundary.

Bt2—33 to 56 centimeters; strong brown (7.5YR 4/6) sandy clay loam; moderate fine subangular blocky, moderate medium subangular blocky, moderate coarse subangular blocky, and moderate very coarse subangular blocky structure; friable, slightly sticky, slightly plastic; common fine, common medium, and common very fine roots between peds; common fine dendritic tubular, common medium dendritic tubular, common coarse dendritic tubular, and common very fine dendritic tubular pores; 35 percent distinct clay films on all faces of peds and 35 percent distinct clay films on surfaces along pores; 35 percent fine mica flakes throughout; strongly acid, pH 5.3; clear wavy boundary.

Bt3—56 to 86 centimeters; strong brown (7.5YR 4/6) very fine sandy loam; moderate fine subangular blocky, moderate medium subangular blocky, moderate coarse subangular blocky, and moderate very coarse subangular blocky structure; friable, slightly sticky, slightly plastic; common fine, common medium, and common very fine roots throughout; common fine dendritic tubular, common medium dendritic tubular, common coarse dendritic tubular, common very coarse dendritic tubular, and common very fine dendritic tubular pores; 35 percent faint clay films on all faces of peds and 35 percent faint clay films on surfaces along pores; 35 percent fine mica flakes throughout; 10 percent flat unspecified fragments; clear wavy boundary.

BC—86 to 145 centimeters; dark yellowish brown (10YR 4/4) very fine sandy loam; weak fine subangular blocky, weak medium subangular blocky, and weak coarse subangular blocky structure; common fine and common medium roots throughout; common fine dendritic tubular, common medium dendritic tubular, and common very fine dendritic tubular pores; 35 percent fine mica flakes throughout; 20 percent flat unspecified fragments; abrupt irregular boundary.

Cr—145 to 170 centimeters; very strongly cemented metasedimentary bedrock.

Range in Characteristics

Depth to restrictive feature: 102 to 152 centimeters to paralithic bedrock
Diagnostic feature(s): Umbric epipedon, argillic horizon, and paralithic contact
Surface fragments: None
Depth to seasonal high water table: Greater than 183 centimeters

A horizon:
Hue—10YR or 7.5YR
Value—2 or 3
Chroma—2 to 4
Texture (fine-earth fraction)—loam, sandy loam
Fragment content—0 to 14 percent
Reaction—pH 4.5 to 6.5
Organic matter content—3.0 to 10.0 percent

Bt horizon:
Hue—10YR to 5YR
Value—3 to 5
Chroma—4 to 8
Texture (fine-earth fraction)—loam, sandy clay loam, clay loam
Fragment content—0 to 14 percent
Reaction—pH 4.5 to 5.5
Organic matter content—0.5 to 3.0 percent

BC horizon:
Hue—10YR to 5YR
Value—4 or 5
Chroma—4 to 8
Texture (fine-earth fraction)—loam, sandy clay loam, sandy loam, fine sandy loam
Fragment content—10 to 40 percent
Reaction—pH 4.5 to 5.5
Organic matter content—0.0 to 1.0 percent

Cr horizon:
Texture—weathered bedrock

Soco Series

Major Land Resource Area: 130B
Map unit(s):
SoD—Soco-Stecoah complex, 15 to 30 percent slopes, stony
SoF—Soco-Stecoah complex, 30 to 95 percent slopes, stony
SpD—Soco-Stecoah complex, 15 to 30 percent slopes, stony, windswept
SpF—Soco-Stecoah complex, 30 to 95 percent slopes, stony, windswept
Local phase(s): Windswept
Depth class: Moderately deep
Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Windswept mountainside on mountains and windswept ridge on mountains
Landform position(s) (three-dimensional): Side slope, crest, and mountainflank (lower third)
Parent material: Loamy residuum and/or creep deposits derived from metasedimentary rock
Elevation: 301 to 1,280 meters
Slope: 15 to 95 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Coarse-loamy, mixed, active, mesic Typic Dystrudepts

Typical Pedon

This pedon of Soco soil is located outside of Great Smoky Mountains National Park in an area of Soco-Stecoah complex, 30 to 50 percent slopes; Jackson County, North Carolina; USGS Bunches Bald topographic quadrangle; latitude 35 degrees 31 minutes 24.00 seconds north and longitude 83 degrees 37 minutes 48.00 seconds west; UTM Zone 17, 261519 meters easting, 3934263 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oi—0 to 5 centimeters; slightly decomposed plant material.
A—5 to 15 centimeters; very dark grayish brown (10YR 3/2) channery loam, brown (10YR 4/3) dry; weak fine granular structure; very friable; common fine and common medium roots throughout; 11 percent fine mica flakes throughout; 20 percent flat unspecified fragments; very strongly acid, pH 4.7; clear wavy boundary.
Bw1—15 to 38 centimeters; strong brown (7.5YR 4/6) fine sandy loam; weak medium subangular blocky structure; friable; 11 percent fine mica flakes throughout; 5 percent flat unspecified fragments; strongly acid, pH 5.3; clear wavy boundary.
Bw2—38 to 66 centimeters; dark yellowish brown (10YR 4/6) fine sandy loam; weak fine subangular blocky structure; friable; 11 percent fine mica flakes throughout; 5 percent flat unspecified fragments; very strongly acid, pH 4.7; gradual wavy boundary.
BC—66 to 86 centimeters; yellowish brown (10YR 5/4) channery fine sandy loam; massive; friable; 11 percent fine mica flakes throughout; 20 percent flat unspecified fragments; very strongly acid, pH 4.7; gradual wavy boundary.

C—86 to 94 centimeters; 34 percent brown (10YR 5/3), 33 percent gray (10YR 6/1), and 33 percent black (10YR 2/1) channery fine sandy loam; massive; friable; 11 percent fine mica flakes throughout; 25 percent flat unspecified fragments; very strongly acid, pH 4.7; clear wavy boundary.

Cr—94 to 157 centimeters; very strongly cemented metasedimentary bedrock.

Range in Characteristics

Depth to restrictive feature: 51 to 102 centimeters to paralithic bedrock
Diagnostic feature(s): Ochric epipedon, cambic horizon, and paralithic contact
Surface fragments: None
Depth to seasonal high water table: Greater than 183 centimeters

A horizon:
Hue—7.5YR to 2.5Y
Value—2 to 5
Chroma—2 to 6
Texture (fine-earth fraction)—loam, fine sandy loam, silt loam
Fragment content—15 to 34 percent
Reaction—pH 3.5 to 5.5
Organic matter content—1.0 to 8.0 percent

Bw horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture (fine-earth fraction)—silt loam, fine sandy loam, loam
Fragment content—0 to 14 percent
Reaction—pH 3.5 to 5.5
Organic matter content—0.5 to 1.0 percent

BC horizon (if present):
Color—similar to the Bw horizon
Texture—similar to the Bw horizon

C horizon:
Color—multicolored
Texture (fine-earth fraction)—loam, fine sandy loam, sandy loam, loamy fine sand, silt loam
Fragment content—5 to 34 percent
Reaction—pH 3.5 to 5.5
Organic matter content—0.0 to 0.5 percent

Cr horizon:
Texture—weathered bedrock

Spivey Series

Major Land Resource Area: 130B
Map unit(s):
RxF—Rubble land-Spivey complex, 50 to 95 percent slopes, extremely bouldery
SsB—Spivey-Santeetlah-Nowhere complex, 2 to 8 percent slopes, very stony
SsC—Spivey-Santeetlah-Nowhere complex, 8 to 15 percent slopes, very stony
SsD—Spivey-Santeetlah complex, 15 to 30 percent slopes, very stony
SsE—Spivey-Santeetlah complex, 30 to 50 percent slopes, very stony
Depth class: Very deep
Drainage class: Well drained

Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Colluvium cove on mountains and colluvium drainageway on mountains
Landform position(s) (three-dimensional): Mountainbase and mountainflank (lower third)
Parent material: Cobbly or stony colluvium derived from metasedimentary rock
Elevation: 458 to 1,280 meters
Slope: 2 to 95 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Loamy-skeletal, isotic, mesic Humic Dystrudepts

Typical Pedon

This pedon of Spivey soil is located outside of Great Smoky Mountains National Park in an area of Spivey-Santeetlah complex, 30 to 50 percent slopes, stony; Jackson County, North Carolina; USGS Sylva North topographic quadrangle; latitude 35 degrees 23 minutes 59.91 seconds north and longitude 83 degrees 13 minutes 0.00 seconds west; UTM Zone 17, 298698 meters easting, 3919659 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oi—0 to 5 centimeters; slightly decomposed plant material.
A1—5 to 23 centimeters; very dark brown (10YR 2/2) flaggy loam; weak fine granular structure; very friable; common fine, common medium, and common coarse roots throughout; 1 percent fine mica flakes throughout; 30 percent flat unspecified fragments; very strongly acid, pH 4.7; clear wavy boundary.
A2—23 to 38 centimeters; dark brown (10YR 3/3) flaggy loam; weak medium granular structure; very friable; common fine, common medium, and common coarse roots throughout; 1 percent fine mica flakes throughout; 30 percent flat unspecified fragments; very strongly acid, pH 4.7; clear wavy boundary.
Bw1—38 to 51 centimeters; dark yellowish brown (10YR 4/4) very flaggy loam; weak medium subangular blocky structure; friable; common fine and common medium roots throughout; 11 percent fine mica flakes throughout; 45 percent flat unspecified fragments; strongly acid, pH 5.3; gradual wavy boundary.
Bw2—51 to 102 centimeters; strong brown (7.5YR 4/6) very flaggy fine sandy loam; weak medium subangular blocky structure; friable; common fine and common medium roots throughout; 11 percent fine mica flakes throughout; 5 percent nonflat unspecified fragments and 45 percent flat unspecified fragments; strongly acid, pH 5.3; gradual wavy boundary.
BC—102 to 163 centimeters; yellowish brown (10YR 5/6) very flaggy fine sandy loam; weak medium subangular blocky structure; very friable; common fine and common medium roots throughout; 11 percent fine mica flakes throughout; 10 percent nonflat unspecified fragments and 40 percent flat unspecified fragments; strongly acid, pH 5.3.

Range in Characteristics

Depth to restrictive feature: Greater than 203 centimeters
Diagnostic feature(s): Umbric epipedon and cambic horizon
Surface fragments: 0 to 3 percent rounded indurated sandstone stones; 3 to 15 percent rounded indurated sandstone boulders
Depth to seasonal high water table: Greater than 183 centimeters

A horizon:
Hue—7.5YR or 10YR
Value—2 or 3

Chroma—1 to 3
Texture (fine-earth fraction)—loam
Fragment content—25 to 59 percent
Reaction—pH 3.5 to 5.5
Organic matter content—5.0 to 10.0 percent

Bw horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 8
Texture (fine-earth fraction)—loam, fine sandy loam
Fragment content—35 to 75 percent
Reaction—pH 3.5 to 5.5
Organic matter content—1.0 to 3.0 percent

BC horizon (if present):
Color—similar to the Bw horizon
Texture—similar to the Bw horizon

C horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 8
Texture (fine-earth fraction)—loam, sandy loam, fine sandy loam
Fragment content—35 to 90 percent
Reaction—pH 3.5 to 5.5
Organic matter content—0.5 to 3.0 percent

Statler Series

Major Land Resource Area: 130B
Map unit(s):
StB—Statler loam, 0 to 5 percent slopes
StC—Statler loam, 5 to 15 percent slopes
Depth class: Very deep
Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Stream terrace in valley
Landform position(s) (three-dimensional): Tread
Parent material: Loamy alluvium derived from metasedimentary rock
Elevation: 458 to 1,000 meters
Slope: 0 to 15 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Fine-loamy, mixed, active, mesic Humic Hapludults

Typical Pedon

This pedon of Statler soil is located outside of Great Smoky Mountains National Park in an area of Statler loam, 1 to 5 percent slopes, rarely flooded; Swain County, North Carolina; USGS Whittier topographic quadrangle; latitude 35 degrees 25 minutes 59.91 seconds north and longitude 83 degrees 18 minutes 0.00 seconds west; UTM Zone 17, 291215 meters easting, 3923530 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Ap—0 to 23 centimeters; dark brown (10YR 3/3) loam; weak fine granular structure; very friable; common fine and common medium roots throughout; 1 percent fine mica flakes throughout; slightly acid, pH 6.3; clear wavy boundary.

Bt1—23 to 76 centimeters; yellowish brown (10YR 5/6) clay loam; moderate medium subangular blocky structure; friable; 15 percent discontinuous clay films on all faces of peds; 11 percent fine mica flakes throughout; moderately acid, pH 5.7; gradual wavy boundary.

Bt2—76 to 156 centimeters; yellowish brown (10YR 5/6) sandy clay loam; 1 percent fine faint yellowish red (5YR 5/6) and 11 percent medium distinct light yellowish brown (10YR 6/4) mottles; moderate medium subangular blocky structure; friable; 15 percent discontinuous clay films on all faces of peds; 11 percent fine mica flakes throughout; strongly acid, pH 5.3; gradual wavy boundary.

BC—156 to 178 centimeters; strong brown (7.5YR 4/6) fine sandy loam; 1 percent fine distinct yellowish red (5YR 5/8) and 11 percent medium faint yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; friable; 11 percent fine mica flakes throughout; strongly acid, pH 5.3; gradual wavy boundary.

C—178 to 216 centimeters; fine sandy loam; massive; very friable; 11 percent fine mica flakes throughout; strongly acid, pH 5.3.

Range in Characteristics

Depth to restrictive feature: Greater than 203 centimeters
Diagnostic feature(s): Umbric epipedon and argillic horizon
Surface fragments: None
Depth to seasonal high water table: Greater than 183 centimeters

Ap or A horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—2 to 4
Texture (fine-earth fraction)—loam
Fragment content—0 to 14 percent
Reaction—pH 5.1 to 7.3
Organic matter content—2.0 to 6.0 percent

Bt horizon:
Hue—5YR to 10YR
Value—4 to 6
Chroma—3 to 8
Texture (fine-earth fraction)—clay loam, sandy clay loam, loam
Fragment content—0 to 14 percent
Reaction—pH 5.1 to 6.5
Organic matter content—0.5 to 3.0 percent

BC horizon:
Hue—5YR to 10YR
Value—4 to 6
Chroma—3 to 8
Texture (fine-earth fraction)—loam, fine sandy loam
Fragment content—0 to 14 percent
Reaction—pH 5.1 to 6.0
Organic matter content—0.0 to 2.0 percent

C horizon:
Color—multicolored
Texture (fine-earth fraction)—fine sandy loam, loam
Fragment content—0 to 14 percent

Reaction—pH 5.1 to 6.0
Organic matter content—0.0 to 0.5 percent

Stecoah Series

Major Land Resource Area: 130B
Map unit(s):
SoD—Soco-Stecoah complex, 15 to 30 percent slopes, stony
SoF—Soco-Stecoah complex, 30 to 95 percent slopes, stony
SpD—Soco-Stecoah complex, 15 to 30 percent slopes, stony, windswept
SpF—Soco-Stecoah complex, 30 to 95 percent slopes, stony, windswept
Local phase(s): Windswept
Depth class: Deep
Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Windswept mountainside on mountains and windswept ridge on mountains
Landform position(s) (three-dimensional): Side slope, crest, and mountainflank (lower third)
Parent material: Loamy residuum and/or creep deposits derived from metasedimentary rock
Elevation: 301 to 1,280 meters
Slope: 15 to 95 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Coarse-loamy, mixed, active, mesic Typic Dystrudepts

Typical Pedon

This pedon of Stecoah soil is located outside of Great Smoky Mountains National Park in an area of Soco-Stecoah complex, 30 to 50 percent slopes; Jackson County, North Carolina; USGS Bunches Bald topographic quadrangle; latitude 35 degrees 31 minutes 47.77 seconds north and longitude 83 degrees 13 minutes 46.00 seconds west; UTM Zone 17, 297863 meters easting, 3934092 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oi—0 to 3 centimeters; slightly decomposed plant material.
A—3 to 15 centimeters; very dark grayish brown (10YR 3/2) channery fine sandy loam; weak fine granular structure; very friable; common fine, common medium, and common coarse roots throughout; 11 percent fine mica flakes throughout; 20 percent flat unspecified fragments; very strongly acid, pH 4.7; clear smooth boundary.
Bw1—15 to 28 centimeters; brown (7.5YR 4/4) fine sandy loam; weak medium subangular blocky structure; friable; common fine, common medium, and common coarse roots throughout; 11 percent fine mica flakes throughout; 5 percent flat unspecified fragments; very strongly acid, pH 4.7; gradual wavy boundary.
Bw2—28 to 45 centimeters; strong brown (7.5YR 4/6) fine sandy loam; weak medium subangular blocky structure; very friable; common fine and common medium roots throughout; 11 percent fine mica flakes throughout; 5 percent flat unspecified fragments; very strongly acid, pH 4.7; gradual wavy boundary.
Bw3—45 to 58 centimeters; strong brown (7.5YR 5/8) fine sandy loam; weak medium subangular blocky structure; very friable; common fine and common medium roots

throughout; 11 percent fine mica flakes throughout; 10 percent flat unspecified fragments; very strongly acid, pH 4.7; gradual wavy boundary.

Bw4—58 to 94 centimeters; strong brown (7.5YR 5/6) channery fine sandy loam; weak medium subangular blocky structure; very friable; common fine and common medium roots throughout; 11 percent fine mica flakes throughout; 20 percent flat unspecified fragments; very strongly acid, pH 4.7.

BC—94 to 117 centimeters; strong brown (7.5YR 5/6) channery fine sandy loam; weak medium subangular blocky structure; very friable; common fine and common medium roots throughout; 11 percent fine mica flakes throughout; 30 percent flat unspecified fragments; very strongly acid, pH 4.7; abrupt irregular boundary.

Cr—117 to 155 centimeters; very strongly cemented metasedimentary bedrock.

Range in Characteristics

Depth to restrictive feature: 102 to 152 centimeters to paralithic bedrock
Diagnostic feature(s): Ochric epipedon, cambic horizon, and paralithic contact
Surface fragments: None
Depth to seasonal high water table: Greater than 183 centimeters

A horizon:
Hue—7.5YR to 2.5Y
Value—2 to 5
Chroma—2 to 6
Texture (fine-earth fraction)—loam, fine sandy loam, silt loam
Fragment content—15 to 34 percent
Reaction—pH 3.5 to 5.5
Organic matter content—1.0 to 8.0 percent

Bw horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—4 to 8
Texture (fine-earth fraction)—fine sandy loam, silt loam, loam
Fragment content—0 to 34 percent
Reaction—pH 3.5 to 5.5
Organic matter content—0.5 to 1.0 percent

BC horizon (if present):
Color—similar to the Bw horizon
Texture—similar to the Bw horizon

C horizon:
Color—multicolored
Texture (fine-earth fraction)—sandy loam, fine sandy loam, silt loam, loam
Fragment content—3 to 34 percent
Reaction—pH 3.5 to 5.5
Organic matter content—0.0 to 0.5 percent

Cr horizon:
Texture—weathered bedrock

Sylco Series

Major Land Resource Area: 130B
Map unit(s):
CcF—Cataska-Sylco complex, 30 to 95 percent slopes, very rocky
Depth class: Moderately deep

Figure 39.—Profile of Sylco soil series in Great Smoky Mountains National Park. Scale is in centimeters.

Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): Moderately high
Landform(s): Mountainside on low to intermediate mountains
Landform position(s) (three-dimensional): Side slope
Parent material: Channery residuum weathered from metasedimentary rock
Elevation: 301 to 1,280 meters
Slope: 30 to 95 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Loamy-skeletal, mixed, active, mesic Typic Dystrudepts (fig. 39)

Typical Pedon

This pedon of Sylco soil is located outside of Great Smoky Mountains National Park in an area of Cataska-Sylco complex, 50 to 95 percent slopes; Macon County, North

Carolina; USGS Hewitt topographic quadrangle; latitude 35 degrees 15 minutes 59.84 seconds north and longitude 83 degrees 39 minutes 0.00 seconds west; UTM Zone 17, 258941 meters easting, 3905836 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oi—0 to 5 centimeters; slightly decomposed plant material.
A—5 to 20 centimeters; dark brown (10YR 3/3) very channery loam; moderate fine granular structure; very friable; common fine, common medium, and common coarse roots throughout; 45 percent flat unspecified fragments; very strongly acid, pH 4.7; gradual wavy boundary.
Bw—20 to 61 centimeters; dark yellowish brown (10YR 4/4) very channery loam; weak fine subangular blocky structure; very friable; common fine, common medium, and common coarse roots throughout; 45 percent flat unspecified fragments; strongly acid, pH 5.3; gradual irregular boundary.
Cr—61 to 81 centimeters; weathered bedrock; 15 percent dark yellowish brown (10YR 3/4) silica on bedrock.
R—81 centimeters; unweathered bedrock.

Range in Characteristics

Depth to restrictive feature: 51 to 102 centimeters to lithic bedrock
Diagnostic feature(s): Ochric epipedon, cambic horizon, and lithic contact
Surface fragments: None
Depth to seasonal high water table: Greater than 183 centimeters

A horizon:
Hue—10YR
Value—3 to 5
Chroma—2 to 4
Texture (fine-earth fraction)—loam
Fragment content—15 to 45 percent
Reaction—pH 3.6 to 5.5
Organic matter content—0.5 to 5.0 percent

Bw horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—3 to 8
Texture (fine-earth fraction)—loam, silt loam
Fragment content—18 to 70 percent
Reaction—pH 3.6 to 5.5
Organic matter content—0.5 to 1.0 percent

Cr horizon:
Texture—weathered bedrock

R horizon:
Texture—unweathered bedrock

Tanasee Series

Major Land Resource Area: 130B
Map unit(s):
BaE—Balsam-Tanasee complex, 30 to 50 percent slopes, stony
TaC—Tanasee-Balsam complex, 5 to 15 percent slopes, stony
TaD—Tanasee-Balsam complex, 15 to 30 percent slopes, stony
Depth class: Very deep

Figure 40.—Profile of Tanasee soil series near Purchase Knob in Great Smoky Mountains National Park. Scale is in centimeters.

Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Colluvium cove on mountains
Landform position(s) (three-dimensional): Mountainflank
Parent material: Loamy colluvium derived from gneiss
Elevation: 1,280 to 2,030 meters
Slope: 5 to 50 percent
Climatic data:
   Mean annual precipitation: 2,032 to 2,540 millimeters
   Mean annual air temperature: 1.0 to 13.0 degrees C
   Frost-free period: 162 to 176 days
Taxonomic class: Fine-loamy, isotic, frigid Humic Dystrudepts (fig. 40)

Typical Pedon

This pedon of Tanasee soil is located outside of Great Smoky Mountains National Park in an area of Tanasee-Balsam complex, 15 to 30 percent slopes, stony; Jackson County, North Carolina; USGS Sam's Knob topographic quadrangle; latitude 35 degrees 20 minutes 27.00 seconds north and longitude 82 degrees 58 minutes 20.00 seconds west; UTM Zone 17, 320921 meters easting, 3912623 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oe—0 to 3 centimeters; moderately decomposed plant material.

A1—3 to 20 centimeters; black (10YR 2/1) sandy loam, very dark brown (10YR 2/2) dry; weak fine granular and weak medium granular structure; very friable; common fine, common medium, and common coarse roots throughout; 1 percent fine mica flakes throughout; 8 percent nonflat unspecified fragments; extremely acid, pH 4.0; gradual wavy boundary.

A2—20 to 36 centimeters; very dark brown (10YR 2/2) sandy loam, very dark grayish brown (10YR 3/2) dry; weak fine granular and weak medium granular structure; very friable; common fine, common medium, and common coarse roots throughout; 11 percent fine mica flakes throughout; 8 percent nonflat unspecified fragments; very strongly acid, pH 4.7; clear wavy boundary.

Bw—36 to 81 centimeters; yellowish brown (10YR 5/8) sandy loam; weak fine subangular blocky and weak medium subangular blocky structure; very friable; common fine, common medium, and common coarse roots throughout; 11 percent fine mica flakes throughout; 14 percent nonflat unspecified fragments; very strongly acid, pH 4.7; gradual wavy boundary.

C1—81 to 132 centimeters; dark yellowish brown (10YR 4/6) cobbly loamy coarse sand; massive; very friable; common fine and common medium roots throughout; 11 percent fine and 11 percent medium mica flakes throughout; 30 percent nonflat unspecified fragments; very strongly acid, pH 4.7; gradual wavy boundary.

C2—132 to 168 centimeters; gravelly loamy sand; massive; very friable; 11 percent fine mica flakes throughout and 11 percent medium mica flakes throughout; 1 percent nonflat unspecified fragments and 15 percent nonflat unspecified fragments; very strongly acid, pH 4.7.

Range in Characteristics

Depth to restrictive feature: Greater than 203 centimeters
Diagnostic feature(s): Umbric epipedon and cambic horizon
Surface fragments: None
Depth to seasonal high water table: Greater than 183 centimeters

Oe horizon:
Texture—moderately decomposed plant material
Fragment content—0 to 34 percent
Reaction—pH 3.0 to 4.0
Organic matter content—50.0 to 95.0 percent

A1 horizon:
Hue—7.5YR to 2.5YR
Value—2 or 3
Chroma—1 to 3
Texture (fine-earth fraction)—sandy loam, fine sandy loam, loam, sandy clay loam
Fragment content—0 to 34 percent
Reaction—pH 4.0 to 6.0
Organic matter content—5.0 to 10.0 percent

A2 horizon:
Hue—7.5YR to 2.5YR

Value—2 to 3
Chroma—1 to 3
Texture (fine-earth fraction)—sandy loam, fine sandy loam, loam, sandy clay loam
Fragment content—0 to 34 percent
Reaction—pH 4.0 to 6.0
Organic matter content—0.5 to 3.0 percent

Bw horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture (fine-earth fraction)—fine sandy loam, sandy clay loam, loam, sandy loam
Fragment content—0 to 59 percent
Reaction—pH 4.0 to 6.0
Organic matter content—0.0 to 1.0 percent

C horizon:
Color—multicolored
Texture (fine-earth fraction)—loam, fine sandy loam, sandy loam, coarse sandy loam, loamy sand, loamy fine sand, loamy coarse sand
Fragment content—15 to 59 percent
Reaction—pH 4.0 to 6.0
Organic matter content—0.0 to 1.0 percent

Thurmont Series

Major Land Resource Area: 130B
Map unit(s):
ThB—Thurmont-Dillard complex, 2 to 8 percent slopes, stony
ThC—Thurmont loam, 8 to 15 percent slopes, stony
Local phase(s): Stony
Depth class: Very deep
Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): Moderately high
Landform(s): Bench in valley, fan in valley, and stream terrace in valley
Landform position(s) (three-dimensional): Tread and base slope
Parent material: Colluvium derived from igneous and metamorphic rock
Elevation: 458 to 914 meters
Slope: 2 to 15 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Fine-loamy, mixed, active, mesic Oxyaquic Hapludults

Typical Pedon

This pedon of Thurmont soil is located outside of Great Smoky Mountains National Park in an area of Thurmont loam; Madison County, Virginia; USGS Stanardsville topographic quadrangle; latitude 38 degrees 21 minutes 13.50 seconds north and longitude 78 degrees 23 minutes 13.00 seconds west; UTM Zone 17, 728331 meters easting, 4248298 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oi—0 to 5 centimeters; slightly decomposed plant material.
Oe—5 to 10 centimeters; moderately decomposed plant material.

A—10 to 13 centimeters; dark yellowish brown (10YR 4/4) loam; moderate fine granular structure; very friable; common fine and common medium roots throughout; 1 percent nonflat rounded unspecified fragments and 1 percent nonflat angular unspecified fragments; strongly acid, pH 5.3; clear smooth boundary.

E—13 to 33 centimeters; yellowish brown (10YR 5/6) loam; weak fine granular and weak very fine granular structure; very friable; common fine and common medium roots throughout; 1 percent nonflat rounded unspecified fragments and 1 percent nonflat angular unspecified fragments; very strongly acid, pH 4.7; clear smooth boundary.

Bt1—33 to 45 centimeters; strong brown (7.5YR 5/6) clay loam; weak fine subangular blocky structure; friable; common fine and common medium roots throughout; common fine and common medium pores; 15 percent clay films on all faces of peds; 10 percent nonflat rounded unspecified fragments; very strongly acid, pH 4.7; clear smooth boundary.

Bt2—45 to 86 centimeters; strong brown (7.5YR 5/8) clay loam; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine roots throughout; common fine and common medium pores; 15 percent clay films on all faces of peds; 10 percent nonflat rounded unspecified fragments; very strongly acid, pH 4.7; clear smooth boundary.

Bt3—86 to 102 centimeters; strong brown (7.5YR 5/6) clay loam; 1 percent medium distinct yellowish red (5YR 5/6) and 1 percent medium distinct strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; firm, moderately sticky, slightly plastic; common fine roots throughout; 35 percent distinct clay films on all faces of peds; 10 percent nonflat rounded unspecified fragments; very strongly acid, pH 4.7; gradual smooth boundary.

Bt4—102 to 132 centimeters; yellowish red (5YR 4/6) sandy clay loam; weak coarse subangular blocky structure; friable, slightly sticky, slightly plastic; common fine roots; common fine pores; 15 percent distinct clay films on all faces of peds; 11 percent medium red (2.5YR 4/8) and 11 percent medium strong brown (7.5YR 5/8) iron-manganese masses; 11 percent medium grayish brown (2.5Y 5/2) iron depletions; very strongly acid, pH 4.7; gradual smooth boundary.

C1—132 to 163 centimeters; strong brown (7.5YR 5/6) cobbly sandy loam; 35 percent coarse distinct yellowish brown (10YR 5/8) and 35 percent coarse distinct red (2.5YR 4/8) mottles; massive; friable; 25 percent nonflat unspecified fragments; very strongly acid, pH 4.7; gradual wavy boundary.

2C2—163 to 193 centimeters; sandy loam that is mottled in yellowish red (5YR 5/6), strong brown (7.5YR 5/6), very pale brown (10YR 8/2), and black (10YR 2/1).

Range in Characteristics

Depth to restrictive feature: Greater than 203 centimeters
Diagnostic feature(s): Ochric epipedon and argillic horizon
Surface fragments: None
Seasonal high water table: January, February, March, April, May, June, July, August, September, October, November, December
Depth to top of water table: 90 to 183 centimeters

A horizon:
Hue—7.5YR to 2.5Y
Value—3 to 5
Chroma—2 to 6
Texture (fine-earth fraction)—loam, sandy loam, fine sandy loam
Fragment content—0 to 14 percent
Reaction—pH 4.5 to 7.3
Organic matter content—2.0 to 8.0 percent

E horizon:
Hue—10YR
Value—5
Chroma—6
Texture (fine-earth fraction)—loam
Fragment content—0 to 14 percent
Reaction—pH 4.5 to 6.0
Organic matter content—0.5 to 1.0 percent

Bt horizon:
Hue—5YR or 7.5YR
Value—4 to 6
Chroma—4 to 8
Texture (fine-earth fraction)—clay loam, sandy clay loam, loam
Fragment content—0 to 14 percent
Reaction—pH 4.5 to 6.0
Organic matter content—0.5 to 1.0 percent

BC horizon (if present):
Hue—5YR or 7.5YR
Value—4 to 6
Chroma—4 to 8
Texture (fine-earth fraction)—sandy loam, sandy clay loam, loam
Fragment content—0 to 14 percent
Reaction—pH 4.5 to 6.0
Organic matter content—0.0 to 0.5 percent

C horizon:
Hue—2.5Y to 10YR
Value—2 to 8
Chroma—1 to 7
Texture (fine-earth fraction)—sandy clay loam, sandy loam, fine sandy loam, clay
Fragment content—0 to 14 percent
Reaction—pH 4.5 to 6.0
Organic matter content—0.0 to 0.5 percent

Toxaway Taxadjunct

Major Land Resource Area: 130B
Map unit(s):
To—Toxaway silty clay loam, 0 to 2 percent slopes, occasionally flooded
Depth class: Very deep
Drainage class: Very poorly drained
Saturated hydraulic conductivity (K_{sat}): Moderately high
Landform(s): Floodplain in valley
Landform position(s) (three-dimensional): Mountainbase
Parent material: Loamy alluvium derived from metasedimentary rock
Elevation: 300 to 920 meters
Slope: 0 to 2 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Fine-silty, mixed, superactive, nonacid, mesic Cumulic Humaquepts (fig. 41)

Figure 41.—Profile of Toxaway soil series in Cades Cove in Great Smoky Mountains National Park. Scale is in centimeters.

Typical Pedon

This pedon of Toxaway soil is located in Great Smoky Mountains National Park in an area of Toxaway silty clay loam, 0 to 2 percent slopes, occasionally flooded; Blount County, Tennessee; USGS Cades Cove topographical quadrangle; latitude 35 degrees 35 minutes 39.00 seconds north and longitude 83 degrees 50 minutes 35.00 seconds west; UTM Zone 17, 242417 meters easting, 3942472 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Ag1—0 to 15 centimeters; dark gray (10YR 4/1) silt loam; moderate fine and medium granular structure; friable; many very fine and fine roots; very strongly acid, pH 5.0; abrupt smooth boundary. Lab sample # 01P00208

Ag2—15 to 26 centimeters; very dark grayish brown (10YR 3/2) silt loam; weak medium subangular blocky structure; friable; common very fine and fine roots; strongly acid, pH 5.2; clear smooth boundary. Lab sample # 01P00209

Bg1—26 to 41 centimeters; dark grayish brown (2.5Y 4/2) silty clay loam; weak coarse subangular blocky structure; friable; common very fine and fine roots; strongly acid, pH 5.1; clear smooth boundary. Lab sample # 01P00210

Bg2—41 to 69 centimeters; dark grayish brown (2.5Y 4/2) silty clay loam; 21 percent medium prominent brownish yellow (10YR 6/8) mottles; weak coarse subangular blocky structure; friable; few very fine and fine roots throughout; strongly acid, pH 5.1; clear smooth boundary. Lab sample # 01P00211

Bg3—69 to 89 centimeters; dark gray (2.5Y 4/1) silty clay loam; weak coarse subangular blocky structure; friable; few very fine and fine roots; strongly acid, pH 5.1; clear smooth boundary. Lab sample # 01P00212

Bg4—89 to 117 centimeters; dark gray (2.5Y 4/1) silty clay loam; weak coarse subangular blocky structure; friable; few very fine and fine roots; very strongly acid, pH 5.0; abrupt smooth boundary. Lab sample # 01P00213

Agb—117 to 147 centimeters; very dark gray (2.5Y 3/1) mucky silt loam; massive; friable; very strongly acid, pH 4.5; abrupt smooth boundary. Lab sample # 01P00214

Cg1—147 to 179 centimeters; dark greenish gray (5GY 4/1) coarse sandy loam; massive; very friable; extremely acid, pH 4.3; abrupt smooth boundary. Lab sample # 01P00215

Cg2—179 centimeters; gravel line.

Range in Characteristics

Depth to restrictive feature: Greater than 203 centimeters
Diagnostic feature(s): Umbric epipedon and cambic horizon
Surface fragments: None
Seasonal high water table: January, February, March, April, May, June, July, August, September, October, November, December
Depth to top of water table: 0 to 30 centimeters

Ap or Ag horizon:
Hue—10YR
Value—2 to 4
Chroma—1 to 4
Texture (fine-earth fraction)—silty clay loam
Fragment content—0 to 14 percent
Reaction—pH 4.5 to 5.5
Organic matter content—5.0 to 10.0 percent

Bg or Bw horizon:
Hue—10YR to 2.5Y
Value—2 to 5
Chroma—1 to 4
Texture (fine-earth fraction)—loam, silty clay loam, silt loam
Fragment content—0 percent
Reaction—pH 4.5 to 5.5
Organic matter content—1.0 to 5.0 percent

Cg horizon:
Hue—10YR or 5GY
Value—3 to 5
Chroma—1 to 3
Texture (fine-earth fraction)—loamy coarse sand, loamy sand, silt loam, sandy loam, loam, coarse sandy loam
Fragment content—0 percent
Reaction—pH 4.0 to 5.5
Organic matter content—0.0 to 2.0 percent

The Toxaway soils in the survey area are considered taxajuncts to the series because they have less than 15 percent, by weight, particles coarser than fine sand. This difference, however, does not adversely affect the use and management of the soils. These variations are reflected in the generated interpretations of these soils.

Tsali Series

Major Land Resource Area: 130B
Map unit(s):
JtC—Junaluska-Tsali complex, 8 to 15 percent slopes
JtD—Junaluska-Tsali complex, 15 to 30 percent slopes
JtF—Junaluska-Tsali complex, 30 to 95 percent slopes
Depth class: Shallow
Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): Moderately high
Landform(s): Mountainside on mountains and ridge on mountains
Landform position(s) (three-dimensional): Side slope and crest
Parent material: Loamy residuum weathered from metasedimentary rock
Elevation: 301 to 1,280 meters
Slope: 8 to 95 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Loamy, mixed, subactive, mesic, shallow Typic Hapludults

Typical Pedon

This pedon of Tsali soil is located outside of Great Smoky Mountains National Park in an area of Junaluska-Tsali complex, 50 to 95 percent slopes; Jackson County, North Carolina; USGS Whittier topographic quadrangle; latitude 35 degrees 23 minutes 59.90 seconds north and longitude 83 degrees 16 minutes 0.00 seconds west; UTM Zone 17, 294156 meters easting, 3919762 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oi—0 to 8 centimeters; slightly decomposed plant material.
A—8 to 15 centimeters; brown (10YR 4/3) channery fine sandy loam; weak fine granular structure; very friable; common fine, common medium, and common coarse roots throughout; 11 percent fine mica flakes throughout; 20 percent flat unspecified fragments; very strongly acid, pH 4.7; clear wavy boundary.
BA—15 to 23 centimeters; brown (7.5YR 4/4) channery fine sandy loam; weak fine subangular blocky structure; friable; common fine, common medium, and common coarse roots throughout; 11 percent fine mica flakes throughout; 20 percent flat unspecified fragments; strongly acid, pH 5.3; gradual wavy boundary.
Bt—23 to 48 centimeters; yellowish red (5YR 5/8) channery loam; weak medium subangular blocky structure; friable; common fine and common medium roots throughout; 15 percent discontinuous clay films on all faces of peds; 11 percent fine and 11 percent medium mica flakes throughout; 26 percent flat unspecified fragments; strongly acid, pH 5.3; clear irregular boundary.
Cr—48 to 109 centimeters; very strongly cemented phyllite bedrock; 15 percent silica.

Range in Characteristics

Depth to restrictive feature: 25 to 51 centimeters to paralithic bedrock
Diagnostic feature(s): Ochric epipedon, argillic horizon, and paralithic contact

Surface fragments: None
Depth to seasonal high water table: Greater than 183 centimeters

A horizon:
Hue—5YR to 10YR
Value—3 to 5
Chroma—3 to 8
Texture (fine-earth fraction)—loam, fine sandy loam
Fragment content—15 to 34 percent
Reaction—pH 3.5 to 6.0
Organic matter content—1.0 to 5.0 percent

BC horizon:
Color—similar to the A and B horizons
Texture—similar to the A and B horizons

Bt horizon:
Hue—2.5YR to 10YR
Value—4 to 6
Chroma—4 to 8
Texture (fine-earth fraction)—loam, sandy clay loam, clay loam
Fragment content—5 to 34 percent
Reaction—pH 3.5 to 6.0
Organic matter content—0.0 to 0.5 percent

Cr horizon:
Texture—weathered bedrock

Tuckasegee Series

Major Land Resource Area: 130B
Map unit(s):
CuD—Cullasaja-Tuckasegee complex, 15 to 30 percent slopes, very stony
CuE—Cullasaja-Tuckasegee complex, 30 to 50 percent slopes, very stony
TuC—Tuckasegee-Cullasaja complex, 8 to 15 percent slopes, stony
Local phase(s): Very stony and stony
Depth class: Very deep
Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Cove on intermediate mountains, drainageway on intermediate mountains, fan on intermediate mountains, and mountain slope on intermediate mountains
Landform position(s) (three-dimensional): Mountainbase
Parent material: Loamy colluvium derived from igneous and metamorphic rock
Elevation: 301 to 1,280 meters
Slope: 8 to 50 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Fine-loamy, isotic, mesic Humic Dystrudepts

Typical Pedon

This pedon of Tuckasegee soil is located outside of Great Smoky Mountains National Park in an area of Cullasaja-Tuckasegee complex, 30 to 50 percent slopes, stony;

Jackson County, North Carolina; USGS Tuckasegee topographic quadrangle; latitude 35 degrees 19 minutes 59.94 seconds north and longitude 83 degrees 4 minutes 59.99 seconds west; UTM Zone 17, 310653 meters easting, 3912001 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oi—0 to 5 centimeters; slightly decomposed plant material.

A—5 to 33 centimeters; dark yellowish brown (10YR 4/4) gravelly loam; weak fine granular structure; very friable; common fine, common medium, and common coarse roots throughout; 1 percent fine mica flakes throughout; 20 percent nonflat unspecified fragments; very strongly acid, pH 4.7; gradual wavy boundary.

Bw1—33 to 45 centimeters; dark yellowish brown (10YR 4/4) loam; weak medium subangular blocky structure; friable; common fine and common medium roots throughout; 1 percent fine mica flakes throughout; 10 percent nonflat unspecified fragments; strongly acid, pH 5.3; gradual wavy boundary.

Bw2—45 to 66 centimeters; dark yellowish brown (10YR 4/4) gravelly loam; weak medium subangular blocky structure; friable; common fine and common medium roots throughout; 11 percent fine mica flakes throughout; 17 percent nonflat unspecified fragments; strongly acid, pH 5.3; gradual wavy boundary.

Bw3—66 to 117 centimeters; yellowish brown (10YR 5/8) gravelly fine sandy loam; weak medium subangular blocky structure; friable; common fine and common medium roots throughout; 11 percent fine mica flakes throughout; 20 percent nonflat unspecified fragments; gradual wavy boundary.

BC—117 to 156 centimeters; yellowish brown (10YR 5/8) gravelly sandy clay loam; weak medium subangular blocky structure; friable; common fine and common medium roots throughout; 11 percent fine mica flakes throughout; 25 percent nonflat unspecified fragments.

Range in Characteristics

Depth to restrictive feature: Greater than 203 centimeters
Diagnostic feature(s): Umbric epipedon and cambic horizon
Surface fragments: 0 to 3 percent subangular indurated gneiss fragments
Depth to seasonal high water table: Greater than 183 centimeters

A horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 to 3
Texture (fine-earth fraction)—loam, fine sandy loam, sandy loam
Fragment content—0 to 25 percent
Reaction—pH 4.5 to 6.5
Organic matter content—4.0 to 15.0 percent

Bw horizon:
Hue—7.5YR or 10YR
Value—3 to 6
Chroma—4 to 8
Texture (fine-earth fraction)—loam, fine sandy loam, sandy loam, sandy clay loam
Fragment content—0 to 27 percent
Reaction—pH 4.5 to 6.0
Organic matter content—1.0 to 3.0 percent

BC horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 8
Texture (fine-earth fraction)—fine sandy loam, sandy loam, sandy clay loam, loam

Fragment content—13 to 34 percent
Reaction—pH 4.5 to 6.0
Organic matter content—0.5 to 1.0 percent

C horizon:
Color—multicolored
Texture (fine-earth fraction)—fine sandy loam, loam, sandy loam, coarse sandy loam, loamy fine sand, loamy sand, loamy coarse sand
Fragment content—14 to 59 percent
Reaction—pH 4.5 to 6.0
Organic matter content—0.0 to 0.5 percent

Unicoi Series

Major Land Resource Area: 130B
Map unit(s):
DtD—Ditney-Unicoi complex, 15 to 30 percent slopes, very rocky
DtF—Ditney-Unicoi complex, 30 to 95 percent slopes, very rocky
RuF—Rock outcrop-Unicoi complex, 30 to 95 percent slopes
Depth class: Very shallow and shallow
Drainage class: Somewhat excessively drained
Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Mountainside on mountains and ridge on mountains
Landform position(s) (three-dimensional): Mountaintop and mountainflank
Parent material: Cobbly residuum and/or creep deposits derived from metasedimentary rock
Elevation: 300 to 1,280 meters
Slope: 15 to 95 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Loamy-skeletal, mixed, semiactive, mesic Lithic Dystrudepts

Typical Pedon

This pedon pf Unicoi soil is located in Great Smoky Mountains Natinal Park in an area of Ditney-Unicoi complex, 30 to 95 percent slopes, very rocky; Haywood County, North Carolina; USGS Cove Creek Gap topographic quadrangle; latitude 35 degrees 37 minutes 55.00 seconds north and longitude 83 degrees 5 minutes 18.00 seconds west; UTM Zone 17, 310895 meters easting, 3944396 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

A—0 to 10 centimeters; dark yellowish brown (10YR 3/4) loam; weak fine and medium granular structure; very friable; gradual wavy boundary. Lab sample # 01N05423
Bw—10 to 38 centimeters; dark yellowish brown (10YR 4/4) loam; weak medium and coarse subangular blocky structure; friable; abrupt smooth boundary. Lab sample # 01N05424
R—38 centimeters; sandstone bedrock.

Range in Characteristics

Depth to restrictive feature: 18 to 51 centimeters to lithic bedrock
Diagnostic feature(s): Ochric epipedon, cambic horizon, and lithic contact
Surface fragments: None
Depth to seasonal high water table: Greater than 183 centimeters

A horizon:
Hue—10YR or 2.5Y
Value—3 to 6
Chroma—1 to 4
Texture (fine-earth fraction)—sandy loam, loam, fine sandy loam
Fragment content—8 to 23 percent
Reaction—pH 3.6 to 5.5
Organic matter content—3.0 to 10.0 percent

Bw horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture (fine-earth fraction)—sandy loam, loam, fine sandy loam
Fragment content—18 to 46 percent
Reaction—pH 3.6 to 5.5
Organic matter content—0.5 to 2.0 percent

R horizon:
Texture—unweathered bedrock

Wayah Series

Major Land Resource Area: 130B
Map unit(s):
WaC—Wayah sandy loam, 5 to 15 percent slopes, stony, windswept
WaD—Wayah sandy loam, 15 to 30 percent slopes, stony, windswept
WaF—Wayah sandy loam, 30 to 95 percent slopes, stony, windswept
WeD—Wayah sandy loam, 15 to 30 percent slopes, stony
WeF—Wayah sandy loam, 30 to 95 percent slopes, stony
Local phase(s): Windswept
Depth class: Very deep
Drainage class: Well drained
Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Mountainside on mountains and ridge on mountains
Landform position(s) (three-dimensional): Mountaintop and mountainflank
Parent material: Loamy creep deposits and/or residuum weathered from igneous and metamorphic rock
Elevation: 1,280 to 2,030 meters
Slope: 5 to 95 percent
Climatic data:
Mean annual precipitation: 2,032 to 2,540 millimeters
Mean annual air temperature: 1.0 to 13.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Fine-loamy, isotic, frigid Humic Dystrudepts

Typical Pedon

This pedon of Wayah soil is located outside of Great Smoky Mountains National Park in an area of Wayah sandy loam, 15 to 30 percent slopes, stony; Jackson County, North Carolina; USGS Sam's Knob topographic quadrangle; latitude 35 degrees 21 minutes 46.00 seconds north and longitude 82 degrees 59 minutes 34.00 seconds west; UTM Zone 17, 318950 meters easting, 3915098 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oi—0 to 5 centimeters; slightly decomposed plant material.

Oe—5 to 10 centimeters; moderately decomposed plant material.

A1—10 to 36 centimeters; black (10YR 2/1) sandy clay loam, very dark gray (10YR 3/1) dry; weak fine granular structure; very friable; common fine and common medium roots throughout; 1 percent fine mica flakes throughout; 2 percent nonflat unspecified fragments; extremely acid, pH 4.0; clear wavy boundary.

A2—36 to 45 centimeters; very dark grayish brown (10YR 3/2) sandy clay loam, dark grayish brown (10YR 4/2) dry; weak medium granular structure; very friable; common fine and common medium roots throughout; 1 percent fine mica flakes throughout; 2 percent nonflat unspecified fragments; very strongly acid, pH 4.7; gradual wavy boundary.

Bw—45 to 112 centimeters; dark yellowish brown (10YR 4/6) gravelly sandy clay loam, dark yellowish brown (10YR 4/6) dry; weak medium subangular blocky structure; very friable; common fine roots throughout; 1 percent fine mica flakes throughout; 33 percent nonflat unspecified fragments; very strongly acid, pH 4.7; gradual wavy boundary.

C1—112 to 127 centimeters; pale brown (10YR 6/3) gravelly sandy loam, pale brown (10YR 6/3) dry; 1 percent medium faint light gray (10YR 7/2) and 1 percent medium faint very pale brown (10YR 8/2) mottles; massive; very friable; 1 percent fine mica flakes throughout; 17 percent nonflat unspecified fragments; very strongly acid, pH 4.7; gradual wavy boundary.

C2—127 to 175 centimeters; 25 percent yellowish brown (10YR 5/8), 25 percent yellowish red (5YR 5/8), 25 percent very pale brown (10YR 8/2), and 25 percent dark yellowish brown (10YR 4/6) gravelly sandy loam; massive; very friable; very strongly acid, pH 4.7.

Range in Characteristics

Depth to restrictive feature: Greater than 203 centimeters
Diagnostic feature(s): Umbric epipedon and cambic horizon
Surface fragments: None
Depth to seasonal high water table: Greater than 183 centimeters

A horizon:
Hue—7.5YR to 2.5Y
Value—2 or 3
Chroma—1 to 3
Texture (fine-earth fraction)—sandy loam, sandy clay loam, clay loam, fine sandy loam, loam
Fragment content—0 to 14 percent
Reaction—pH 3.5 to 5.5
Organic matter content—8.0 to 15.0 percent

Bw horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture (fine-earth fraction)—sandy loam, loam, sandy clay loam
Fragment content—3 to 34 percent
Reaction—pH 4.5 to 6.0
Organic matter content—0.5 to 2.0 percent

C horizon:
Color—multicolored
Texture (fine-earth fraction)—fine sandy loam, sandy loam, loam, loamy fine sand, coarse sandy loam, loamy sand
Fragment content—8 to 50 percent

Reaction—pH 4.5 to 6.0
Organic matter content—0.0 to 0.5 percent

Wesser Series

Major Land Resource Area: 130B
Map unit(s):
AwB—Alarka-Wesser complex, 0 to 8 percent slopes, flooded
DhB—Dellwood-Wesser complex, 0 to 5 percent slopes, frequently flooded
Depth class: Very deep
Drainage class: Poorly drained
Saturated hydraulic conductivity (K_{sat}): High
Landform(s): Floodplain in cove on mountains and floodplain in valley
Landform position(s) (three-dimensional): Head slope and mountain base
Parent material: Sandy and gravelly alluvium derived from metasedimentary rock
Elevation: 366 to 1,524 meters
Slope: 0 to 3 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Sandy-skeletal, mixed, mesic Humaqueptic Fluvaquents

Typical Pedon

This pedon of Wesser soil is located outside of Great Smoky Mountains National Park in an area of Alarka-Wesser complex, 0 to 8 percent slopes, flooded; Swain County, North Carolina; USGS Green's Creek topographic quadrangle; latitude 35 degrees 20 minutes 6.00 seconds north and longitude 83 degrees 21 minutes 18.00 seconds west; UTM Zone 17, 285957 meters easting, 3912541 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Oa—0 to 8 centimeters; highly decomposed plant material; many very fine to coarse and common very coarse roots throughout; extremely acid, pH 4.2; clear wavy boundary. Lab sample # 00P01695

A—8 to 15 centimeters; very dark grayish brown (10YR 3/2) very fine sandy loam; moderate medium granular structure; very friable; many fine to coarse and common very fine roots throughout; 1 percent coarse iron-manganese concretions throughout and 10 percent fine and medium prominent irregular strong brown (7.5YR 4/6) masses of oxidized iron throughout; 1 percent fine mica flakes throughout; extremely acid, pH 4.0; clear wavy boundary. Lab sample # 00P01696

Cg1—15 to 33 centimeters; black (10YR 2/1) loamy fine sand; single grain; very friable; common medium and few fine roots throughout; 1 percent medium distinct irregular very dark brown (7.5YR 2.5/3) and 20 percent coarse distinct irregular very dark brown (7.5YR 2.5/3) masses of oxidized iron throughout; 1 percent coarse iron-manganese concretions throughout; 1 percent fine mica flakes throughout; extremely acid, pH 4.4; clear wavy boundary. Lab sample # 00P01697

Cg2—33 to 49 centimeters; black (10YR 2/1) sand; single grain; loose; few fine roots throughout; 1 percent medium prominent irregular strong brown (7.5YR 4/6) masses of oxidized iron throughout; 5 percent 2- to 75-millimeter unspecified fragments; extremely acid, pH 4.3; abrupt wavy boundary. Lab sample # 00P01698

2C—49 to 158 centimeters; black (10YR 2/1) extremely gravelly sand; single grain; loose; 1 percent fine mica flakes throughout; 5 percent 250- to 600-millimeter unspecified fragments, 10 percent 75- to 250-millimeter unspecified fragments, and 55 percent 2- to 75-millimeter unspecified fragments; very strongly acid, pH 4.6. Lab sample # 00P01699

Range in Characteristics

Depth to restrictive feature: Greater than 203 centimeters
Diagnostic feature(s): Umbric epipedon
Surface fragments: None
Seasonal high water table: January, February, March, April, May, June, July, August, September, October, November, December
Depth to top of water table: 0 to 15 centimeters

Oa horizon:
Texture—muck
Fragment content—none
Reaction—pH 3.0 to 4.5
Organic matter content—70.0 to 80.0 percent

A horizon:
Hue—10YR or 2.5Y
Value—2 or 3
Chroma—1 to 3
Texture (fine-earth fraction)—very fine sandy loam, fine sandy loam, sandy loam, loam
Fragment content—0 percent
Reaction—pH 3.0 to 5.5
Organic matter content—5.0 to 15.0 percent

Cg horizon:
Hue—10YR or 2.5Y
Value—2 to 4
Chroma—1 or 2
Texture (fine-earth fraction)—sand, loamy sand, loamy fine sand
Fragment content—0 to 10 percent
Reaction—pH 3.0 to 5.5
Organic matter content—3.0 to 15.0 percent

2C horizon:
Hue—10YR or 2.5Y
Value—2 or 3
Chroma—1 or 2
Texture (fine-earth fraction)—loamy sand, sand
Fragment content—65 to 89 percent
Reaction—pH 3.0 to 5.5
Organic matter content—1.0 to 3.0 percent

Whiteside Series

Major Land Resource Area: 130B
Map unit(s):
AwC—Alarka-Whiteside complex, 8 to 15 percent slopes, stony
Depth class: Very deep
Drainage class: Moderately well drained
Saturated hydraulic conductivity (K_{sat}): Moderately high
Landform(s): Cove on mountains
Landform position(s) (three-dimensional): Head slope

Parent material: Loamy colluvium derived from metasedimentary sandstone
Elevation: 760 to 1,280 meters
Slope: 8 to 15 percent
Climatic data:
Mean annual precipitation: 1,219 to 1,651 millimeters
Mean annual air temperature: 6.0 to 20.0 degrees C
Frost-free period: 162 to 176 days
Taxonomic class: Fine-loamy, mixed, active, mesic Aquic Hapludults

Typical Pedon

This pedon of Whiteside soil is located outside of Great Smoky Mountains National Park in an area of Whiteside-Tuckasegee complex, 2 to 8 percent slopes; Jackson County, North Carolina; USGS Greens Creek topographic quadrangle; latitude 36 degrees 12 minutes 34.00 seconds north and longitude 83 degrees 11 minutes 20.00 seconds west; UTM Zone 17, 300754 meters easting, 3898465 meters northing; NAD27. (Colors are for moist soil unless otherwise noted.)

Ap—0 to 36 centimeters; very dark grayish brown (10YR 3/2) fine sandy loam, dark grayish brown (10YR 4/2) dry; weak medium granular structure; very friable; common fine and common medium roots throughout; 11 percent fine mica flakes throughout; 10 percent nonflat unspecified fragments; slightly acid, pH 6.3; abrupt smooth boundary.

Bt1—36 to 61 centimeters; yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; very friable; common fine roots throughout; 11 percent distinct very dark grayish brown (10YR 3/2) clay films on surfaces along root channels; 11 percent fine mica flakes throughout; slightly acid, pH 6.3; clear wavy boundary.

Bt2—61 to 76 centimeters; yellowish brown (10YR 5/4) sandy clay loam; 11 percent medium distinct strong brown (7.5YR 5/8) and 11 percent medium faint gray (10YR 5/1) mottles; weak medium subangular blocky structure; friable; common fine roots throughout; 11 percent fine, 11 percent medium, and 11 percent coarse mica flakes throughout; moderately acid, pH 5.7; clear wavy boundary.

BCg—76 to 119 centimeters; gray (10YR 6/1) fine sandy loam; 11 percent medium distinct yellowish brown (10YR 5/8) and 11 percent medium faint light brownish gray (10YR 6/2) mottles; weak medium subangular blocky structure; friable; common fine roots throughout; 11 percent fine, 11 percent medium, and 11 percent coarse mica flakes throughout; moderately acid, pH 5.7; gradual wavy boundary.

Cg1—119 to 135 centimeters; light brownish gray (10YR 6/2) sandy loam; 11 percent medium distinct brownish yellow (10YR 6/6) mottles; massive; very friable; 1 percent fine mica flakes throughout; very strongly acid, pH 4.7; gradual wavy boundary.

Cg2—135 to 178 centimeters; gray (10YR 6/1) sandy clay loam; 11 percent medium distinct yellowish brown (10YR 5/8) and 11 percent fine faint gray (10YR 6/1) mottles; massive; firm; 1 percent fine mica flakes throughout; strongly acid, pH 5.3.

Range in Characteristics

Depth to restrictive feature: Greater than 203 centimeters
Diagnostic feature(s): Argillic horizon
Surface fragments: None
Seasonal high water table: January, February, March, April, May, June, July, August, September, October, November, December
Depth to top of water table: 46 to 91 centimeters

A horizon:
Hue—7.5YR or 10YR
Value—2 to 3
Chroma—1 to 3
Texture (fine-earth fraction)—fine sandy loam
Fragment content—0 to 14 percent
Reaction—pH 4.5 to 6.0
Organic matter content—2.0 to 8.0 percent

Bt horizon:
Hue—7.5YR to 2.5Y
Value—4 to 7
Chroma—3 to 8
Texture (fine-earth fraction)—sandy clay loam, loam, fine sandy loam, sandy loam
Fragment content—0 to 20 percent
Reaction—pH 4.5 to 6.0
Organic matter content—0.5 to 1.0 percent

BCg horizon:
Hue—10YR or 2.5Y
Value—4 to 7
Chroma—1 or 2
Texture (fine-earth fraction)—loam, fine sandy loam, sandy loam
Fragment content—0 to 20 percent
Reaction—pH 4.5 to 6.0
Organic matter content—0.0 to 0.5 percent

Cg horizon:
Hue—10YR or 2.5Y
Value—4 to 7
Chroma—1 or 2
Texture (fine-earth fraction)—sandy clay loam to loamy sand
Fragment content—0 to 20 percent
Reaction—pH 4.5 to 6.0
Organic matter content—0.0 to 0.5 percent

Formation of the Soils

This section describes the factors that have affected the formation of the soils in Great Smoky Mountains National Park.

Factors of Soil Formation

Soils are formed by processes of the environment acting on parent materials over time. In Great Smoky Mountains National Park, the major geologic parent materials include residual metasedimentary and high-grade metamorphic rocks along with the colluvium and alluvium derived from those rocks (Southworth et al., 2005a and 2005b). The characteristics of a soil are determined by the combined influence of five factors: parent material, climate, biological activity, relief, and time (Buol et al., 1980; Moore, 1988). Soils are an aggregation of horizons that form from a process of additions, losses, transformations, and translocations (Buol et al., 1980). These processes are driven by the influence of the five soil-forming factors (Buol et al., 1980; Moore, 1988). An argillic horizon, which is found in Lonon soils, forms under intense physical and chemical weathering on parent material that has been on a stable landscape for many thousands of years. It is formed by the translocation of illuvial clay minerals that move downward in the soil and accumulate in the subsoil. The clay minerals that accumulate are secondary minerals that form from the weathering process. An umbric horizon is a dark, organically enriched surface, mineral horizon that can be found on many soils in Great Smoky Mountains National Park (Buol et al., 1980). This horizon forms as a result of the accumulation of organic matter that weathers on the surface and then is translocated into the upper mineral horizon. An umbric horizon is not an organic horizon. The organic soil horizons that are found on many of the frigid soils in the park are made up of over 50 percent organic matter, by weight, in various stages of weathering (Southworth et al., 2005a and 2005b; USDA-NRCS, 1995).

It is important to understand the interrelated nature of the five soil-forming factors. Relief affects climate and parent material affects relief, and so on. The process of soil formation is a complex one involving both physical and chemical transformations.

Parent Material

Parent material is the unconsolidated mass from which a soil forms.

Parent material can be classified as organic or inorganic, however less than 1 percent of the soils (classified as Histosols) in Great Smoky Mountains National Park formed from organic deposits. These soils occur on the heath balds that are found scattered throughout the higher elevation regions of the park.

Inorganic parent materials can either be residual material (formed by the direct weathering of bedrock in place) or transported material (formed in an unconsolidated deposit laid down by gravity or flowing water). Respectively, these transported material deposits are called colluvium and alluvium. By far, the majority of the soils in the park formed in residual parent materials.

In Great Smoky Mountains National Park, parent material is a major factor in determining what kind of soil forms and it can be correlated, to some degree, to geologic formation. The general soil map is an approximate guide to the geologic formations in the park. A detailed discussion of the geologic formations in Great Smoky Mountains National Park can be obtained from the U.S. Geologic Survey (Southworth et al., 2005a and 2005b).

The Luftee-Anakeesta soils formed in black slate of the Anakeesta Formation. The Breakneck-Pullback and Ditney-Unicoi-Spivey soils formed in the sandstone of the Thunderhead Formation. The Oconaluftee-Guyot-Chiltoskie and Soco-Stecoah-Spivey soils formed in the sandstones of the Copperhill and Elkmont Formations. The Cataska-Sylco-Spivey, Cataska-Sylco-Tsali, Junaluska-Tsali, and Junaluska-Brasstown-Spivey soils formed in the Pigeon Siltstone and Metcalf Phyllite Formations. The Wayah-Tanasee and Evard-Cowee-Leatherwood soils formed in the granite gneiss of the Basement Complex. The Lauada-Fannin soils formed in the interbedded sandstone and schist of the Wehutty Formation. The Spivey-Santeetlah soils formed in colluvium from metasedimentary rocks. The Dellwood-Smokemont-Reddies soils formed in alluvium from metasedimentary rocks. The Lonon-Cades-Allegheny-Rosman soils formed in alluvium and colluvium from metasedimentary rocks in and around Cades Cove.

The parent material not related to the geologic formation is the organic mats that are found on the heath balds scattered throughout Great Smoky Mountains National Park. The vegetative cover is dominated by plants of the heath family, including certain rhododendron species. Clingman and Pinnacle soils found on these sites are unrelated to the underlying geology and are forming in the decomposing leaf litter that is accumulating from the vegetative cover. The existence of organic soils or folists is rare in the park and little is known about their origins. From the field studies conducted, the extent, depth, morphology, and certain chemical characteristics are known. The extent of the heath balds was determined from the examination of a specific signature on color-infrared aerial photography. The depth ranges were determined from field transects. Soil profiles were described to determine morphology. One site was sampled in the park, and various chemical analyses were performed. These data are listed in the tables included with this report. Climate and the chemical conditions (acidic and cool) that are found in these organic soils seem to be the main reasons that they persist with the heath vegetative cover. It is unknown whether or not the heath balds are expanding or contracting in size. It is also unknown as to whether or not the organic mats that are the basis of the folists are aggrading or degrading in depth. Further research is needed.

There are also small exposures of limestone from the Jonesborough Formation in the northwestern portion of the park near Cades Cove. The soils in these areas are mainly forming from transported materials from the surrounding metasedimentary rock and are unrelated to the limestone.

Parent Material’s Influence on Colluvial Fans in Great Smoky Mountains National Park

Colluvial fans are prominent on the lower slopes of the northern edge of Great Smoky Mountains National Park. Good examples can be found in the Sugarlands, Greenbrier Cove, and Cosby Cove. The material that underlies these colluvial fans varies depending on the origin of the parent rock. Some geologic formations associated with this landscape form mainly large boulders of hard sandstone (Thunderhead Sandstone), while other formations produce mainly small, platy fragments (Pigeon Siltstone). Most of these colluvial deposits are mapped in the Spivey-Santeetlah map units. These map units can have very different sizes and compositions of the rock fragments that they contain.

The influence of the originating geologic formation is mainly in the size of fragments found onsite and the amount and size of pore spaces found in the overlying soil material. Colluvium formed from the blocky, massive Thunderhead Formation contains mostly large boulders of resistant sandstone. These fragments can be in excess of 3 meters across. Colluvium formed from the fine-grained Pigeon Siltstone contains smaller platy fragments. These fragments are generally not more than 10 centimeters across. The differing fragment size has a profound influence on the kind and distribution of pore space in the soil profile. The Spivey-Santeetlah map units that formed from Thunderhead Sandstone have a dominance of large macro-pores while the colluvium that formed from the Pigeon Siltstone is dominated by smaller pore sizes.

These determinations should be made on a watershed by watershed basis. It is necessary to understand which formations dominate the watershed that is being investigated and to subsequently determine if the colluvium that is included in the watershed is formed from the blocky sandstones or from more fine-grained siltstones.

Limestone in Great Smoky Mountains National Park

Scott Southworth, U.S. Geological Survey, prepared this section.

There is limestone bedrock exposed in various limited locations in Great Smoky Mountains National Park. The three main areas are Gregory's Cave, Whiteoak Sink, and Bull Cave. These areas are quite unique and provide a challenge when inventorying the soil resources in the park. The main issue is that these areas are very small (less than 4 acres where the limestone is actually exposed) and at the current scale of mapping cannot be delineated accurately on the final maps. The purpose of this section is to help describe the physical nature of the areas where the limestone persists at or near the surface.

Limestone Geology. Fossil-bearing carbonate rocks are found within Great Smoky Mountains National Park in four areas of Tennessee: Cades Cove, Bull Cave area of Rich Mountain Gap, Whiteoak Sink and Scott Mountain, and Big Spring Cove. The dominant rock exposed is the Ordovician Jonesboro Limestone. At Rich Mountain Gap, Jonesboro Limestone is subordinate to Ordovician Blockhouse Shale and a thin bed of Whiteburg Limestone. Blockhouse Shale is dark fissile calcareous shale with local beds of sandstone in the lower part and a thin limestone locally at the base. Jonesboro Limestone is light gray limestone that is laminated to thick bedded and includes some interbeds of dolomite and sandy limestone. The dolomite is more resistant to erosion than the limestone. These rocks are well exposed in Whiteoak Sink and along creeks and rims of terraces in Cades Cove. Chert and quartz occur as residuum locally littering the ground in Cades Cove. Limestone is covered in Big Spring Cove by metasandstone debris and colluvium. It was discovered by drill core but sinkholes and ephemeral ponds attest to its presence. The high-calcium limestone readily dissolves as evidenced by solution cavities, sinkholes, and caves (Gregory's Cave and Bull Cave).

Landscapes and Soils. The landscape around Gregory's Cave is characterized mainly by exposures of limestone bedrock with transported soil material between the exposed rocks. The slopes range from 8 to 50 percent. The soils in the area are formed mainly from material transported from upslope sites that is unrelated to the limestone.

The landscape in Whiteoak Sink is similar to that around Gregory's Cave except for the exposed vertical walls of limestone that are found in the sink. Below these walls rubble of loose limestone fragments is present with little associated soil material. There are several localized depressions in the floor of Whiteoak Sink. These are sinkholes that have formed from continued dissolution of the underlying limestone. Slope ranges from 4 percent to vertical.

The landscape in and around Bull Cave consists of exposures of limestone bedrock with residual and transported soil material between the rocks. The residual and transported soil materials are very similar in texture and color. They are fine-loamy and generally reddish brown.

The overall influence of the limestone on the environment is localized. The exposures of limestone at or near the surface provide an influx of calcium into the natural system and act as a buffer to soil pH. These are both positive influences in what is mainly a very acidic soil environment. It must be noted, however, that the positive influence will be geographically limited to the areas around the exposures of limestone bedrock and colluvial fragments.

Climate

Climatic factors, particularly precipitation and temperature, affect the physical, chemical, and biological relationships of soil horizons (Buol et al., 1980). They influence the rate at which rocks weather and organic matter decomposes. The amount of leaching in a soil is related to the amount of rainfall and the movement of water through the soil. The effects of climate also control the kinds of plants and animals that can thrive in a region. Temperature influences the kinds of organisms in a region and their growth. It also influences the rate of chemical and physical reactions in the soil.

In Great Smoky Mountains National Park, the climate varies greatly in relation to elevation and landscape position. For example, the precipitation varies significantly in the park. It averages from about 120 centimeters in the northwest corner of the park to approximately 250 centimeters at the extreme high elevations of the park. In some areas that have a high amount of precipitation, the rate of precipitation exceeds the rate of evapotransporation in every month of most years. Localized microclimates are important in the soil-forming processes in the park.

The higher precipitation and cooler temperatures at the higher elevations produce brown, medium textured soils that have a high content of organic matter in the surface layer. The warmer temperatures in the low mountain portions of the park produce soils that are redder than those in the high mountains and that contain more clay in the subsoil.

Tables 18A and 18B give data on temperature and precipitation for the survey area as recorded at Oconoaluftee, North Carolina, in the period 1971 to 2000 and Mt LeConte, Tennessee, in the period 1988 to 2000. Tables 19A and 19B show probable dates of the first freeze in fall and the last freeze in spring from both stations. Tables 20A and 20B provide data on the length of the growing season from both stations.

Biological Activity

Plants and animals influence the formation and differentiation of soil horizons (Buol et al., 1980). The kind and number of organisms in and on the soil are determined partly by climate and partly by the nature of the soil material, the relief, and the age of the soil. Bacteria, fungi, and other micro-organisms aid in the weathering of rocks and in the decomposition of organic matter. The plants and animals that live on a soil are the primary source of organic material.

Plants generally determine the kinds of and amounts of organic matter that enter a soil under normal conditions and how the organic matter is added. They also concentrate readily available forms of essential elements in the surface through the nutrient cycle.

Generally, the soils in Great Smoky Mountains National Park formed under a hardwood forest at elevations below 1,280 meters and under a mixed hardwood and coniferous forest at elevations above 1,280 meters. Trees take up elements from the subsoil. They add organic matter to the surface layer by depositing leaves, roots, twigs, and eventually branches and trunks. The material is then acted on by organisms and undergoes chemical and physical reactions.

Animals convert complex compounds into simpler forms, add organic material to the soil, and modify certain chemical and physical properties. In the park, most of the organic material accumulates on the surface. It is acted on by micro-organisms, fungi, earthworms, and other forms of life and by direct chemical reaction. It is then mixed by the activities of earthworms and other small invertebrates and vertebrates.

Generally, organic material decomposes more rapidly in the soils in the low mountains that have moderate temperatures and direct sunlight. Soils in the high mountains or on slope aspects that are shaded from direct sunlight can maintain a high content of organic matter in their surface layer. The organic soils or folists that occur on the heath balds in the park are a good example of organic matter building up in cold, damp environmental conditions. The folists have formed in material from the overlying vegetative cover of the heath family of plants. Little is known about the origin of the folists, but their continued existence seems to be closely tied to climate and vegetative cover and the resulting chemical conditions that form in the organic soil.

Relief

Relief influences drainage, surface runoff, temperature, and the extent of geologic erosion (Buol et al., 1980). In Great Smoky Mountains National Park, the relief varies greatly. Slopes range from 0 to 95 percent. Elevations range from 300 to 2,010 meters. Many of the high peaks in the park are surrounded by lower ridges and form the main ridge-line in the park. One exception is Mount LeConte, which has a vertical relief on its north face of more than 1,200 meters. This exposure affects the climate that is found on this side of Mount LeConte and also affects soil formation in this area. The northwest corner of the park has the lowest elevations and also has the warmest and driest climate found in the park.

Steep slopes generally indicate an increase in surface runoff. In the park, however, the organic material contents are high in the surface soils and as a result much of the rainfall that reaches the surface infiltrates into the soil and moves downslope as part of the soil water. Relief can also affect drainage. For example, a high water table generally is related to nearly level or gently sloping soils. Alluvial and colluvial soils are commonly less sloping than the soils in the uplands.

Soil creep is an important factor affecting soil formation in mountainous areas. Generally, the upper part of the soils on side slopes formed in material that is slowly moving downslope from the higher areas. Soils that formed on ridgetops and shoulder slopes are much less affected by soil creep. These areas may be the only landscape positions where the soils are completely residual. Generally, soil depth increases downslope, especially on concave surfaces. The maximum soil thickness is in colluvial landscape positions in coves and along toeslopes.

Time

The length of time that soil material has been exposed to the soil-forming processes accounts for some differences in the formation of soils (Buol et al., 1980). The formation of a well defined soil profile, however, depends on other factors. Less time is required for a soil profile to develop in a warm climate than in a cool climate.

The soils in Great Smoky Mountains National Park vary considerably in age. The length of time that a soil has been forming is reflected in the profile. Old soils generally have more clay movement and accumulation in their horizons than young soils. This concept must be applied to similar climates. For example, the residual soils in the extreme high elevations of the park are similar in age to the residual soils at the low elevations but have much less profile development due to the effects of a colder climate. The youngest soils occur along the major waterways and are composed of recent alluvial deposits on floodplains. Biltmore and Potomac soils are examples.

Seventeen new soil series were set up during the soil survey of Great Smoky

Mountains National Park. The combination of a frigid soil temperature regime and unique parent materials account for the Anakeesta, Breakneck, Cataloochee, Chiltoskie, Guyot, Heintooga, Horsetrough, Luftee, and Pullback series. The Pinnacle series formed in the organic mats found on the heath balds. The Alarka and Wesser series formed in the unique hanging coves found in the park. The Wesser series also occurs on certain floodplains. The Cades series is related to the unique geomorphology and parent material found in Cades Cove. The Leatherwood series was set up to account for the extensive weathering of the granite gneiss found near the Oconaluftee area of the Park. The Lauada series formed in the interbedded mica schist/mica sandstone of the Wehutty Formation. The Nowhere series consists of poorly drained, colluvial soils found in the large colluvial basins in the park. The Snowbird series is found on concave, shaded headslopes at the lower elevations of the park. The frigid soils and the organic soils have very little extent outside the park as the conditions related to their formation do not persist outside the higher elevations of the park. The other new soil series listed above will be utilized in areas surrounding the park as the soil survey update work continues in the Southern Appalachian Mountains.

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Glossary

ABC soil. A soil having an A, a B, and a C horizon.

AC soil. A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

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.

Amphibolite. A crystalloblastic rock consisting mainly of amphibole and plagioclase with little or no quartz.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Aspect. The direction in which a slope faces.

Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

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 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Backslope. The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

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.

Base slope. A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).

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.

Bench terrace. A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

Biotite. A common rock-forming mineral of the mica group. It is black in a hand specimen.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Black slate. Slate that is very dark gray to black and is rich in pyrite.

Black schist. Schist that is very dark gray to black and rich in pyrite.

Bottom land. The normal floodplain of a stream, subject to flooding.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Canopy. The leafy crown of trees or shrubs. (See Crown.)

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.

Channer. A thin, flat rock fragment up to 150 millimeters on the long axis.

Channery soil material. Soil material that has, 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.

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.

Climax plant community. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

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 has 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 has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

COLE (coefficient of linear extensibility). See Linear extensibility.

Colluvium. Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

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.

Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take 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.

Conglomerate. A coarse-grained, clastic rock composed of rounded or subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.

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.”

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.

Cove. A wide, gently sloping to steep, concave colluvial area. Coves are commonly located at the head of or along drainageways in mountainous areas.

Creep. The slow downslope movement of the upper portion of residual soils on steep hillsides.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

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, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

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.

Downcutting. The removal of material by moving water in streams.

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, either through 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.

Draw. A small stream valley that generally is more open and has broader bottom land than a ravine or gulch.

Duff. A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

Ecological site. An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.

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.

Environment hazard risk. The risk of putting sulfuric acid into streams. Relates to amount of landslides and how much pyrite is in the slide material. The rock fragments in the slide material tend to weather when exposed on the surface, releasing sulfuric acid into the environment. Sulfuric acid rapidly lowers the pH in streams, adversely affecting aquatic life.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

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 floodplains 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.

Fan terrace. A relict alluvial fan, no longer a site of active deposition, incised by younger and lower alluvial surfaces.

Feldspar. A group of rock-forming minerals of the general formula, $MA(Al, Si)_3O_8$, where M can be K, Na, Ca, Ba, Rb, Sr, or Fe.

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.

Fibric soil material (peat). The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

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.

Fine-earth fraction. The part of the soil material that is less than 2 millimeters in size.

Fine textured soil. Sandy clay, silty clay, or clay.

Firebreak. An 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 floodplain of a stream, subject to frequent or occasional flooding.

Flaggy soil material. Material that has, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.

Flagstone. A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

Floodplain. 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 position that forms the inner, gently inclined surface at the base of a hillslope. In profile, footslopes are commonly concave. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

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.

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.

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.

Gneiss. A foliated rock formed by regional metamorphism, in which bands or lenticles of granular minerals alternate with bands or lenticles of minerals with flaky or elongated prismatic habit.

Granofel. A medium- to coarse-grained metamorphic rock possessing a granoblastic fabric and either lacking foliation or lineation entirely or exhibiting such characteristics only indistinctly.

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 has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

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.

Hanging coves. Coves upslope from very steep side slopes where the colluvial body ends. Cascades or waterfalls usually terminate hanging coves. The colluvium ends because the very steep side slopes are losing material and not letting it form colluvial bodies.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hard metasandstone. Metasandstone that is resistant to chemical and physical weathering.

Head slope. A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.

Heath balds. Cover type where laurel and/or rhododendron form thickets. On some sites, a few red spruce, white pine, and/or hemlock may be present. Heath balds have a bright pink color signature on color-infrared aerial photography. The shape is commonly long and narrow following the ridges and may finger in all directions if the ridge forks.

Hemic soil material (mucky peat). Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

High elevation. Elevations above 4,200 feet in Tennessee and above 4,600 feet in North Carolina. The difference in elevation is due to differences in slope aspect.

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.

Hot uplands, hot ridges, and hot side slopes. Uplands, ridges, and side slopes in the mesic landscapes that are in direct sunlight for much of the day. These areas have a different cover type than shaded head slopes. The cover type is the indicator of the hot condition (oak-hickory-yellow pine).

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.

Interbedded schist and metasandstone. Schist and metasandstone that have a sedimentary origin and have been exposed to pressure and heat. All the minerals in these rocks have gone through the chemical weathering cycle.

Interfluve. An elevated area between two drainageways that sheds water to those drainageways.

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.

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.

K_{sat}. Saturated hydraulic conductivity. (See Permeability.)

Landscape position. A particular location on a landscape. Examples are ridge, head slope, nose slope, side slope, toeslope, cove, and drainageway.

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.

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

Linear extensibility. Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $^{1}/_{3}$- or $^{1}/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Lithic soils. Soils found over residual, hard rock parent materials. Depth to rock is equal to or less than 50 centimeters.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess. Fine-grained material, dominantly of silt-sized particles, deposited by wind.

Low strength. The soil is not strong enough to support loads.

Major land resource area (MLRA). A broad geographic area that has a distinct combination of physiography, geology, climate, hydrology, soils, biological resources, and land use.

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.

Mass wasting. Large amounts of soil and rock material moved in a single event. An example is a landslide.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Mesic temperature regime. A soil temperature regime that has a mean annual soil temperature of 8 degrees C or more but less than 15 degrees C and greater than 5 degrees C difference between mean annual summer and mean annual winter soil temperature at 50 centimeters below the surface.

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.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

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.

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.

Muck. Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

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.

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.

Nose slope. A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent.

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 mats. Thin layers (4 to 8 inches) of organic material over mineral soil. The organic mats form largely from rhododendron or laurel litter with lesser amounts of red spruce or white pine and hemlock.

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.

Passive sunlight. Passive sunlight strikes the landscape indirectly. It is in shaded areas of the landscape.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedisediment. A thin layer of alluvial material that mantles an erosion surface and has been transported to its present position from higher-lying areas of the erosion surface.

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 movement of water through the soil.

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, such as slope, stoniness, and flooding.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Phylitte. A metamorphosed rock, intermediate in grade between slate and mica schist.

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.

Plateau. An extensive upland mass with relatively flat summit area that is considerably elevated (more than 100 meters) above adjacent lowlands and separated from them on one or more sides by escarpments.

Plinthite. The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

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.

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 the 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.

Pyrite. A common yellow isometric mineral, FeS_2.

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:

Ultra acid	less than 3.5
Extremely acid	3.5 to 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.

Redoximorphic processes. Chemical changes in the soil associated with the wetness that result from the reduction and oxidation of iron and manganese compounds in the soil after saturation with water and desaturation, respectively.

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.

Remote sensing. Technique used to predict what is at a site without going there. The ease or difficulty of remote sensing is a function of the number of tools needed to interpret and the reliability of the interpretations.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

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.

Rock outcrops. Rock outcrops are exposures of bedrock. These rock surfaces are not the result of a landslide.

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.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

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.

Schist. A strongly foliated crystalline rock, formed by dynamic metamorphism, that has well developed parallelism of more than 50 percent of the minerals present.

Second bottom. The first terrace above the normal floodplain (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.

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. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shaded head slopes. Head slopes in the mesic landscapes that are in passive sunlight for much of the day. Shading can occur due to the position of the landscape to the sun or taller mountains blocking the sun. Shading in the afternoon is more important than in the morning. These areas have a different cover type than hot ridges and side slopes. The yellow-poplar cover type is the indicator of the shaded condition.

Shaded side slopes. Side slopes in the mesic landscapes that are in passive sunlight for much of the day. Shading can occur due to the position of the landscape to the sun or taller mountains blocking the sun. Side slopes include the full range of shapes from head slopes to nose slopes. Shading in the afternoon is more important than in the morning. These areas have a different cover type than hot ridges and side slopes. The yellow-poplar cover type is the indicator of the shaded condition.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Shoulder. The position that forms the uppermost inclined surface near the top of a hillslope. It is a transition from backslope to summit. The surface is dominantly convex in profile and erosional in origin.

Side slope. A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel.

Signature. A color and/or texture pattern on a photo-base that is associated with a feature on the landscape.

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.

Slate. A compact, fine-grained metamorphic rock that possesses slatey cleavage and can be split into slabs and thin plates. Most slate formed from shale.

Slide faces. The rock surfaces left after a landslide. The feature is wider on the slide face and narrower on the talus slope below. Talus material is funneled into the narrow drainageways.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Nearly level	0 to 3 percent
Gently sloping	2 to 6 percent
Sloping	5 to 12 percent
Moderately steep	12 to 20 percent
Steep	20 to 50 percent
Very steep	50 percent and higher

Classes for complex slopes are as follows:

Nearly level	0 to 3 percent
Undulating	2 to 6 percent
Rolling	5 to 12 percent

Hilly	12 to 20 percent
Steep	20 to 50 percent
Very steep	50 percent and higher

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soft metasandstone. Metasandstone that is resistant to physical weathering but weathers chemically. Weatherable minerals in soft metasandstone include feldspar and mica.

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

SoLIM. Soil Landscape Inference Model developed by the University of Wisconsin at Madison.

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.

Stone line. A concentration of coarse fragments in a soil. Generally, it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

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.

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 grain (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.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summit. The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

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.

Talus. Fragments of rock and other soil material accumulated by gravity at the foot of cliffs or steep slopes.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

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.”

Toeslope. The position that forms the gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

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.

Tree throw. Trees are uprooted and fall to the ground because of storms.

Upland. Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Valley fill. In glaciated regions, material deposited in stream valleys by glacial meltwater. In nonglaciated regions, alluvium deposited by heavily loaded streams.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Vigor and productivity. The rate that trees grow on a landscape or areas of a landscape. (Evaluations included in the soil survey of Great Smoky Mountains National Park are based on the tree site index data that was generated as part of the project.)

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.

Windswept. A phase of a soil map unit where trees have been stunted due to exposure to high winter winds and frequent ice storms. Vigor and productivity are approximately 60 percent of a non-windswept site.

Windthrow. The uprooting and tipping over of trees by the wind.

Tables

Table 1.—Hectares and Proportionate Extent of the Soils

Map symbol	Soil name	Hectares	Percent
AwB	Alarka-Wesser complex, 0 to 8 percent slopes, flooded	9	*
AwC	Alarka-Whiteside complex, 8 to 15 percent slopes, stony	8	*
AxB	Allegheny loam, 2 to 8 percent slopes	163	*
BaE	Balsam-Tanasee complex, 30 to 50 percent slopes, stony	17	*
Bm	Biltmore sand, 0 to 3 percent slopes, frequently flooded	19	*
BpC	Breakneck-Pullback complex, 8 to 15 percent slopes, very rocky	66	*
BpD	Breakneck-Pullback complex, 15 to 30 percent slopes, very rocky	872	0.4
BpF	Breakneck-Pullback complex, 30 to 95 percent slopes, very rocky	15477	7.3
BrE	Breakneck-Luftee-Clingman-Pinnacle complex, 15 to 50 percent slopes, very stony	494	0.2
BrF	Breakneck-Luftee-Clingman-Pinnacle complex, 50 to 95 percent slopes, rocky	230	0.1
BuF	Burton-Craggey-Rock outcrop complex, 30 to 95 percent slopes, very stony	113	*
CaB	Cades silt loam, 2 to 8 percent slopes	563	0.3
CcF	Cataska-Sylco complex, 30 to 95 percent slopes, very rocky	8064	3.8
ChF	Cheoah channery loam, 30 to 95 percent slopes, stony	3372	1.6
CkF	Chestnut-Cleveland-Rock outcrop complex, 30 to 95 percent slopes, very stony	284	0.1
CmC	Chiltoskie-Heintooga-Horsetrough complex, 8 to 15 percent slopes, stony	46	*
CmD	Chiltoskie-Heintooga complex, 15 to 30 percent slopes, stony	265	0.1
CnF	Clifton clay loam, 50 to 95 percent slopes	100	*
CoB	Cotaco silty clay loam, 2 to 8 percent slopes	89	*
CuD	Cullasaja-Tuckasegee complex, 15 to 30 percent slopes, very stony	127	*
CuE	Cullasaja-Tuckasegee complex, 30 to 50 percent slopes, very stony	218	0.1
CuF	Cullasaja-Rubble land complex, 50 to 95 percent slopes, extremely stony	30	*
Cw	Cullowhee-Ela complex, 0 to 2 percent slopes, frequently flooded	62	*
Dd	Dellwood-Smokemont-Urban land complex, 0 to 5 percent slopes, occasionally flooded	21	*
Dg	Dellwood-Smokemont complex, 0 to 5 percent slopes, frequently flooded	858	0.4
DhB	Dellwood-Wesser complex, 0 to 5 percent slopes, frequently flooded	280	0.1
DtD	Ditney-Unicoi complex, 15 to 30 percent slopes, very rocky	2445	1.2
DtF	Ditney-Unicoi complex, 30 to 95 percent slopes, very rocky	31794	15.1
EpD	Evard-Cowee complex, 15 to 30 percent slopes, stony, windswept	19	*
EpE	Evard-Cowee complex, 30 to 50 percent slopes, stony, windswept	6	*
EvD	Evard-Cowee complex, 15 to 30 percent slopes, stony	116	*
EvE	Evard-Cowee complex, 30 to 50 percent slopes, stony	278	0.1
EvF	Evard-Cowee complex, 50 to 95 percent slopes, stony	1361	0.6
HcE	Heintooga-Chiltoskie complex, 30 to 50 percent slopes, stony	1225	0.6
HrF	Heintooga-Rubble land complex, 50 to 95 percent slopes, extremely bouldery	273	0.1
JbD	Junaluska-Brasstown complex, 15 to 30 percent slopes, stony	2742	1.3
JbE	Junaluska-Brasstown complex, 30 to 50 percent slopes, stony	5171	2.4
JtC	Junaluska-Tsali complex, 8 to 15 percent slopes	72	*
JtD	Junaluska-Tsali complex, 15 to 30 percent slopes	2502	1.2
JtF	Junaluska-Tsali complex, 30 to 95 percent slopes	11426	5.4
LeD	Lauada-Fannin complex, 15 to 30 percent slopes	14	*
LeE	Lauada-Fannin complex, 30 to 50 percent slopes	62	*
LeF	Lauada-Fannin complex, 50 to 95 percent slopes	63	*
LfD	Leatherwood cobbly clay, 15 to 30 percent slopes, stony	6	*
LfE	Leatherwood cobbly clay, 30 to 50 percent slopes, stony	30	*
LfF	Leatherwood cobbly clay, 50 to 95 percent slopes, stony	206	*
LoB	Lonon silty clay loam, 2 to 8 percent slopes	13	*
LoC	Lonon silty clay loam, 8 to 15 percent slopes	791	0.4
LoD	Lonon silty clay loam, 15 to 30 percent slopes	139	*
LoE	Lonon-Rock outcrop complex, 30 to 50 percent slopes	68	*
LrD	Luftee-Anakeesta complex, 15 to 30 percent slopes, very rocky	156	*
LrF	Luftee-Anakeesta complex, 30 to 95 percent slopes, very rocky	5358	2.5
NtC	Northcove-Maymead-Nowhere complex, 8 to 15 percent slopes, very stony	1572	0.7
NtD	Northcove-Maymead complex, 15 to 30 percent slopes, very stony	621	0.3
NtE	Northcove-Maymead complex, 30 to 50 percent slopes, very stony	72	*

See footnote at end of table.

Table 1.—Hectares and Proportionate Extent of the Soils—Continued

Map symbol	Soil name	Hectares	Percent
OcD	Oconaluftee-Guyot-Heintooga complex, 15 to 30 percent slopes, stony	15	*
OcF	Oconaluftee-Heintooga-Rubble land complex, 30 to 95 percent slopes, stony	4222	2.0
OwC	Oconaluftee-Guyot-Cataloochee complex, 8 to 15 percent slopes, stony, windswept	196	*
OwD	Oconaluftee-Guyot-Cataloochee complex, 15 to 30 percent slopes, stony, windswept	1143	0.5
OwE	Oconaluftee-Guyot-Cataloochee complex, 30 to 50 percent slopes, stony, windswept	2327	1.1
OwF	Oconaluftee-Guyot-Cataloochie complex, 50 to 95 percent slopes, stony, windswept	5517	2.6
Po	Potomac very cobbly loamy sand, 0 to 5 percent slopes, extremely bouldery, frequently flooded	17	*
Rd	Reddies-Dellwood complex, 0 to 5 percent slopes, frequently flooded	223	0.1
RpF	Rock outcrop-Pullback complex, 30 to 95 percent slopes, stony	157	*
RtF	Rock outcrop-Luftee complex, 30 to 95 percent slopes, very stony	989	0.5
RuF	Rock outcrop-Unicoi complex, 30 to 95 percent slopes	949	0.4
Rv	Rosman-Reddies complex, 0 to 5 percent slopes, frequently flooded	305	0.1
Rw	Rosman-Reddies-Urban land complex, 0 to 5 percent slopes, occasionally flooded	39	*
RxF	Rubble land-Spivey complex, 50 to 95 percent slopes, extremely bouldery	1608	0.8
RZ	Rubble land, 30 to 95 percent slopes	39	*
SaD	Saunook loam, 15 to 30 percent slopes, stony	16	*
SdC	Saunook-Urban land complex, 8 to 15 percent slopes, stony	4	*
SI	Slide area	255	0.1
SnF	Snowbird loam, 30 to 95 percent slopes, stony	441	0.2
SoD	Soco-Stecoah complex, 15 to 30 percent slopes, stony	2773	1.3
SoF	Soco-Stecoah complex, 30 to 95 percent slopes, stony	60805	28.8
SpD	Soco-Stecoah complex, 15 to 30 percent slopes, stony, windswept	274	0.1
SpF	Soco-Stecoah complex, 30 to 95 percent slopes, stony, windswept	3602	1.7
SsB	Spivey-Santeetlah-Nowhere complex, 2 to 8 percent slopes, very stony	486	0.2
SsC	Spivey-Santeetlah-Nowhere complex, 8 to 15 percent slopes, very stony	4270	2.0
SsD	Spivey-Santeetlah complex, 15 to 30 percent slopes, very stony	8714	4.1
SsE	Spivey-Santeetlah complex, 30 to 50 percent slopes, very stony	9054	4.3
StB	Statler loam, 0 to 5 percent slopes	28	*
StC	Statler loam, 5 to 15 percent slopes	24	*
TaC	Tanasee-Balsam complex, 5 to 15 percent slopes, stony	5	*
TaD	Tanasee-Balsam complex, 15 to 30 percent slopes, stony	11	*
ThB	Thurmont-Dillard complex, 2 to 8 percent slopes, stony	4	*
ThC	Thurmont loam, 8 to 15 percent slopes, stony	54	*
To	Toxaway silty clay loam, 0 to 2 percent slopes, occasionally flooded	56	*
TuC	Tuckasegee-Cullasaja complex, 8 to 15 percent slopes, stony	7	*
Ud	Udorthents-loamy	21	*
W	Water	1571	0.7
WaC	Wayah sandy loam, 5 to 15 percent slopes, stony, windswept	40	*
WaD	Wayah sandy loam, 15 to 30 percent slopes, stony, windswept	155	*
WaF	Wayah sandy loam, 30 to 95 percent slopes, stony, windswept	342	0.2
WeD	Wayah sandy loam, 15 to 30 percent slopes, stony	2	*
WeF	Wayah sandy loam, 30 to 95 percent slopes, stony	39	*
	Total	211,247	100.0

* Less than 0.1 percent.

Table 2.—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 the "Farmland classification" column)

Map symbol	Map unit name	Farmland classification
AxB	Allegheny loam, 2 to 8 percent slopes	All areas are prime farmland
CaB	Cades silt loam, 2 to 8 percent slopes	All areas are prime farmland
CoB	Cotaco silty clay loam, 2 to 8 percent slopes	All areas are prime farmland
LoB	Lonon silty clay loam, 2 to 8 percent slopes	All areas are prime farmland
Rv	Rosman-Reddies complex, 0 to 5 percent slopes, frequently flooded	Prime farmland if protected from flooding or not frequently flooded during the growing season
StB	Statler loam, 0 to 5 percent slopes	All areas are prime farmland
StC	Statler loam, 5 to 15 percent slopes	All areas are prime farmland
ThB	Thurmont-Dillard complex, 2 to 8 percent slopes, stony	All areas are prime farmland
To	Toxaway silty clay loam, 0 to 2 percent slopes, occasionally flooded	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season

Table 3.—Hydric Soils

Map symbol	Soil name
AwB	Alarka-Wesser complex, 0 to 8 percent slopes, flooded
AwC	Alarka-Whiteside complex, 8 to 15 percent slopes, stony
CmC	Chiltoskie-Heintooga-Horsetrough complex, 8 to 15 percent slopes, stony
Cw	Cullowhee-Ela complex, 0 to 2 percent slopes, frequently flooded
To	Toxaway silty clay loam, 0 to 2 percent slopes, occasionally flooded

Table 4.—Index of Plant Symbols, Common Names, and Scientific Names

Plant symbol	Local common name	Scientific name
ABCO	white fir	Abies concolor
ABFR	Fraser fir	Abies fraseri
ACPE	striped maple	Acer pensylvanicum
ACRU	red maple	Acer rubrum
ACSA3	sugar maple	Acer saccharum
AEFL	yellow buckeye	Aesculus flava
ALNUS	alder	Alnus
AMAR3	common serviceberry	Amelanchier arborea
AMELA	serviceberry	Amelanchier
ARGIT8	switchcane	Arundinaria tecta
ASTR	common pawpaw	Asimina triloba
BEAL2	yellow birch	Betula alleghaniensis
BELE	sweet birch	Betula lenta
BENI	river birch	Betula nigra
BETUL	birch	Betula
CAAL27	mockernut hickory	Carya alba
CACO15	bitternut hickory	Carya cordiformis
CADE12	American chestnut	Castanea dentata
CAGL8	pignut hickory	Carya glabra
CAOV2	shagbark hickory	Carya ovata
CAREX	sedge	Carex
CARYA	hickory	Carya
CELTI	hackberry	Celtis
COAM2	silky dogwood	Cornus amomum
COFL2	flowering dogwood	Cornus florida
CORNU	dogwood	Cornus
CORYL	hazelnut	Corylus
CRATA	hawthorn	Crataegus
CRPH	Washington hawthorn	Crataegus phaenopyrum
DEPU2	eastern hayscented fern	Dennstaedtia punctilobula
DILA5	yellow fairybells	Disporum lanuginosum
DIVI5	common persimmon	Diospyros virginiana
DRYOP	woodfern	Dryopteris
FAGR	American beech	Fagus grandifolia
FRAM2	white ash	Fraxinus americana
FRCAC5	California buckthorn	Frangula californica ssp. californica
GLTR	honeylocust	Gleditsia triacanthos
HACA3	Carolina silverbell	Halesia carolina
HAMAM	witchhazel	Hamamelis
HAVI4	American witchhazel	Hamamelis virginiana
ILOP	American holly	Ilex opaca
ILVE	common winterberry	Ilex verticillata
JUCI	butternut	Juglans cinerea
JUNCU	rush	Juncus
JUNI	black walnut	Juglans nigra
JUVI#VA	eastern redcedar	Juniperus virginiana
KALA	mountain laurel	Kalmia latifolia
LIAM	Amur privet	Ligustrum amurense
LIST2	sweetgum	Liquidambar styraciflua
LITU	yellow-poplar	Liriodendron tulipifera
LITU#VA	yellow-poplar	Liriodendron tulipifera
LOAR10	tall fescue	Lolium arundinaceum
LOMA6	Amur honeysuckle	Lonicera maackii
LONIC	honeysuckle	Lonicera
MAAC	cucumbertree	Magnolia acuminata
MAFR	mountain magnolia	unknown
MORU2	red mulberry	Morus rubra
NYSY	blackgum	Nyssa sylvatica
OLTE	desert ironwood	Olneya tesota
OSVI	eastern hophornbeam	Ostrya virginiana
OXAR	sourwood	Oxydendrum arboreum
PAQU	American ginseng	Panax quinquefolius

Table 4.—Index of Plant Symbols, Common Names, and Scientific Names—Continued

Plant symbol	Local common name	Scientific name
PAQU2	Virginia creeper	Parthenocissus quinquefolia
PIAB	Norway spruce	Picea abies
PIEC2	shortleaf pine	Pinus echinata
PINI	Austrian pine	Pinus nigra
PIPU	blue spruce	Picea pungens
PIRI	pitch pine	Pinus rigida
PIRI#NJ	pitch pine	Pinus rigida
PIRU	red spruce	Picea rubens
PIST	eastern white pine	Pinus strobus
PIST#VA	eastern white pine	Pinus strobus
PITA	loblolly pine	Pinus taeda
PIVI2	Virginia pine	Pinus virginiana
PLATA	sycamore	Platanus
PLOC	American sycamore	Platanus occidentalis
POAC4	Christmas fern	Polystichum acrostichoides
POPU4	hairy Solomon's seal	Polygonatum pubescens
PRAM	American plum	Prunus americana
PRPE2	pin cherry	Prunus pensylvanica
PRSE2	black cherry	Prunus serotina
QUAL	white oak	Quercus alba
QUCO2	scarlet oak	Quercus coccinea
QUFA	southern red oak	Quercus falcata
QUPA2	pin oak	Quercus palustris
QUPR2	chestnut oak	Quercus prinus
QURU	northern red oak	Quercus rubra
QURU#VA	northern red oak	Quercus rubra
QUVE	black oak	Quercus velutina
QUVE#MD	black oak	Quercus velutina
RHODO	rhododendron	Rhododendron
RHUS	sumac	Rhus
ROPS	black locust	Robinia pseudoacacia
RUBUS	blackberry	Rubus
SAAL5	sassafras	Sassafras albidum
SAMBU	elderberry	Sambucus
SMILA2	greenbrier	Smilax
THNO	New York fern	Thelypteris noveboracensis
THOC2	eastern arborvitae	Thuja occidentalis
TILIA	basswood	Tilia
TORA2	eastern poison ivy	Toxicodendron radicans
TRILL	trillium	Trillium
TSCA	eastern hemlock	Tsuga canadensis
ULAM	American elm	Ulmus americana
VAAN	lowbush blueberry	Vaccinium angustifolium
VACCI	vaccinium	Vaccinium
VIAC	mapleleaf viburnum	Viburnum acerifolium
VIOPA2	American cranberrybush	Viburnum opulus var. americanum
VITIS	grape	Vitis

Table 5.—Forest Productivity

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
AwB. Alarka-Wesser				
AwC:				
Alarka	---	---	---	---
Whiteside	black cherry	90	57	---
	black locust	---	0	
	eastern hemlock	---	0	
	eastern white pine	90	172	
	red maple	---	0	
	sugar maple	---	0	
	sweet birch	---	0	
	white oak	---	0	
	yellow birch	---	0	
	yellow-poplar	95	100	
AxB:				
Allegheny	American elm	---	0	---
	black oak	78	57	
	northern red oak	---	0	
	red maple	---	0	
	shortleaf pine	80	129	
	sugar maple	---	0	
	Virginia pine	72	114	
	white ash	---	0	
	yellow-poplar	93	100	
BaE:				
Balsam	Fraser fir	---	0	---
	northern red oak	---	0	
	red spruce	64	143	
	sugar maple	---	0	
	yellow birch	---	0	
Tanasee.				
Bm:				
Biltmore	American sycamore	---	0	American beech, birch, black cherry, black walnut, butternut, dogwood, eastern white pine, elderberry, honeylocust, northern red oak, sugar maple
	eastern white pine	103	186	
	white ash	---	0	
	white oak	---	0	
	yellow-poplar	106	114	
BpC. Breakneck-Pullback				
BpD. Breakneck-Pullback				
BpF. Breakneck-Pullback				

Table 5.—Forest Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
BrE:				
Breakneck.				
Luftee.				
Clingman	northern red oak	---	---	---
	red spruce	---	---	
	Fraser fir	---	---	
	yellow birch	---	---	
Pinnacle.				
BrF:				
Breakneck.				
Luftee.				
Clingman	northern red oak	---	---	---
	red spruce	---	---	
	Fraser fir	---	---	
	yellow birch	---	---	
Pinnacle.				
BuF:				
Burton	northern red oak	40	26	---
	red spruce	---	---	
	Fraser fir	---	---	
Craggey	northern red oak	40	26	---
	Fraser fir	---	---	
	red spruce	---	---	
	yellow birch	---	---	
Rock outcrop.				
CaB.				
Cades				
CcF:				
Cataska	chestnut oak	50	29	---
	pitch pine	50	0	
	scarlet oak	50	29	
Sylco	eastern white pine	70	114	---
	shortleaf pine	60	86	
	Virginia pine	60	86	
ChF:				
Cheoah	American beech	80	57	American beech, birch, black cherry, black walnut, eastern white pine, hickory, northern red oak, serviceberry, sugar maple
	black cherry	74	43	
	black oak	---	0	
	eastern hemlock	---	0	
	northern red oak	84	72	
	red maple	---	0	
	sugar maple	---	0	
	yellow birch	---	0	
	yellow buckeye	---	0	
	yellow-poplar	103	114	

Table 5.—Forest Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
CkF:				
Chestnut	eastern white pine	---	---	---
	northern red oak	45	29	
	scarlet oak	---	---	
Cleveland	chestnut oak	---	---	---
	eastern white pine	---	---	
	hickory	---	---	
	northern red oak	---	---	
	pitch pine	---	---	
	scarlet oak	---	---	
	Virginia pine	---	---	
Rock outcrop.				
CmC. Chiltoskie-Heintooga-Horsetrough				
CmD. Chiltoskie-Heintooga				
CnF:				
Clifton	eastern white pine	95	172	American beech, birch, black cherry, black walnut, eastern white pine, hickory, serviceberry, sugar maple, white oak
	yellow-poplar	96	100	
	scarlet oak	---	---	
	Virginia pine	---	---	
	pitch pine	---	---	
CoB:				
Cotaco	black oak	87	72	---
	Virginia pine	81	129	
	white oak	---	0	
	yellow-poplar	95	100	
CuD:				
Cullasaja, very stony	yellow-poplar	109	122	American beech, birch, black cherry, black walnut, eastern white pine, hickory, northern red oak, serviceberry, sugar maple
	black cherry	---	---	
	northern red oak	92	74	
	yellow birch	---	---	
Tuckasegee, very stony	yellow-poplar	109	114	American beech, birch, black cherry, black walnut, eastern white pine, hickory, northern red oak, serviceberry, sugar maple
	black cherry	---	---	
	black locust	---	---	
	eastern hemlock	---	---	
	eastern white pine	98	172	
	hickory	---	---	
	northern red oak	92	74	
	white oak	---	---	

Table 5.—Forest Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
CuE:				
Cullasaja, very stony	yellow-poplar	109	122	American beech, birch, black cherry, black walnut, eastern white pine, hickory, northern red oak, serviceberry, sugar maple
	black cherry	---	---	
	northern red oak	92	74	
	yellow birch	---	---	
Tuckasegee, very stony	yellow-poplar	109	114	American beech, birch, black cherry, black walnut, eastern white pine, hickory, northern red oak, serviceberry, sugar maple
	black cherry	---	---	
	black locust	---	---	
	eastern hemlock	---	---	
	eastern white pine	98	172	
	hickory	---	---	
	northern red oak	92	74	
	white oak	---	---	
CuF:				
Cullasaja, extremely stony	yellow-poplar	109	122	American beech, birch, black cherry, black walnut, eastern white pine, hickory, northern red oak, serviceberry, sugar maple
	black cherry	---	---	
	northern red oak	92	74	
	yellow birch	---	---	
Rubble land	---	---	---	American beech, birch, black cherry, black walnut, eastern white pine, hickory, northern red oak, serviceberry, sugar maple
Cw:				
Cullowhee	yellow-poplar	103	112	American beech, birch, black cherry, black walnut, eastern white pine, hickory, northern red oak, serviceberry, sugar maple
	eastern white pine	100	186	
	American sycamore	---	---	
	red maple	---	---	
	yellow birch	---	---	
	eastern hemlock	---	---	

Table 5.—Forest Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
Cw:				
Ela	American sycamore	---	---	American beech, birch, black cherry, black walnut, eastern white pine, hickory, northern red oak, serviceberry, sugar maple
	common winterberry	---	---	
	eastern hemlock	---	---	
	eastern white pine	86	157	
	red maple	---	---	
	yellow birch	---	---	
	yellow-poplar	88	86	
Dd:				
Dellwood	yellow-poplar	100	107	---
	eastern white pine	91	168	
	red maple	---	---	
	river birch	---	---	
	American sycamore	---	---	
	eastern hemlock	---	---	
Smokemont	American sycamore	---	0	---
	eastern hemlock	---	0	
	eastern white pine	91	172	
	red maple	---	0	
	river birch	---	0	
	yellow-poplar	100	114	
Urban land.				
Dg:				
Dellwood	yellow-poplar	100	107	American beech, birch, black cherry, black walnut, eastern white pine, hickory, northern red oak, serviceberry, sugar maple
	eastern white pine	91	168	
	red maple	---	---	
	river birch	---	---	
	American sycamore	---	---	
	eastern hemlock	---	---	
Smokemont	American sycamore	---	0	American beech, birch, black cherry, black walnut, eastern white pine, hickory, northern red oak, serviceberry, sugar maple
	eastern hemlock	---	0	
	eastern white pine	91	172	
	red maple	---	0	
	river birch	---	0	
	yellow-poplar	100	114	
DhB:				
Dellwood	yellow-poplar	100	107	American beech, birch, black cherry, hickory, northern red oak, serviceberry, sugar maple, black walnut, eastern white pine
	eastern white pine	91	168	
	red maple	---	---	
	river birch	---	---	
	American sycamore	---	---	
	eastern hemlock	---	---	

Table 5.—Forest Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
DhB:				
Wesser	---	---	---	American beech, birch, black cherry, hickory, northern red oak, serviceberry, sugar maple, black walnut, eastern white pine
DtD:				
Ditney	northern red oak	50	29	---
	shortleaf pine	50	72	
	Virginia pine	50	72	
Unicoi	pitch pine	40	29	---
	Virginia pine	40	43	
DtF:				
Ditney	northern red oak	50	29	---
	shortleaf pine	50	72	
	Virginia pine	50	72	
Unicoi	pitch pine	40	29	---
	Virginia pine	40	43	
EpD:				
Evard, windswept	chestnut oak	44	34	---
	shortleaf pine	41	66	
	pitch pine	---	---	
	Virginia pine	39	61	
	eastern white pine	53	98	
	yellow-poplar	54	56	
	white oak	---	---	
	northern red oak	---	---	
	hickory	---	---	
Cowee, windswept	chestnut oak	31	22	---
	Virginia pine	36	55	
	scarlet oak	39	22	
	shortleaf pine	45	72	
	eastern white pine	45	79	
	yellow-poplar	46	41	
	pitch pine	---	---	
	northern red oak	---	---	
	black oak	---	---	
	white oak	---	---	
EpE:				
Evard, windswept	chestnut oak	44	34	---
	shortleaf pine	41	66	
	pitch pine	---	---	
	Virginia pine	39	61	
	eastern white pine	53	98	
	yellow-poplar	54	56	
	white oak	---	---	
	northern red oak	---	---	
	hickory	---	---	

Table 5.—Forest Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
EpE:				
Cowee, windswept	chestnut oak	31	22	---
	Virginia pine	36	55	
	scarlet oak	31	22	
	shortleaf pine	45	72	
	eastern white pine	45	79	
	yellow-poplar	46	41	
	pitch pine	---	---	
	northern red oak	---	---	
	black oak	---	---	
	white oak	---	---	
EvD:				
Evard	chestnut oak	77	59	---
	shortleaf pine	73	116	
	pitch pine	---	---	
	Virginia pine	69	107	
	eastern white pine	93	172	
	yellow-poplar	95	98	
	white oak	---	---	
	northern red oak	---	---	
	hickory	---	---	
Cowee	chestnut oak	55	38	---
	Virginia pine	63	96	
	scarlet oak	54	38	
	shortleaf pine	78	126	
	eastern white pine	78	139	
	yellow-poplar	80	71	
	pitch pine	---	---	
	northern red oak	---	---	
	black oak	---	---	
	white oak	---	---	
EvE:				
Evard	chestnut oak	77	59	---
	shortleaf pine	73	116	
	pitch pine	---	---	
	Virginia pine	69	107	
	eastern white pine	93	172	
	yellow-poplar	95	98	
	white oak	---	---	
	northern red oak	---	---	
	hickory	---	---	
Cowee	chestnut oak	55	38	---
	Virginia pine	63	96	
	scarlet oak	54	38	
	shortleaf pine	78	126	
	eastern white pine	78	139	
	yellow-poplar	80	71	
	pitch pine	---	---	
	northern red oak	---	---	
	black oak	---	---	
	white oak	---	---	

Table 5.—Forest Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
EvF:				
Evard	chestnut oak	77	59	---
	shortleaf pine	73	116	
	pitch pine	---	---	
	Virginia pine	69	107	
	eastern white pine	93	172	
	yellow-poplar	95	98	
	white oak	---	---	
	northern red oak	---	---	
	hickory	---	---	
Cowee	chestnut oak	55	38	---
	Virginia pine	63	96	
	scarlet oak	54	38	
	shortleaf pine	78	126	
	eastern white pine	78	139	
	yellow-poplar	80	71	
	pitch pine	---	---	
	northern red oak	---	---	
	black oak	---	---	
	white oak	---	---	
HcE. Heintooga-Chiltoskie				
HrF. Heintooga-Rubble land				
JbD:				
Junaluska	black oak	---	0	---
	chestnut oak	65	43	
	eastern white pine	86	157	
	hickory	---	0	
	northern red oak	---	0	
	pitch pine	---	0	
	scarlet oak	69	43	
	shortleaf pine	69	114	
	Virginia pine	74	114	
	white oak	61	43	
Brasstown	black oak	---	0	---
	chestnut oak	---	0	
	eastern white pine	96	172	
	hickory	---	0	
	northern red oak	---	0	
	pitch pine	---	0	
	scarlet oak	80	57	
	shortleaf pine	71	114	
	Virginia pine	74	114	
	white oak	80	57	
JbE:				
Junaluska	black oak	---	0	---
	chestnut oak	65	43	
	eastern white pine	86	157	
	hickory	---	0	
	northern red oak	---	0	
	pitch pine	---	0	
	scarlet oak	69	43	
	shortleaf pine	69	114	
	Virginia pine	74	114	
	white oak	61	43	

Table 5.—Forest Productivity—Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber	
			cu ft/ac	
JbE:				
Brasstown	black oak	---	0	---
	chestnut oak	---	0	
	eastern white pine	96	172	
	hickory	---	0	
	northern red oak	---	0	
	pitch pine	---	0	
	scarlet oak	80	57	
	shortleaf pine	71	114	
	Virginia pine	74	114	
	white oak	80	57	
JtC:				
Junaluska	black oak	---	0	---
	chestnut oak	65	43	
	eastern white pine	86	157	
	hickory	---	0	
	northern red oak	---	0	
	pitch pine	---	0	
	scarlet oak	69	43	
	shortleaf pine	69	114	
	Virginia pine	74	114	
	white oak	61	43	
Tsali	black oak	---	0	---
	chestnut oak	---	0	
	hickory	---	0	
	pitch pine	69	0	
	scarlet oak	64	43	
	shortleaf pine	60	86	
	southern red oak	---	0	
	Virginia pine	66	100	
	white oak	57	43	
JtD:				
Junaluska	black oak	---	0	---
	chestnut oak	65	43	
	eastern white pine	86	157	
	hickory	---	0	
	northern red oak	---	0	
	pitch pine	---	0	
	scarlet oak	69	43	
	shortleaf pine	69	114	
	Virginia pine	74	114	
	white oak	61	43	
Tsali	black oak	---	0	---
	chestnut oak	---	0	
	hickory	---	0	
	pitch pine	69	0	
	scarlet oak	64	43	
	shortleaf pine	60	86	
	southern red oak	---	0	
	Virginia pine	66	100	
	white oak	57	43	

Table 5.—Forest Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
JtF:				
Junaluska	black oak	---	0	---
	chestnut oak	65	43	
	eastern white pine	86	157	
	hickory	---	0	
	northern red oak	---	0	
	pitch pine	---	0	
	scarlet oak	69	43	
	shortleaf pine	69	114	
	Virginia pine	74	114	
	white oak	61	43	
Tsali	black oak	---	0	---
	chestnut oak	---	0	
	hickory	---	0	
	pitch pine	69	0	
	scarlet oak	64	43	
	shortleaf pine	60	86	
	southern red oak	---	0	
	Virginia pine	66	100	
	white oak	57	43	
LeD:				
Lauada.				
Fannin	eastern white pine	94	174	---
	yellow-poplar	96	100	
	Virginia pine	---	---	
	chestnut oak	---	---	
	northern red oak	---	---	
	scarlet oak	---	---	
	white oak	---	---	
LeE:				
Lauada.				
Fannin	eastern white pine	94	174	---
	yellow-poplar	96	100	
	Virginia pine	---	---	
	chestnut oak	---	---	
	northern red oak	---	---	
	scarlet oak	---	---	
	white oak	---	---	
LeF:				
Lauada.				
Fannin	eastern white pine	94	174	---
	yellow-poplar	96	100	
	Virginia pine	---	---	
	chestnut oak	---	---	
	northern red oak	---	---	
	scarlet oak	---	---	
	white oak	---	---	

Table 5.—Forest Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
LfD:				
Leatherwood, stony	black cherry	87	---	American beech, birch, black cherry, black walnut, eastern white pine, hickory, northern red oak, serviceberry, sugar maple
	northern red oak	85	67	
	yellow-poplar	113	128	
LfE:				
Leatherwood, stony	black cherry	87	---	American beech, birch, black cherry, black walnut, eastern white pine, hickory, northern red oak, serviceberry, sugar maple
	northern red oak	85	67	
	yellow-poplar	113	128	
LfF:				
Leatherwood, stony	black cherry	87	---	American beech, birch, black cherry, black walnut, eastern white pine, hickory, northern red oak, serviceberry, sugar maple
	northern red oak	85	67	
	yellow-poplar	113	128	
LoB:				
Lonon	black oak	---	0	---
	chestnut oak	---	0	
	eastern white pine	86	157	
	hickory	---	0	
	northern red oak	---	0	
	pitch pine	---	0	
	red maple	---	0	
	scarlet oak	---	0	
	white oak	---	0	
	yellow-poplar	74	57	
LoC:				
Lonon	black oak	---	0	---
	chestnut oak	---	0	
	eastern white pine	86	157	
	hickory	---	0	
	northern red oak	---	0	
	pitch pine	---	0	
	red maple	---	0	
	scarlet oak	---	0	
	white oak	---	0	
	yellow-poplar	74	57	

Table 5.—Forest Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
LoD:				
Lonon	black oak	---	0	---
	chestnut oak	---	0	
	eastern white pine	86	157	
	hickory	---	0	
	northern red oak	---	0	
	pitch pine	---	0	
	red maple	---	0	
	scarlet oak	---	0	
	white oak	---	0	
	yellow-poplar	74	57	
LoE:				
Lonon	black oak	---	0	---
	chestnut oak	---	0	
	eastern white pine	86	157	
	hickory	---	0	
	northern red oak	---	0	
	pitch pine	---	0	
	red maple	---	0	
	scarlet oak	---	0	
	white oak	---	0	
	yellow-poplar	74	57	
Rock outcrop.				
LrD. Luftee-Anakeesta				
LrF. Luftee-Anakeesta				
NtC:				
Northcove	yellow-poplar	---	---	American beech, birch, black cherry, black walnut, eastern white pine, hickory, northern red oak, sugar maple
	eastern white pine	80	143	
	white oak	---	---	
	eastern hemlock	---	---	
	yellow birch	---	---	
	northern red oak	---	---	
	black cherry	---	---	
	yellow buckeye	---	---	
	sugar maple	---	---	
	American beech	---	---	
Maymead	northern red oak	75	57	American beech, birch, black cherry, black walnut, eastern white pine, hickory, northern red oak, sugar maple
	yellow-poplar	90	86	
Nowhere	eastern hemlock	---	0	American beech, birch, black cherry, black walnut, eastern white pine, hickory, northern red oak, sugar maple
	eastern white pine	90	172	
	northern red oak	80	57	
	sugar maple	---	0	
	white oak	---	0	
	yellow birch	---	0	
	yellow-poplar	100	114	

Table 5.—Forest Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
NtD:				
Northcove	yellow-poplar	---	---	American beech, birch, black cherry, black walnut, eastern white pine, hickory, northern red oak, sugar maple
	eastern white pine	80	143	
	white oak	---	---	
	eastern hemlock	---	---	
	yellow birch	---	---	
	northern red oak	---	---	
	black cherry	---	---	
	yellow buckeye	---	---	
	sugar maple	---	---	
	American beech	---	---	
Maymead	northern red oak	75	57	American beech, birch, black cherry, black walnut, eastern white pine, hickory, northern red oak, sugar maple
	yellow-poplar	90	86	
NtE:				
Northcove	yellow-poplar	---	---	American beech, birch, black cherry, black walnut, eastern white pine, hickory, northern red oak, sugar maple
	eastern white pine	80	143	
	white oak	---	---	
	eastern hemlock	---	---	
	yellow birch	---	---	
	northern red oak	---	---	
	black cherry	---	---	
	yellow buckeye	---	---	
	sugar maple	---	---	
	American beech	---	---	
Maymead	northern red oak	75	57	American beech, birch, black cherry, black walnut, eastern white pine, hickory, northern red oak, sugar maple
	yellow-poplar	90	86	
OcD:				
Oconaluftee	red spruce	64	150	---
	Fraser fir	---	---	
	northern red oak	---	---	
	black oak	---	---	
	American beech	---	---	
	yellow birch	---	---	
	black cherry	---	---	
	sugar maple	---	---	
	eastern hemlock	---	---	
	yellow buckeye	---	---	
	sweet birch	---	---	

Table 5.—Forest Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
OcD:				
Guyot	red spruce	64	150	---
	Fraser fir	---	---	
	northern red oak	---	---	
	black oak	---	---	
	American beech	---	---	
	yellow birch	---	---	
	black cherry	---	---	
	sugar maple	---	---	
	eastern hemlock	---	---	
	yellow buckeye	---	---	
	sweet birch	---	---	
Heintooga.				
OcF:				
Oconaluftee	red spruce	64	150	---
	Fraser fir	---	---	
	northern red oak	---	---	
	black oak	---	---	
	American beech	---	---	
	yellow birch	---	---	
	black cherry	---	---	
	sugar maple	---	---	
	eastern hemlock	---	---	
	yellow buckeye	---	---	
	sweet birch	---	---	
Heintooga.				
Rubble land.				
OwC:				
Oconaluftee, windswept	Fraser fir	---	---	---
	northern red oak	40	29	
	red spruce	---	---	
Guyot, windswept	Fraser fir	---	---	---
	northern red oak	40	29	
	red spruce	---	---	
Cataloochee, windswept	Fraser fir	---	---	---
	northern red oak	40	29	
	red spruce	---	---	
OwD:				
Oconaluftee, windswept	northern red oak	40	26	---
	red spruce	---	---	
	Fraser fir	---	---	
	black cherry	---	---	
	sugar maple	---	---	
	yellow birch	---	---	
	sweet birch	---	---	
Guyot, windswept	northern red oak	40	26	---
	red spruce	---	---	
	Fraser fir	---	---	
	black cherry	---	---	
	sugar maple	---	---	
	yellow birch	---	---	
	sweet birch	---	---	

Table 5.—Forest Productivity—Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber	
			cu ft/ac	
OwD:				
Cataloochee, windswept	northern red oak	40	26	---
	red spruce	---	---	
	Fraser fir	---	---	
	black cherry	---	---	
	sugar maple	---	---	
	yellow birch	---	---	
	sweet birch	---	---	
OwE:				
Oconaluftee, windswept	northern red oak	40	26	---
	red spruce	---	---	
	Fraser fir	---	---	
	black cherry	---	---	
	sugar maple	---	---	
	yellow birch	---	---	
	sweet birch	---	---	
Guyot, windswept	northern red oak	40	26	---
	red spruce	---	---	
	Fraser fir	---	---	
	black cherry	---	---	
	sugar maple	---	---	
	yellow birch	---	---	
	sweet birch	---	---	
Cataloochee, windswept	northern red oak	40	26	---
	red spruce	---	---	
	Fraser fir	---	---	
	black cherry	---	---	
	sugar maple	---	---	
	yellow birch	---	---	
	sweet birch	---	---	
OwF:				
Oconaluftee, windswept	northern red oak	40	26	---
	red spruce	---	---	
	Fraser fir	---	---	
	black cherry	---	---	
	sugar maple	---	---	
	yellow birch	---	---	
	sweet birch	---	---	
Guyot, windswept	northern red oak	40	26	---
	red spruce	---	---	
	Fraser fir	---	---	
	black cherry	---	---	
	sugar maple	---	---	
	yellow birch	---	---	
	sweet birch	---	---	
Cataloochee, windswept	northern red oak	40	26	---
	red spruce	---	---	
	Fraser fir	---	---	
	black cherry	---	---	
	sugar maple	---	---	
	yellow birch	---	---	
	sweet birch	---	---	

Table 5.—Forest Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
Po:				
Potomac	American sycamore	---	---	American beech, birch, black cherry, black walnut, butternut, dogwood, eastern white pine, elderberry, honeylocust, sugar maple, white oak
	black walnut	---	---	
	eastern redcedar	---	---	
	eastern white pine	80	143	
	northern red oak	70	57	
	white oak	70	57	
Rd:				
Reddies	yellow-poplar	105	115	American beech, birch, black cherry, black walnut, butternut, dogwood, eastern white pine, elderberry, honeylocust, sugar maple, white oak
	American sycamore	---	---	
	red maple	---	---	
	eastern white pine	---	---	
	river birch	---	---	
Dellwood	yellow-poplar	100	107	American beech, birch, black cherry, black walnut, butternut, dogwood, eastern white pine, elderberry, honeylocust, sugar maple, white oak
	eastern white pine	91	168	
	red maple	---	---	
	river birch	---	---	
	American sycamore	---	---	
	eastern hemlock	---	---	
RpF. Rock outcrop-Pullback				
RtF. Rock outcrop-Luftee				
RuF:				
Rock outcrop.				
Unicoi	pitch pine	40	29	---
	Virginia pine	40	43	
Rv:				
Rosman	yellow-poplar	105	115	American beech, birch, black cherry, black walnut, butternut, dogwood, eastern white pine, elderberry, honeylocust, sugar maple, white oak
	eastern white pine	100	186	
	American sycamore	---	---	
	black walnut	---	---	
	red maple	---	---	
	river birch	---	---	
	black cherry	---	---	
	American beech	---	---	
	black locust	---	---	

Table 5.—Forest Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
Rv:				
Reddies	yellow-poplar	105	115	American beech, birch, black cherry, black walnut, butternut, dogwood, eastern white pine, elderberry, honeylocust, sugar maple, white oak
	American sycamore	---	---	
	red maple	---	---	
	eastern white pine	---	---	
	river birch	---	---	
Rw:				
Rosman	yellow-poplar	105	115	---
	eastern white pine	100	186	
	American sycamore	---	---	
	black walnut	---	---	
	red maple	---	---	
	river birch	---	---	
	black cherry	---	---	
	American beech	---	---	
	black locust	---	---	
Reddies	yellow-poplar	105	115	---
	American sycamore	---	---	
	red maple	---	---	
	eastern white pine	---	---	
	river birch	---	---	
Urban land.				
RxF:				
Rubble land	---	---	---	American beech, birch, black cherry, black walnut, eastern white pine, hickory, serviceberry, sugar maple, white oak
Spivey	eastern hemlock	---	0	American beech, birch, black cherry, black walnut, eastern white pine, hickory, serviceberry, sugar maple, white oak
	eastern white pine	90	172	
	northern red oak	80	57	
	sugar maple	---	0	
	white oak	---	0	
	yellow birch	---	0	
	yellow-poplar	100	114	
RZ:				
Rubble land	---	---	---	American beech, birch, black cherry, black walnut, eastern white pine, hickory, northern red oak, serviceberry, sugar maple

Table 5.—Forest Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
SaD:				
Saunook, stony	yellow-poplar	107	119	American beech, birch, black cherry, black walnut, eastern white pine, hickory, northern red oak, serviceberry, sugar maple
	eastern white pine	104	194	
	eastern hemlock	---	---	
	northern red oak	---	---	
	red maple	---	---	
	scarlet oak	---	---	
	white oak	---	---	
	black cherry	---	---	
SdC:				
Saunook, stony	yellow-poplar	107	119	---
	eastern white pine	104	194	
	eastern hemlock	---	---	
	northern red oak	---	---	
	red maple	---	---	
	scarlet oak	---	---	
	white oak	---	---	
	black cherry	---	---	
Urban land.				
SI.				
Slide area				
SnF:				
Snowbird	American beech	---	---	American beech, birch, black cherry, black walnut, eastern white pine, hickory, northern red oak, serviceberry, sugar maple
	black locust	---	---	
	black oak	---	---	
	northern red oak	96	72	
	red maple	---	---	
	white oak	---	---	
	yellow-poplar	102	114	
SoD:				
Soco	black oak	---	0	---
	chestnut oak	68	57	
	eastern white pine	85	157	
	northern red oak	---	0	
	pitch pine	---	0	
	scarlet oak	76	57	
	shortleaf pine	61	86	
	Virginia pine	---	0	
	white oak	---	0	
	yellow-poplar	---	0	
Stecoah	black oak	---	0	---
	chestnut oak	---	0	
	eastern white pine	93	172	
	hickory	---	0	
	northern red oak	81	57	
	scarlet oak	---	0	
	shortleaf pine	69	114	
	Virginia pine	---	0	
	white oak	78	57	
	yellow-poplar	---	0	

Table 5.—Forest Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
SoF:				
Soco	black oak	---	0	---
	chestnut oak	68	57	
	eastern white pine	85	157	
	northern red oak	---	0	
	pitch pine	---	0	
	scarlet oak	76	57	
	shortleaf pine	61	86	
	Virginia pine	---	0	
	white oak	---	0	
	yellow-poplar	---	0	
Stecoah	black oak	---	0	---
	chestnut oak	---	0	
	eastern white pine	93	172	
	hickory	---	0	
	northern red oak	81	57	
	scarlet oak	---	0	
	shortleaf pine	69	114	
	Virginia pine	---	0	
	white oak	78	57	
	yellow-poplar	---	0	
SpD:				
Soco, windswept	black oak	---	0	---
	chestnut oak	39	33	
	eastern white pine	49	90	
	northern red oak	---	0	
	pitch pine	---	0	
	scarlet oak	43	33	
	shortleaf pine	35	49	
	Virginia pine	---	0	
	white oak	---	0	
	yellow-poplar	---	0	
Stecoah, windswept	black oak	---	0	---
	chestnut oak	---	0	
	eastern white pine	53	98	
	hickory	---	0	
	northern red oak	46	33	
	scarlet oak	---	0	
	shortleaf pine	39	65	
	Virginia pine	---	0	
	white oak	45	33	
	yellow-poplar	---	0	
SpF:				
Soco, windswept	black oak	---	0	---
	chestnut oak	39	33	
	eastern white pine	49	90	
	northern red oak	---	0	
	pitch pine	---	0	
	scarlet oak	43	33	
	shortleaf pine	35	49	
	Virginia pine	---	0	
	white oak	---	0	
	yellow-poplar	---	0	

Table 5.—Forest Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
SpF:				
Stecoah, windswept	black oak	---	0	---
	chestnut oak	---	0	
	eastern white pine	53	172	
	hickory	---	0	
	northern red oak	46	57	
	scarlet oak	---	0	
	shortleaf pine	39	114	
	Virginia pine	---	0	
	white oak	45	57	
	yellow-poplar	---	0	
SsB:				
Spivey	eastern hemlock	---	0	American beech, birch, black cherry, black walnut, eastern white pine, hickory, serviceberry, sugar maple, white oak
	eastern white pine	90	172	
	northern red oak	80	57	
	sugar maple	---	0	
	white oak	---	0	
	yellow birch	---	0	
	yellow-poplar	100	114	
Santeetlah	black cherry	---	0	American beech, birch, black cherry, black walnut, eastern white pine, hickory, serviceberry, sugar maple, white oak
	black oak	---	0	
	eastern hemlock	---	0	
	northern red oak	92	72	
	sugar maple	---	0	
	white oak	---	0	
	yellow birch	---	0	
	yellow buckeye	---	0	
	yellow-poplar	106	114	
Nowhere	eastern hemlock	---	0	American beech, birch, black cherry, black walnut, eastern white pine, hickory, serviceberry, sugar maple, white oak
	eastern white pine	90	172	
	northern red oak	80	57	
	sugar maple	---	0	
	white oak	---	0	
	yellow birch	---	0	
	yellow-poplar	100	114	
SsC:				
Spivey	eastern hemlock	---	0	American beech, birch, black cherry, black walnut, eastern white pine, hickory, serviceberry, sugar maple, white oak
	eastern white pine	90	172	
	northern red oak	80	57	
	sugar maple	---	0	
	white oak	---	0	
	yellow birch	---	0	
	yellow-poplar	100	114	

Table 5.—Forest Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
SsC:				
Santeetlah	black cherry	---	0	American beech,
	black oak	---	0	birch, black
	eastern hemlock	---	0	cherry, black
	northern red oak	92	72	walnut, eastern
	sugar maple	---	0	white pine,
	white oak	---	0	hickory,
	yellow birch	---	0	serviceberry,
	yellow buckeye	---	0	sugar maple, white
	yellow-poplar	106	114	oak
Nowhere	eastern hemlock	---	0	American beech,
	eastern white pine	90	172	birch, black
	northern red oak	80	57	cherry, black
	sugar maple	---	0	walnut, eastern
	white oak	---	0	white pine,
	yellow birch	---	0	hickory,
	yellow-poplar	100	114	serviceberry,
				sugar maple, white
				oak
SsD:				
Spivey	eastern hemlock	---	0	American beech,
	eastern white pine	90	172	birch, black
	northern red oak	80	57	cherry, black
	sugar maple	---	0	walnut, eastern
	white oak	---	0	white pine,
	yellow birch	---	0	hickory,
	yellow-poplar	100	114	serviceberry,
				sugar maple, white
				oak
Santeetlah	black cherry	---	0	American beech,
	black oak	---	0	birch, black
	eastern hemlock	---	0	cherry, black
	northern red oak	92	72	walnut, eastern
	sugar maple	---	0	white pine,
	white oak	---	0	hickory,
	yellow birch	---	0	serviceberry,
	yellow buckeye	---	0	sugar maple, white
	yellow-poplar	106	114	oak
SsE:				
Spivey	eastern hemlock	---	0	American beech,
	eastern white pine	90	172	birch, black
	northern red oak	80	57	cherry, black
	sugar maple	---	0	walnut, eastern
	white oak	---	0	white pine,
	yellow birch	---	0	hickory,
	yellow-poplar	100	114	serviceberry,
				sugar maple, white
				oak
Santeetlah	black cherry	---	0	American beech,
	black oak	---	0	birch, black
	eastern hemlock	---	0	cherry, black
	northern red oak	92	72	walnut, eastern
	sugar maple	---	0	white pine,
	white oak	---	0	hickory,
	yellow birch	---	0	serviceberry,
	yellow buckeye	---	0	sugar maple, white
	yellow-poplar	106	114	oak

Table 5.—Forest Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
StB:				
Statler	yellow-poplar	107	119	---
	white oak	---	---	
	eastern white pine	104	194	
	red maple	---	---	
	northern red oak	---	---	
	hickory	---	---	
StC:				
Statler	yellow-poplar	107	119	American beech, birch, black cherry, black walnut, eastern white pine, hickory, serviceberry, sugar maple, white oak
	white oak	---	---	
	eastern white pine	104	194	
	red maple	---	---	
	northern red oak	---	---	
	hickory	---	---	
TaC:				
Tanasee.				
Balsam	Fraser fir	---	0	---
	northern red oak	---	0	
	red spruce	64	143	
	sugar maple	---	0	
	yellow birch	---	0	
TaD:				
Tanasee.				
Balsam	Fraser fir	---	0	---
	northern red oak	---	0	
	red spruce	64	143	
	sugar maple	---	0	
	yellow birch	---	0	
ThB:				
Thurmont, stony	black cherry	90	57	American beech, birch, black cherry, black walnut, eastern white pine, hickory, serviceberry, sugar maple, white oak
	black locust	---	---	
	eastern hemlock	---	---	
	eastern white pine	90	172	
	red maple	---	---	
	sugar maple	---	---	
	sweet birch	---	---	
	white oak	---	---	
	yellow birch	---	---	
	yellow-poplar	95	100	
Dillard, stony	eastern white pine	90	166	American beech, birch, black cherry, black walnut, eastern white pine, hickory, serviceberry, sugar maple, white oak
	shortleaf pine	75	120	
	Virginia pine	80	112	
	yellow-poplar	95	98	

Table 5.—Forest Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
ThC:				
Thurmont, stony	eastern white pine	88	157	American beech, birch, black cherry, black walnut, eastern white pine, hickory, serviceberry, sugar maple, white oak
	northern red oak	76	57	
	shortleaf pine	77	129	
	yellow-poplar	88	86	
To:				
Toxaway	American sycamore	---	0	---
	eastern white pine	94	172	
	northern red oak	---	0	
	red maple	---	0	
	shortleaf pine	---	0	
	Virginia pine	---	0	
	yellow birch	---	0	
	yellow-poplar	85	86	
TuC:				
Tuckasegee, stony	yellow-poplar	109	114	American beech, birch, black cherry, black walnut, eastern white pine, hickory, serviceberry, sugar maple, white oak
	black cherry	---	---	
	black locust	---	---	
	eastern hemlock	---	---	
	eastern white pine	98	172	
	hickory	---	---	
	northern red oak	92	74	
	white oak	---	---	
Cullasaja, stony	yellow-poplar	109	122	American beech, birch, black cherry, black walnut, eastern white pine, hickory, serviceberry, sugar maple, white oak
	black cherry	---	---	
	northern red oak	92	74	
	yellow birch	---	---	
Ud:				
Udorthents	loblolly pine	50	72	---
W.				
Water				
WaC:				
Wayah, windswept	American beech	64	43	---
	black cherry	72	43	
	black oak	---	---	
	eastern hemlock	---	---	
	Fraser fir	68	---	
	northern red oak	76	57	
	red spruce	50	114	
	sugar maple	---	---	
	yellow birch	---	---	
	yellow buckeye	---	---	

Table 5.—Forest Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
WaD:				
Wayah, windswept	American beech	64	43	---
	black cherry	72	43	
	black oak	---	---	
	eastern hemlock	---	---	
	Fraser fir	68	---	
	northern red oak	76	57	
	red spruce	50	114	
	sugar maple	---	---	
	yellow birch	---	---	
	yellow buckeye	---	---	
WaF:				
Wayah, windswept	American beech	64	43	---
	black cherry	72	43	
	black oak	---	---	
	eastern hemlock	---	---	
	Fraser fir	68	---	
	northern red oak	76	57	
	red spruce	50	114	
	sugar maple	---	---	
	yellow birch	---	---	
	yellow buckeye	---	---	
WeD:				
Wayah	American beech	64	43	---
	black cherry	72	43	
	black oak	---	---	
	eastern hemlock	---	---	
	Fraser fir	68	---	
	northern red oak	76	57	
	red spruce	50	114	
	sugar maple	---	---	
	yellow birch	---	---	
	yellow buckeye	---	---	
WeF:				
Wayah	American beech	64	43	---
	black cherry	72	43	
	black oak	---	---	
	eastern hemlock	---	---	
	Fraser fir	68	---	
	northern red oak	76	57	
	red spruce	50	114	
	sugar maple	---	---	
	yellow birch	---	---	
	yellow buckeye	---	---	

Table 6.—Forestland Management, Part I

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
AwB:							
Alarka	60	Slight		Moderate		Poorly suited	
				Slope/erodibility	0.50	Flooding	1.00
						Low strength	1.00
						Wetness	1.00
Wesser	20	Slight		Slight		Poorly suited	
						Ponding	1.00
						Flooding	1.00
						Low strength	1.00
						Wetness	1.00
AwC:							
Alarka	60	Slight		Moderate		Poorly suited	
				Slope/erodibility	0.50	Low strength	1.00
						Wetness	1.00
						Slope	0.50
Whiteside	20	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
AxB:							
Allegheny	90	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
BaE:							
Balsam	50	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Landslides	0.20
Tanasee	30	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
Bm:							
Biltmore	80	Slight		Slight		Poorly suited	
						Flooding	1.00
						Sandiness	0.50
BpC:							
Breakneck	55	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
						Landslides	0.20
Pullback	25	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
						Landslides	0.20
BpD:							
Breakneck	55	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Landslides	0.53

Table 6.—Forestland Management, Part I

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
BpD:							
Pullback	25	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Landslides	0.53
BpF:							
Breakneck	55	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Landslides	0.60
Pullback	25	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Landslides	0.60
BrE:							
Breakneck	31	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Landslides	0.60
Luftee	29	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Landslides	1.00
Clingman	21	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	1.00
						Sandiness	0.50
Pinnacle	19	Severe		Slight		Poorly suited	
		Slope/erodibility	0.75			Slope	1.00
						Low strength	1.00
						Sandiness	0.50
BrF:							
Breakneck	31	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Landslides	0.60
Luftee	29	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Landslides	1.00
Clingman	20	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Rock fragments	1.00
						Slope	1.00
						Low strength	1.00
						Sandiness	0.50
Pinnacle	19	Very severe		Slight		Poorly suited	
		Slope/erodibility	0.95			Slope	1.00
						Low strength	1.00
						Sandiness	0.50
BuF:							
Burton	45	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
Craggey	35	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Low strength	1.00
						Rock fragments	0.50

Table 6.—Forestland Management, Part I

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
BuF:							
Rock outcrop	15	Not rated		Not rated		Not rated	
CaB:							
Cades	80	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
CcF:							
Cataska	45	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Landslides	0.60
						Low strength	0.50
Sylco	35	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Landslides	0.60
ChF:							
Cheoah	80	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Landslides	0.60
CkF:							
Chestnut	40	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
Cleveland	30	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
CmC:							
Chiltoskie	40	Slight		Moderate		Poorly suited	
				Slope/erodibility	0.50	Low strength	1.00
						Slope	0.50
Heintooga	25	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
						Stickiness; high plasticity index	0.50
Horsetrough	15	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
						Wetness	0.50
CmD:							
Chiltoskie	40	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	1.00
Heintooga	35	Moderate		Moderate		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.50	Slope	1.00
						Stickiness; high plasticity index	0.50
CnF:							
Clifton	80	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50

Table 6.—Forestland Management, Part I

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
CoB:							
Cotaco	85	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
CuD:							
Cullasaja, very stony	50	Moderate		Moderate		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.50	Slope	1.00
						Low strength	1.00
						Rock fragments	0.50
Tuckasegee, very stony	30	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
CuE:							
Cullasaja, very stony	50	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	1.00
						Rock fragments	0.50
Tuckasegee, very stony	30	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
CuF:							
Cullasaja, extremely stony	50	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Low strength	1.00
						Rock fragments	0.50
Rubble land	30	Not rated		Not rated		Not rated	
Cw:							
Cullowhee	50	Slight		Slight		Poorly suited	
						Flooding	1.00
Ela	30	Slight		Slight		Poorly suited	
						Flooding	1.00
						Wetness	1.00
						Low strength	0.50
Dd:							
Dellwood	40	Slight		Slight		Moderately suited	
						Flooding	0.50
Smokemont	25	Slight		Slight		Moderately suited	
						Flooding	0.50
Urban land	15	Not rated		Not rated		Not rated	
Dg:							
Dellwood	50	Slight		Slight		Poorly suited	
						Flooding	1.00
Smokemont	30	Slight		Slight		Poorly suited	
						Flooding	1.00

Table 6.—Forestland Management, Part I

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
DhB:							
Dellwood	60	Slight		Slight		Poorly suited	
						Flooding	1.00
Wesser	20	Slight		Slight		Poorly suited	
						Ponding	1.00
						Flooding	1.00
						Low strength	1.00
						Wetness	1.00
DtD:							
Ditney	50	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
Unicoi	30	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
DtF:							
Ditney	50	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
Unicoi	30	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
EpD:							
Evard, windswept	55	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
Cowee, windswept	25	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
EpE:							
Evard, windswept	55	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
Cowee, windswept	25	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
EvD:							
Evard	55	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
Cowee	25	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
EvE:							
Evard	55	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
Cowee	25	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
EvF:							
Evard	55	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
Cowee	25	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00

Table 6.—Forestland Management, Part I

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
HcE:							
Heintooga	45	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Stickiness; high plasticity index	0.50
Chiltoskie	35	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	1.00
HrF:							
Heintooga	60	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Rock fragments	1.00
						Stickiness; high plasticity index	0.50
Rubble land	20	Not rated		Not rated		Not rated	
JbD:							
Junaluska	45	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
Brasstown	35	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
JbE:							
Junaluska	45	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
Brasstown	35	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
JtC:							
Junaluska	60	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
						Low strength	0.50
						Landslides	0.21
Tsali	20	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
						Landslides	0.21
JtD:							
Junaluska	60	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
						Landslides	0.45
Tsali	20	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Landslides	0.45
JtF:							
Junaluska	55	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Landslides	0.60
						Low strength	0.50

Table 6.—Forestland Management, Part I

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
JtF:							
Tsali	25	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Landslides	0.60
LeD:							
Lauada	45	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
Fannin	35	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
LeE:							
Lauada	45	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
Fannin	35	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
LeF:							
Lauada	45	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
Fannin	35	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
LfD:							
Leatherwood, stony	80	Moderate		Moderate		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.50	Slope	1.00
						Low strength	1.00
						Landslides	0.53
LfE:							
Leatherwood, stony	80	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	1.00
						Landslides	0.60
LfF:							
Leatherwood, stony	80	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Low strength	1.00
						Landslides	0.60
LoB:							
Lonon	70	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
LoC:							
Lonon	70	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
LoD:							
Lonon	90	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50

Table 6.—Forestland Management, Part I

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
LoE:							
Lonon	65	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
Rock outcrop	25	Not rated		Not rated		Not rated	
LrD:							
Luftee	50	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Landslides	0.90
Anakeesta	30	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Landslides	0.90
LrF:							
Luftee	50	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Landslides	1.00
Anakeesta	30	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Landslides	1.00
NtC:							
Northcove	45	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
Maymead	25	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
						Low strength	0.50
Nowhere	15	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
						Wetness	0.50
						Ponding	0.50
NtD:							
Northcove	50	Moderate		Moderate		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.50	Slope	1.00
Maymead	30	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
NtE:							
Northcove	50	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
Maymead	30	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
OcD:							
Oconaluftee	45	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
Guyot	20	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	1.00

Table 6.—Forestland Management, Part I

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
OcD:							
Heintooga	15	Moderate		Moderate		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.50	Slope	1.00
						Stickiness; high plasticity index	0.50
OcF:							
Oconaluftee	50	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
Heintooga	15	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Stickiness; high plasticity index	0.50
Rubble land	15	Not rated		Not rated		Not rated	
OwC:							
Oconaluftee, windswept	50	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
Guyot, windswept	15	Slight		Severe		Poorly suited	
				Slope/erodibility	0.95	Low strength	1.00
						Slope	0.50
Cataloochee, windswept	15	Slight		Moderate		Poorly suited	
				Slope/erodibility	0.50	Low strength	1.00
						Slope	0.50
						Stickiness; high plasticity index	0.50
OwD:							
Oconaluftee, windswept	50	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
Guyot, windswept	15	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	1.00
Cataloochee, windswept	15	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	1.00
						Stickiness; high plasticity index	0.50
OwE:							
Oconaluftee, windswept	50	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
Guyot, windswept	15	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	1.00

Table 6.—Forestland Management, Part I

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
OwE:							
Cataloochee, windswept	15	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	1.00
						Stickiness; high plasticity index	0.50
OwF:							
Oconaluftee, windswept	50	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
Guyot, windswept	15	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Low strength	1.00
Cataloochee, windswept	15	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Low strength	1.00
						Stickiness; high plasticity index	0.50
Po:							
Potomac	80	Slight		Slight		Poorly suited	
						Rock fragments	1.00
						Flooding	1.00
						Sandiness	0.50
Rd:							
Reddies	45	Slight		Slight		Poorly suited	
						Flooding	1.00
Dellwood	35	Slight		Slight		Poorly suited	
						Flooding	1.00
RpF:							
Rock outcrop	50	Not rated		Not rated		Not rated	
Pullback	30	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Landslides	0.60
RtF:							
Rock outcrop	50	Not rated		Not rated		Not rated	
Luftee	30	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Landslides	1.00
RuF:							
Rock outcrop	50	Not rated		Not rated		Not rated	
Unicoi	30	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50

Table 6.—Forestland Management, Part I

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
Rv:							
Rosman	50	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
Reddies	30	Slight		Slight		Poorly suited	
						Flooding	1.00
Rw:							
Rosman	40	Slight		Slight		Moderately suited	
						Flooding	0.50
						Low strength	0.50
Reddies	30	Slight		Slight		Moderately suited	
						Flooding	0.50
Urban land	15	Not rated		Not rated		Not rated	
RxF:							
Rubble land	50	Not rated		Not rated		Not rated	
Spivey	30	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Rock fragments	1.00
RZ:							
Rubble land	80	Not rated		Not rated		Not rated	
SaD:							
Saunook, stony	80	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
SdC:							
Saunook, stony	60	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
						Low strength	0.50
Urban land	20	Not rated		Not rated		Not rated	
SI:							
Slide area	100	Not rated		Not rated		Not rated	
SnF:							
Snowbird	80	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
SoD:							
Soco	50	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
Stecoah	35	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
SoF:							
Soco	50	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
Stecoah	30	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00

Table 6.—Forestland Management, Part I

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
SpD:							
Soco, windswept	50	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
Stecoah, windswept	30	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
SpF:							
Soco, windswept	50	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
Stecoah, windswept	30	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
SsB:							
Spivey	50	Slight		Slight		Well suited	
Santeetlah	25	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
Nowhere	15	Slight		Slight		Moderately suited	
						Wetness	0.50
						Ponding	0.50
SsC:							
Spivey	50	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
Santeetlah	25	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
Nowhere	15	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
						Wetness	0.50
						Ponding	0.50
SsD:							
Spivey	50	Moderate		Moderate		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.50	Slope	1.00
Santeetlah	30	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
SsE:							
Spivey	60	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
Santeetlah	20	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
StB:							
Statler	85	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
StC:							
Statler	80	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50

Table 6.—Forestland Management, Part I

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
TaC:							
Tanasee	50	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
						Low strength	0.50
Balsam	30	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
						Landslides	0.05
TaD:							
Tanasee	50	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
Balsam	30	Moderate		Moderate		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.50	Slope	1.00
						Landslides	0.17
ThB:							
Thurmont, stony	50	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
Dillard, stony	30	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
ThC:							
Thurmont, stony	80	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
To:							
Toxaway	80	Slight		Slight		Moderately suited	
						Ponding	0.50
						Flooding	0.50
						Low strength	0.50
						Wetness	0.50
TuC:							
Tuckasegee, stony	50	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
Cullasaja, stony	30	Slight		Moderate		Poorly suited	
				Slope/erodibility	0.50	Low strength	1.00
						Slope	0.50
Ud:							
Udorthents	85	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
W:							
Water	100	Not rated		Not rated		Not rated	
WaC:							
Wayah, windswept	80	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
WaD:							
Wayah, windswept	80	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00

Table 6.—Forestland Management, Part I

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
WaF:							
Wayah, windswept----	80	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
WeD:							
Wayah---------------	80	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
WeF:							
Wayah---------------	80	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00

Table 6.—Forestland Management, Part II

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
AwB:					
Alarka	60	Low		High	
		Texture/surface depth/rock fragments	0.10	Wetness	1.00
				Soil reaction	1.00
Wesser	20	Low		High	
		Texture/surface depth/rock fragments	0.10	Wetness	1.00
				Soil reaction	0.50
AwC:					
Alarka	60	Low		High	
		Texture/surface depth/rock fragments	0.10	Wetness	1.00
				Soil reaction	1.00
Whiteside	20	Low		Low	
		Texture/rock fragments	0.10		
AxB:					
Allegheny	90	Low		Low	
		Texture/rock fragments	0.10		
BaE:					
Balsam	50	Low		Moderate	
		Texture/rock fragments	0.10	Soil reaction	0.50
Tanasee	30	Low		Moderate	
				Soil reaction	0.50
Bm:					
Biltmore	80	High		Low	
		Texture/rock fragments	1.00		
BpC:					
Breakneck	55	Low		Moderate	
				Soil reaction	0.50
Pullback	25	Low		Moderate	
				Soil reaction	0.50
BpD:					
Breakneck	55	Low		Moderate	
		Texture/rock fragments	0.10	Soil reaction	0.50
Pullback	25	Low		Moderate	
				Soil reaction	0.50

Table 6.—Forestland Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
BpF:					
Breakneck	55	Low		Moderate	
		Texture/rock fragments	0.10	Soil reaction	0.50
Pullback	25	Low		Moderate	
				Soil reaction	0.50
BrE:					
Breakneck	31	Low		Moderate	
		Texture/rock fragments	0.10	Soil reaction	0.50
Luftee	29	Low		Moderate	
		Texture/rock fragments	0.10	Soil reaction	0.50
Clingman	21	Low		High	
				Soil reaction	1.00
Pinnacle	19	Low		High	
				Soil reaction	1.00
BrF:					
Breakneck	31	Low		Moderate	
		Texture/rock fragments	0.10	Soil reaction	0.50
Luftee	29	Low		Moderate	
		Texture/rock fragments	0.10	Soil reaction	0.50
Clingman	20	Low		High	
				Soil reaction	1.00
Pinnacle	19	Low		High	
				Soil reaction	1.00
BuF:					
Burton	45	Low		Low	
		Texture/rock fragments	0.10		
Craggey	35	Low		Moderate	
				Soil reaction	0.50
Rock outcrop	15	Not rated		Not rated	
CaB:					
Cades	80	Low		Low	
		Texture/surface depth/rock fragments	0.10		
CcF:					
Cataska	45	Low		Moderate	
				Available water	0.50
Sylco	35	Low		Moderate	
				Available water	0.50

Table 6.—Forestland Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
ChF:					
Cheoah	80	Low		Low	
		Texture/rock fragments	0.10		
CkF:					
Chestnut	40	Low		Moderate	
		Texture/rock fragments	0.10	Available water	0.50
Cleveland	30	Low		Moderate	
		Texture/rock fragments	0.10	Available water	0.50
Rock outcrop	15	Not rated		Not rated	
CmC:					
Chiltoskie	40	Low		Moderate	
		Texture/rock fragments	0.10	Soil reaction	0.50
Heintooga	25	Moderate		High	
		Texture/surface depth/rock fragments	0.50	Soil reaction	1.00
Horsetrough	15	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
				Soil reaction	0.50
CmD:					
Chiltoskie	40	Low		Moderate	
		Texture/rock fragments	0.10	Soil reaction	0.50
Heintooga	35	Moderate		High	
		Texture/surface depth/rock fragments	0.50	Soil reaction	1.00
CnF:					
Clifton	80	Low		Low	
CoB:					
Cotaco	85	Low		Low	
		Texture/rock fragments	0.10		
CuD:					
Cullasaja, very stony	50	Low		Low	
		Texture/rock fragments	0.10		
Tuckasegee, very stony	30	Low		Low	
		Texture/rock fragments	0.10		

Table 6.—Forestland Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
CuE:					
Cullasaja, very stony	50	Low		Low	
		Texture/rock fragments	0.10		
Tuckasegee, very stony	30	Low		Low	
		Texture/rock fragments	0.10		
CuF:					
Cullasaja, extremely stony	50	Low		Low	
		Texture/rock fragments	0.10		
Rubble land	30	Not rated		Not rated	
Cw:					
Cullowhee	50	Low		Low	
		Texture/rock fragments	0.10		
Cw:					
Ela	30	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
				Soil reaction	0.50
Dd:					
Dellwood	40	Low		Low	
		Texture/rock fragments	0.10		
Smokemont	25	Low		Low	
		Texture/rock fragments	0.10		
Urban land	15	Not rated		Not rated	
Dg:					
Dellwood	50	Low		Low	
		Texture/rock fragments	0.10		
Smokemont	30	Low		Low	
		Texture/rock fragments	0.10		
DhB:					
Dellwood	60	Low		Low	
		Texture/rock fragments	0.10		
Wesser	20	Low		High	
		Texture/surface depth/rock fragments	0.10	Wetness	1.00
				Soil reaction	0.50

Table 6.—Forestland Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
DtD:					
Ditney	50	Moderate		Moderate	
		Texture/surface depth/rock fragments	0.50	Available water	0.50
Unicoi	30	Moderate		Moderate	
		Texture/surface depth/rock fragments	0.50	Soil reaction	0.50
				Available water	0.50
DtF:					
Ditney	50	Moderate		Moderate	
		Texture/slope/ surface depth/ rock fragments	0.50	Available water	0.50
Unicoi	30	Moderate		Moderate	
		Texture/slope/ surface depth/ rock fragments	0.50	Available water	0.50
				Soil reaction	0.50
EpD:					
Evard, windswept	55	Low		Moderate	
		Texture/rock fragments	0.10	Available water	0.50
Cowee, windswept	25	Low		Moderate	
		Texture/rock fragments	0.10	Available water	0.50
EpE:					
Evard, windswept	55	Low		Moderate	
				Available water	0.50
Cowee, windswept	25	Low		Moderate	
		Texture/rock fragments	0.10	Available water	0.50
EvD:					
Evard	55	Low		Moderate	
		Texture/rock fragments	0.10	Available water	0.50
Cowee	25	Low		Moderate	
		Texture/rock fragments	0.10	Available water	0.50
EvE:					
Evard	55	Low		Moderate	
				Available water	0.50
Cowee	25	Low		Moderate	
		Texture/rock fragments	0.10	Available water	0.50
EvF:					
Evard	55	Low		Moderate	
				Available water	0.50

Table 6.—Forestland Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
EvF:					
Cowee	25	Low		Moderate	
		Texture/rock fragments	0.10	Available water	0.50
HcE:					
Heintooga	45	Moderate		High	
		Texture/slope/ surface depth/ rock fragments	0.50	Soil reaction	1.00
Chiltoskie	35	Low		Moderate	
		Texture/slope/ rock fragments	0.10	Soil reaction	0.50
HrF:					
Heintooga	60	Moderate		High	
		Texture/slope/ surface depth/ rock fragments	0.50	Soil reaction	1.00
Rubble land	20	Not rated		Not rated	
JbD:					
Junaluska	45	Low		Moderate	
		Texture/rock fragments	0.10	Available water	0.50
Brasstown	35	Low		Moderate	
		Texture/rock fragments	0.10	Available water	0.50
JbE:					
Junaluska	45	Low		Moderate	
		Texture/rock fragments	0.10	Available water	0.50
Brasstown	35	Low		Moderate	
				Available water	0.50
JtC:					
Junaluska	60	Low		Low	
		Texture/rock fragments	0.10		
Tsali	20	Low		Low	
		Texture/rock fragments	0.10		
JtD:					
Junaluska	60	Low		Moderate	
		Texture/rock fragments	0.10	Available water	0.50
Tsali	20	Low		Moderate	
		Texture/rock fragments	0.10	Available water	0.50

Table 6.—Forestland Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
JtF:					
Junaluska	55	Low		Moderate	
		Texture/rock fragments	0.10	Available water	0.50
Tsali	25	Low		Moderate	
				Available water	0.50
LeD:					
Lauada	45	Low		Moderate	
		Texture/rock fragments	0.10	Soil reaction	0.50
				Available water	0.50
Fannin	35	Moderate		Moderate	
		Texture/rock fragments	0.50	Soil reaction	0.50
				Available water	0.50
LeE:					
Lauada	45	Low		Moderate	
				Soil reaction	0.50
				Available water	0.50
Fannin	35	Moderate		Moderate	
		Texture/slope/ rock fragments	0.50	Soil reaction	0.50
				Available water	0.50
LeF:					
Lauada	45	Low		Moderate	
				Soil reaction	0.50
				Available water	0.50
Fannin	35	Moderate		Moderate	
		Texture/slope/ rock fragments	0.50	Soil reaction	0.50
				Available water	0.50
LfD:					
Leatherwood, stony	80	Low		Moderate	
		Texture/rock fragments	0.10	Soil reaction	0.50
LfE:					
Leatherwood, stony	80	Moderate		Moderate	
		Texture/slope/ rock fragments	0.50	Soil reaction	0.50
LfF:					
Leatherwood, stony	80	Moderate		Moderate	
		Texture/slope/ rock fragments	0.50	Soil reaction	0.50
LoB:					
Lonon	70	Moderate		Low	
		Texture/rock fragments	0.50		
LoC:					
Lonon	70	Moderate		Low	
		Texture/rock fragments	0.50		

Table 6.—Forestland Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
LoD:					
Lonon	90	Moderate Texture/rock fragments	0.50	Low	
LoE:					
Lonon	65	Moderate Texture/rock fragments	0.50	Low	
Rock outcrop	25	Not rated		Not rated	
LrD:					
Luftee	50	Low Texture/rock fragments	0.10	Moderate Soil reaction	0.50
Anakeesta	30	Low Texture/surface depth/rock fragments	0.10	Moderate Soil reaction	0.50
LrF:					
Luftee	50	Low Texture/rock fragments	0.10	Moderate Soil reaction	0.50
Anakeesta	30	Moderate Texture/slope/ surface depth/ rock fragments	0.50	Moderate Soil reaction	0.50
NtC:					
Northcove	45	High Texture/surface depth/rock fragments	1.00	Low	
Maymead	25	Low Texture/rock fragments	0.10	Low	
Nowhere	15	Low Texture/rock fragments	0.10	High Wetness	1.00
NtD:					
Northcove	50	High Texture/surface depth/rock fragments	1.00	Moderate Available water	0.50
Maymead	30	Low Texture/rock fragments	0.10	Moderate Available water	0.50
NtE:					
Northcove	50	High Texture/slope/ surface depth/ rock fragments	1.00	Moderate Available water	0.50

Table 6.—Forestland Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
NtE:					
Maymead	30	Low		Moderate	
				Available water	0.50
OcD:					
Oconaluftee	45	Low		Low	
		Texture/rock fragments	0.10		
Guyot	20	Low		Moderate	
				Soil reaction	0.50
Heintooga	15	Moderate		High	
		Texture/surface depth/rock fragments	0.50	Soil reaction	1.00
OcF:					
Oconaluftee	50	Low		Low	
		Texture/rock fragments	0.10		
Heintooga	15	Moderate		High	
		Texture/slope/ surface depth/ rock fragments	0.50	Soil reaction	1.00
Rubble land	15	Not rated		Not rated	
OwC:					
Oconaluftee, windswept	50	Low		Low	
		Texture/rock fragments	0.10		
Guyot, windswept	15	Low		Moderate	
				Soil reaction	0.50
Cataloochee, windswept	15	Low		High	
		Texture/rock fragments	0.10	Soil reaction	1.00
OwD:					
Oconaluftee, windswept	50	Low		Low	
		Texture/rock fragments	0.10		
Guyot, windswept	15	Low		Moderate	
				Soil reaction	0.50
Cataloochee, windswept	15	Low		High	
		Texture/rock fragments	0.10	Soil reaction	1.00

Table 6.—Forestland Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
OwE:					
Oconaluftee, windswept	50	Low		Low	
		Texture/rock fragments	0.10		
Guyot, windswept	15	Low		Moderate	
				Soil reaction	0.50
Cataloochee, windswept	15	Low		High	
		Texture/rock fragments	0.10	Soil reaction	1.00
OwF:					
Oconaluftee, windswept	50	Low		Low	
		Texture/rock fragments	0.10		
Guyot, windswept	15	Low		Moderate	
				Soil reaction	0.50
Cataloochee, windswept	15	Low		High	
		Texture/rock fragments	0.10	Soil reaction	1.00
Po:					
Potomac	80	High		Low	
		Texture/surface depth/rock fragments	1.00		
Rd:					
Reddies	45	Low		Low	
		Texture/rock fragments	0.10		
Dellwood	35	Low		Low	
		Texture/rock fragments	0.10		
RpF:					
Rock outcrop	50	Not rated		Not rated	
Pullback	30	Low		Moderate	
				Soil reaction	0.50
RtF:					
Rock outcrop	50	Not rated		Not rated	
Luftee	30	Low		Moderate	
		Texture/rock fragments	0.10	Soil reaction	0.50
RuF:					
Rock outcrop	50	Not rated		Not rated	

Table 6.—Forestland Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
RuF:					
Unicoi	30	Moderate		Moderate	
		Texture/slope/ surface depth/ rock fragments	0.50	Available water	0.50
				Soil reaction	0.50
Rv:					
Rosman	50	Low		Low	
		Texture/rock fragments	0.10		
Reddies	30	Low		Low	
		Texture/rock fragments	0.10		
Rw:					
Rosman	40	Low		Low	
		Texture/rock fragments	0.10		
Reddies	30	Low		Low	
		Texture/rock fragments	0.10		
Urban land	15	Not rated		Not rated	
RxF:					
Rubble land	50	Not rated		Not rated	
Spivey	30	Low		Moderate	
		Texture/rock fragments	0.10	Soil reaction	0.50
RZ:					
Rubble land	80	Not rated		Not rated	
SaD:					
Saunook, stony	80	Low		Low	
		Texture/rock fragments	0.10		
SdC:					
Saunook, stony	60	Low		Low	
		Texture/rock fragments	0.10		
Urban land	20	Not rated		Not rated	
SI:					
Slide area	100	Not rated		Not rated	
SnF:					
Snowbird	80	Low		Low	
		Texture/slope/ rock fragments	0.10		
SoD:					
Soco	50	Low		Moderate	
		Texture/rock fragments	0.10	Available water	0.50

Table 6.—Forestland Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
SoD:					
Stecoah	35	Moderate		Moderate	
		Texture/surface depth/rock fragments	0.50	Available water	0.50
SoF:					
Soco	50	Low		Moderate	
				Available water	0.50
Stecoah	30	Moderate		Moderate	
		Texture/slope/ surface depth/ rock fragments	0.50	Available water	0.50
SpD:					
Soco, windswept	50	Low		Moderate	
		Texture/rock fragments	0.10	Available water	0.50
Stecoah, windswept	30	Moderate		Moderate	
		Texture/surface depth/rock fragments	0.50	Available water	0.50
SpF:					
Soco, windswept	50	Low		Moderate	
				Available water	0.50
Stecoah, windswept	30	Moderate		Moderate	
		Texture/slope/ surface depth/ rock fragments	0.50	Available water	0.50
SsB:					
Spivey	50	Low		Moderate	
		Texture/rock fragments	0.10	Soil reaction	0.50
Santeetlah	25	Low		Low	
		Texture/rock fragments	0.10		
Nowhere	15	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
SsC:					
Spivey	50	Low		Moderate	
		Texture/rock fragments	0.10	Soil reaction	0.50
Santeetlah	25	Low		Low	
		Texture/rock fragments	0.10		
Nowhere	15	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00

Table 6.—Forestland Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
SsD:					
Spivey	50	Low		Moderate	
		Texture/rock fragments	0.10	Soil reaction	0.50
Santeetlah	30	Low		Low	
		Texture/rock fragments	0.10		
SsE:					
Spivey	60	Low		Moderate	
		Texture/rock fragments	0.10	Soil reaction	0.50
Santeetlah	20	Low		Low	
		Texture/rock fragments	0.10		
StB:					
Statler	85	Low		Low	
		Texture/rock fragments	0.10		
StC:					
Statler	80	Low		Low	
		Texture/rock fragments	0.10		
TaC:					
Tanasee	50	Low		Moderate	
				Soil reaction	0.50
Balsam	30	Low		Moderate	
		Texture/rock fragments	0.10	Soil reaction	0.50
TaD:					
Tanasee	50	Low		Moderate	
				Soil reaction	0.50
Balsam	30	Low		Moderate	
		Texture/rock fragments	0.10	Soil reaction	0.50
ThB:					
Thurmont, stony	50	Low		Low	
		Texture/rock fragments	0.10		
Dillard, stony	30	Low		Low	
		Texture/rock fragments	0.10		
ThC:					
Thurmont, stony	80	Low		Low	
		Texture/rock fragments	0.10		

Table 6.—Forestland Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Potential for damage to soil by fire: Value	Potential for seedling mortality: Rating class and limiting features	Potential for seedling mortality: Value
To:					
Toxaway	80	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
TuC:					
Tuckasegee, stony	50	Low		Low	
		Texture/rock fragments	0.10		
Cullasaja, stony	30	Low		Low	
		Texture/rock fragments	0.10		
Ud:					
Udorthents	85	Moderate		Low	
		Texture/rock fragments	0.50		
W:					
Water	100	Not rated		Not rated	
WaC:					
Wayah, windswept	80	Low		Low	
		Texture/rock fragments	0.10		
WaD:					
Wayah, windswept	80	Low		Low	
		Texture/rock fragments	0.10		
WaF:					
Wayah, windswept	80	Low		Low	
		Texture/rock fragments	0.10		
WeD:					
Wayah	80	Low		Low	
		Texture/rock fragments	0.10		
WeF:					
Wayah	80	Low		Low	
		Texture/rock fragments	0.10		

Table 7.—Recreational Development, Part I

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Foot traffic and equestrian trails: Rating class and limiting features	Value	Mountain bike and off-road vehicle trails: Rating class and limiting features	Value
AwB:					
Alarka	60	Very limited		Very limited	
		Gravel	1.00	Gravel	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
Wesser	20	Very limited		Very limited	
		Gravel	1.00	Gravel	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
		Flooding	0.40	Flooding	0.40
AwC:					
Alarka	60	Very limited		Very limited	
		Gravel	1.00	Gravel	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
Whiteside	20	Not limited		Not limited	
AxB:					
Allegheny	90	Not limited		Not limited	
BaE:					
Balsam	50	Very limited		Very limited	
		Gravel	1.00	Gravel	1.00
		Slope	1.00	Slope	1.00
Tanasee	30	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Gravel	1.00	Gravel	1.00
Bm:					
Biltmore	80	Very limited		Very limited	
		Too sandy	1.00	Too sandy	1.00
		Flooding	0.40	Flooding	0.40
BpC:					
Breakneck	55	Not limited		Not limited	
Pullback	25	Very limited		Very limited	
		Gravel	1.00	Gravel	1.00
BpD:					
Breakneck	55	Somewhat limited		Not limited	
		Slope	0.88		
Pullback	25	Very limited		Very limited	
		Gravel	1.00	Gravel	1.00
		Slope	0.88		
BpF:					
Breakneck	55	Very limited		Very limited	
		Slope	1.00	Slope	1.00

Table 7.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Foot traffic and equestrian trails: Rating class and limiting features	Value	Mountain bike and off-road vehicle trails: Rating class and limiting features	Value
BpF:					
Pullback	25	Very limited		Very limited	
		Gravel	1.00	Gravel	1.00
		Slope	1.00	Slope	1.00
BrE:					
Breakneck	31	Very limited		Very limited	
		Slope	1.00	Slope	1.00
Luftee	29	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Large stones content	0.53	Large stones content	0.53
Clingman	21	Very limited		Very limited	
		Gravel	1.00	Gravel	1.00
		Organic matter content	1.00	Organic matter content	1.00
		Slope	1.00	Slope	1.00
Pinnacle	19	Very limited		Very limited	
		Gravel	1.00	Gravel	1.00
		Organic matter content	1.00	Organic matter content	1.00
		Slope	1.00	Slope	1.00
BrF:					
Breakneck	31	Very limited		Very limited	
		Slope	1.00	Slope	1.00
Luftee	29	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Large stones content	0.53	Large stones content	0.53
Clingman	20	Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00
		Gravel	1.00	Gravel	1.00
		Slope	1.00	Slope	1.00
		Organic matter content	1.00	Organic matter content	1.00
Pinnacle	19	Very limited		Very limited	
		Gravel	1.00	Gravel	1.00
		Slope	1.00	Slope	1.00
		Organic matter content	1.00	Organic matter content	1.00
BuF:					
Burton	45	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Large stones content	0.19	Large stones content	0.19
Craggey	35	Very limited		Very limited	
		Gravel	1.00	Gravel	1.00
		Slope	1.00	Slope	1.00
		Large stones content	0.76	Large stones content	0.76
Rock outcrop	15	Not rated		Not rated	
CaB:					
Cades	80	Not limited		Not limited	
CcF:					
Cataska	45	Very limited		Very limited	
		Slope	1.00	Slope	1.00

Table 7.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Foot traffic and equestrian trails: Rating class and limiting features	Value	Mountain bike and off-road vehicle trails: Rating class and limiting features	Value
CcF:					
Sylco	35	Very limited		Very limited	
		Slope	1.00	Slope	1.00
ChF:					
Cheoah	80	Very limited		Very limited	
		Slope	1.00	Slope	1.00
CkF:					
Chestnut	40	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Large stones content	0.19	Large stones content	0.19
Cleveland	30	Very limited		Very limited	
		Slope	1.00	Slope	1.00
Rock outcrop	15	Not rated		Not rated	
CmC:					
Chiltoskie	40	Very limited		Very limited	
		Gravel	1.00	Gravel	1.00
Heintooga	25	Very limited		Very limited	
		Gravel	1.00	Gravel	1.00
Horsetrough	15	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Large stones content	0.76	Large stones content	0.76
CmD:					
Chiltoskie	40	Very limited		Very limited	
		Gravel	1.00	Gravel	1.00
		Slope	1.00		
Heintooga	35	Very limited		Very limited	
		Gravel	1.00	Gravel	1.00
		Slope	1.00		
CnF:					
Clifton	80	Very limited		Very limited	
		Slope	1.00	Slope	1.00
CoB:					
Cotaco	85	Not limited		Not limited	
CuD:					
Cullasaja, very stony	50	Somewhat limited		Somewhat limited	
		Slope	0.92	Large stones content	0.76
		Large stones content	0.76		
Tuckasegee, very stony	30	Somewhat limited		Somewhat limited	
		Slope	0.92	Large stones content	0.76
		Large stones content	0.76		
CuE:					
Cullasaja, very stony	50	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Large stones content	0.76	Large stones content	0.76

Table 7.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Foot traffic and equestrian trails: Rating class and limiting features	Value	Mountain bike and off-road vehicle trails: Rating class and limiting features	Value
CuE:					
Tuckasegee, very stony	30	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Large stones content	0.76	Large stones content	0.76
CuF:					
Cullasaja, extremely stony	50	Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00
		Slope	1.00	Slope	1.00
Rubble land	30	Not rated		Not rated	
Cw:					
Cullowhee	50	Somewhat limited		Somewhat limited	
		Flooding	0.40	Flooding	0.40
		Depth to saturated zone	0.08	Depth to saturated zone	0.08
Ela	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	0.40	Flooding	0.40
Dd:					
Dellwood	40	Not limited		Not limited	
Smokemont	25	Not limited		Not limited	
Urban land	15	Not rated		Not rated	
Dg:					
Dellwood	50	Somewhat limited		Somewhat limited	
		Flooding	0.40	Flooding	0.40
Smokemont	30	Somewhat limited		Somewhat limited	
		Flooding	0.40	Flooding	0.40
DhB:					
Dellwood	60	Somewhat limited		Somewhat limited	
		Flooding	0.40	Flooding	0.40
Wesser	20	Very limited		Very limited	
		Gravel	1.00	Gravel	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
		Flooding	0.40	Flooding	0.40
DtD:					
Ditney	50	Somewhat limited		Not limited	
		Slope	0.92		
Unicoi	30	Somewhat limited		Not limited	
		Slope	0.92		
DtF:					
Ditney	50	Very limited		Very limited	
		Slope	1.00	Slope	1.00
Unicoi	30	Very limited		Very limited	
		Slope	1.00	Slope	1.00

Table 7.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Foot traffic and equestrian trails: Rating class and limiting features	Value	Mountain bike and off-road vehicle trails: Rating class and limiting features	Value
EpD:					
Evard, windswept	55	Somewhat limited		Not limited	
		Slope	0.50		
Cowee, windswept	25	Somewhat limited		Not limited	
		Slope	0.50		
EpE:					
Evard, windswept	55	Very limited		Very limited	
		Slope	1.00	Slope	1.00
Cowee, windswept	25	Very limited		Very limited	
		Slope	1.00	Slope	1.00
EvD:					
Evard	55	Somewhat limited		Not limited	
		Slope	0.50		
Cowee	25	Somewhat limited		Not limited	
		Slope	0.50		
EvE:					
Evard	55	Very limited		Very limited	
		Slope	1.00	Slope	1.00
Cowee	25	Very limited		Very limited	
		Slope	1.00	Slope	1.00
EvF:					
Evard	55	Very limited		Very limited	
		Slope	1.00	Slope	1.00
Cowee	25	Very limited		Very limited	
		Slope	1.00	Slope	1.00
HcE:					
Heintooga	45	Very limited		Very limited	
		Gravel	1.00	Gravel	1.00
		Slope	1.00	Slope	1.00
Chiltoskie	35	Very limited		Very limited	
		Gravel	1.00	Gravel	1.00
		Slope	1.00	Slope	1.00
HrF:					
Heintooga	60	Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00
		Gravel	1.00	Gravel	1.00
		Slope	1.00	Slope	1.00
Rubble land	20	Not rated		Not rated	
JbD:					
Junaluska	45	Somewhat limited		Not limited	
		Slope	0.88		
Brasstown	35	Somewhat limited		Not limited	
		Slope	0.88		

Table 7.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Foot traffic and equestrian trails: Rating class and limiting features	Value	Mountain bike and off-road vehicle trails: Rating class and limiting features	Value
JbE:					
Junaluska	45	Very limited		Very limited	
		Slope	1.00	Slope	1.00
Brasstown	35	Very limited		Very limited	
		Slope	1.00	Slope	1.00
JtC:					
Junaluska	60	Not limited		Not limited	
Tsali	20	Not limited		Not limited	
JtD:					
Junaluska	60	Somewhat limited		Not limited	
		Slope	0.50		
Tsali	20	Somewhat limited		Not limited	
		Slope	0.50		
JtF:					
Junaluska	55	Very limited		Very limited	
		Slope	1.00	Slope	1.00
Tsali	25	Very limited		Very limited	
		Slope	1.00	Slope	1.00
LeD:					
Lauada	45	Very limited		Very limited	
		Gravel	1.00	Gravel	1.00
		Slope	0.92		
Fannin	35	Very limited		Very limited	
		Gravel	1.00	Gravel	1.00
		Slope	0.92		
LeE:					
Lauada	45	Very limited		Very limited	
		Gravel	1.00	Gravel	1.00
		Slope	1.00	Slope	1.00
Fannin	35	Very limited		Very limited	
		Gravel	1.00	Gravel	1.00
		Slope	1.00	Slope	1.00
LeF:					
Lauada	45	Very limited		Very limited	
		Gravel	1.00	Gravel	1.00
		Slope	1.00	Slope	1.00
Fannin	35	Very limited		Very limited	
		Gravel	1.00	Gravel	1.00
		Slope	1.00	Slope	1.00
LfD:					
Leatherwood, stony	80	Very limited		Very limited	
		Too clayey	1.00	Too clayey	1.00
		Slope	0.88	Large stones content	0.06
		Large stones content	0.06		

Table 7.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Foot traffic and equestrian trails: Rating class and limiting features	Value	Mountain bike and off-road vehicle trails: Rating class and limiting features	Value
LfE:					
Leatherwood, stony	80	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Too clayey	1.00	Too clayey	1.00
		Large stones content	0.06	Large stones content	0.06
LfF:					
Leatherwood, stony	80	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Too clayey	1.00	Too clayey	1.00
		Large stones content	0.06	Large stones content	0.06
LoB:					
Lonon	70	Not limited		Not limited	
LoC:					
Lonon	70	Not limited		Not limited	
LoD:					
Lonon	90	Somewhat limited		Not limited	
		Slope	0.92		
LoE:					
Lonon	65	Very limited		Very limited	
		Slope	1.00	Slope	1.00
Rock outcrop	25	Not rated		Not rated	
LrD:					
Luftee	50	Somewhat limited		Somewhat limited	
		Slope	0.92	Large stones content	0.53
		Large stones content	0.53		
Anakeesta	30	Somewhat limited		Somewhat limited	
		Slope	0.92	Large stones content	0.53
		Large stones content	0.53		
LrF:					
Luftee	50	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Large stones content	0.53	Large stones content	0.53
Anakeesta	30	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Large stones content	0.53	Large stones content	0.53
NtC:					
Northcove	45	Somewhat limited		Somewhat limited	
		Large stones content	0.71	Large stones content	0.71
Maymead	25	Somewhat limited		Somewhat limited	
		Large stones content	0.53	Large stones content	0.53
Nowhere	15	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
		Large stones content	0.86	Large stones content	0.86

Table 7.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Foot traffic and equestrian trails: Rating class and limiting features	Value	Mountain bike and off-road vehicle trails: Rating class and limiting features	Value
NtD:					
Northcove	50	Somewhat limited		Somewhat limited	
		Slope	0.92	Large stones content	0.71
		Large stones content	0.71		
Maymead	30	Somewhat limited		Somewhat limited	
		Slope	0.92	Large stones content	0.53
		Large stones content	0.53		
NtE:					
Northcove	50	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Large stones content	0.71	Large stones content	0.71
Maymead	30	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Large stones content	0.53	Large stones content	0.53
OcD:					
Oconaluftee	45	Very limited		Not limited	
		Slope	1.00		
Guyot	20	Very limited		Not limited	
		Slope	1.00		
Heintooga	15	Very limited		Very limited	
		Gravel	1.00	Gravel	1.00
		Slope	1.00		
OcF:					
Oconaluftee	50	Very limited		Very limited	
		Slope	1.00	Slope	1.00
Heintooga	15	Very limited		Very limited	
		Gravel	1.00	Gravel	1.00
		Slope	1.00	Slope	1.00
Rubble land	15	Not rated		Not rated	
OwC:					
Oconaluftee, windswept	50	Not limited		Not limited	
Guyot, windswept	15	Not limited		Not limited	
Cataloochee, windswept	15	Not limited		Not limited	
OwD:					
Oconaluftee, windswept	50	Very limited		Not limited	
		Slope	1.00		
Guyot, windswept	15	Very limited		Not limited	
		Slope	1.00		
Cataloochee, windswept	15	Very limited		Not limited	
		Slope	1.00		
OwE:					
Oconaluftee, windswept	50	Very limited		Very limited	
		Slope	1.00	Slope	1.00

Table 7.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Foot traffic and equestrian trails: Rating class and limiting features	Value	Mountain bike and off-road vehicle trails: Rating class and limiting features	Value
OwE:					
Guyot, windswept------	15	Very limited		Very limited	
		Slope	1.00	Slope	1.00
Cataloochee, windswept	15	Very limited		Very limited	
		Slope	1.00	Slope	1.00
OwF:					
Oconaluftee, windswept	50	Very limited		Very limited	
		Slope	1.00	Slope	1.00
Guyot, windswept------	15	Very limited		Very limited	
		Slope	1.00	Slope	1.00
Cataloochee, windswept	15	Very limited		Very limited	
		Slope	1.00	Slope	1.00
Po:					
Potomac---------------	80	Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00
		Too sandy	0.81	Too sandy	0.81
		Flooding	0.40	Flooding	0.40
Rd:					
Reddies---------------	45	Somewhat limited		Somewhat limited	
		Flooding	0.40	Flooding	0.40
Dellwood--------------	35	Somewhat limited		Somewhat limited	
		Flooding	0.40	Flooding	0.40
RpF:					
Rock outcrop----------	50	Not rated		Not rated	
Pullback--------------	30	Very limited		Very limited	
		Gravel	1.00	Gravel	1.00
		Slope	1.00	Slope	1.00
RtF:					
Rock outcrop----------	50	Not rated		Not rated	
Luftee----------------	30	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Large stones content	0.53	Large stones content	0.53
RuF:					
Rock outcrop----------	50	Not rated		Not rated	
Unicoi----------------	30	Very limited		Very limited	
		Slope	1.00	Slope	1.00
Rv:					
Rosman----------------	50	Somewhat limited		Somewhat limited	
		Flooding	0.40	Flooding	0.40
Reddies---------------	30	Somewhat limited		Somewhat limited	
		Flooding	0.40	Flooding	0.40
Rw:					
Rosman----------------	40	Not limited		Not limited	

Table 7.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Foot traffic and equestrian trails		Mountain bike and off-road vehicle trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value
Rw:					
Reddies	30	Not limited		Not limited	
Urban land	15	Not rated		Not rated	
RxF:					
Rubble land	50	Not rated		Not rated	
Spivey	30	Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00
		Slope	1.00	Slope	1.00
RZ:					
Rubble land	80	Not rated		Not rated	
SaD:					
Saunook, stony	80	Somewhat limited		Not limited	
		Slope	0.92		
SdC:					
Saunook, stony	60	Not limited		Not limited	
Urban land	20	Not rated		Not rated	
SI:					
Slide area	100	Not rated		Not rated	
SnF:					
Snowbird	80	Very limited		Very limited	
		Slope	1.00	Slope	1.00
SoD:					
Soco	50	Somewhat limited		Not limited	
		Slope	0.92		
Stecoah	35	Somewhat limited		Not limited	
		Slope	0.92		
SoF:					
Soco	50	Very limited		Very limited	
		Slope	1.00	Slope	1.00
Stecoah	30	Very limited		Very limited	
		Slope	1.00	Slope	1.00
SpD:					
Soco, windswept	50	Somewhat limited		Not limited	
		Slope	0.88		
Stecoah, windswept	30	Somewhat limited		Not limited	
		Slope	0.88		
SpF:					
Soco, windswept	50	Very limited		Very limited	
		Slope	1.00	Slope	1.00
Stecoah, windswept	30	Very limited		Very limited	
		Slope	1.00	Slope	1.00

Table 7.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Foot traffic and equestrian trails: Rating class and limiting features	Value	Mountain bike and off-road vehicle trails: Rating class and limiting features	Value
SsB:					
Spivey	50	Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00
Santeetlah	25	Somewhat limited		Somewhat limited	
		Large stones content	0.76	Large stones content	0.76
Nowhere	15	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
		Large stones content	0.86	Large stones content	0.86
SsC:					
Spivey	50	Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00
Santeetlah	25	Somewhat limited		Somewhat limited	
		Large stones content	0.76	Large stones content	0.76
Nowhere	15	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
		Large stones content	0.86	Large stones content	0.86
SsD:					
Spivey	50	Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00
		Slope	0.92		
Santeetlah	30	Somewhat limited		Somewhat limited	
		Slope	0.92	Large stones content	0.76
		Large stones content	0.76		
SsE:					
Spivey	60	Very limited		Very limited	
		Slope	1.00	Large stones content	1.00
		Large stones content	1.00	Slope	1.00
Santeetlah	20	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Large stones content	0.76	Large stones content	0.76
StB:					
Statler	85	Not limited		Not limited	
StC:					
Statler	80	Not limited		Not limited	
TaC:					
Tanasee	50	Very limited		Very limited	
		Gravel	1.00	Gravel	1.00
Balsam	30	Very limited		Very limited	
		Gravel	1.00	Gravel	1.00
TaD:					
Tanasee	50	Very limited		Very limited	
		Gravel	1.00	Gravel	1.00
		Slope	0.82		

Table 7.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Foot traffic and equestrian trails: Rating class and limiting features	Value	Mountain bike and off-road vehicle trails: Rating class and limiting features	Value
TaD:					
Balsam	30	Very limited		Very limited	
		Gravel	1.00	Gravel	1.00
		Slope	0.82		
ThB:					
Thurmont, stony	50	Not limited		Not limited	
Dillard, stony	30	Not limited		Not limited	
ThC:					
Thurmont, stony	80	Not limited		Not limited	
To:					
Toxaway	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
TuC:					
Tuckasegee, stony	50	Not limited		Not limited	
Cullasaja, stony	30	Somewhat limited		Somewhat limited	
		Large stones content	0.32	Large stones content	0.32
Ud:					
Udorthents	85	Not limited		Not limited	
W:					
Water	100	Not rated		Not rated	
WaC:					
Wayah, windswept	80	Not limited		Not limited	
WaD:					
Wayah, windswept	80	Somewhat limited		Not limited	
		Slope	0.92		
WaF:					
Wayah, windswept	80	Very limited		Very limited	
		Slope	1.00	Slope	1.00
WeD:					
Wayah	80	Somewhat limited		Not limited	
		Slope	0.92		
WeF:					
Wayah	80	Very limited		Very limited	
		Slope	1.00	Slope	1.00

Table 7.—Recreational Development, Part II

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value
AwB:					
Alarka	60	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Gravel	1.00
		Gravel	1.00		
Wesser	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00
		Flooding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Gravel	1.00
		Gravel	1.00	Flooding	0.40
AwC:					
Alarka	60	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Gravel	1.00	Gravel	1.00
		Slope	0.63	Slope	0.63
Whiteside	20	Somewhat limited		Somewhat limited	
		Slope	0.63	Slope	0.63
		Depth to saturated zone	0.07	Depth to saturated zone	0.03
AxB:					
Allegheny	90	Not limited		Not limited	
BaE:					
Balsam	50	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	1.00	Gravel	1.00
Tanasee	30	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	1.00	Gravel	1.00
Bm:					
Biltmore	80	Very limited		Very limited	
		Flooding	1.00	Too sandy	1.00
		Too sandy	1.00	Flooding	0.40
BpC:					
Breakneck	55	Somewhat limited		Somewhat limited	
		Slope	0.50	Slope	0.50
		Gravel	0.18	Gravel	0.18

Table 7.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value
BpC:					
Pullback	25	Very limited		Very limited	
		Gravel	1.00	Gravel	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.50	Slope	0.50
BpD:					
Breakneck	55	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	0.18	Gravel	0.18
Pullback	25	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	1.00	Gravel	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00
BpF:					
Breakneck	55	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	0.18	Gravel	0.18
Pullback	25	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	1.00	Gravel	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00
BrE:					
Breakneck	31	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	0.18	Gravel	0.18
Luftee	29	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Large stones	0.53	Large stones	0.53
		content		content	
		Gravel	0.35	Gravel	0.35
Clingman	21	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	1.00	Organic matter	1.00
		Organic matter	1.00	content	
		content		Gravel	1.00
		Too acid	1.00	Too acid	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00
Pinnacle	19	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	1.00	Organic matter	1.00
		Organic matter	1.00	content	1.00
		content		Gravel	
		Too acid	1.00	Too acid	1.00
BrF:					
Breakneck	31	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	0.18	Gravel	0.18

Table 7.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value
BrF:					
Luftee	29	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Large stones content	0.53	Large stones content	0.53
		Gravel	0.35	Gravel	0.35
Clingman	20	Very limited		Very limited	
		Too steep	1.00	Large stones content	1.00
		Gravel	1.00	Too steep	1.00
		Large stones content	1.00	Organic matter content	1.00
		Organic matter content	1.00	Gravel	1.00
		Too acid	1.00	Too acid	1.00
Pinnacle	19	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	1.00	Organic matter content	1.00
		Organic matter content	1.00	Gravel	1.00
		Too acid	1.00	Too acid	1.00
BuF:					
Burton	45	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Large stones content	0.19	Large stones content	0.19
Craggey	35	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	1.00	Gravel	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Large stones content	0.76	Large stones content	0.76
Rock outcrop	15	Not rated		Not rated	
CaB:					
Cades	80	Not limited		Not limited	
CcF:					
Cataska	45	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Slow water movement	1.00	Slow water movement	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00
Sylco	35	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	0.50	Gravel	0.50
ChF:					
Cheoah	80	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	0.15	Gravel	0.15

Table 7.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value
CkF:					
Chestnut	40	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Large stones content	0.19	Large stones content	0.19
Cleveland	30	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Gravel	0.41	Gravel	0.41
Rock outcrop	15	Not rated		Not rated	
CmC:					
Chiltoskie	40	Very limited		Very limited	
		Gravel	1.00	Gravel	1.00
		Slope	0.16	Slope	0.16
Heintooga	25	Very limited		Very limited	
		Gravel	1.00	Gravel	1.00
		Too acid	1.00	Too acid	1.00
		Slope	0.16	Slope	0.16
Horsetrough	15	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Large stones content	0.76	Large stones content	0.76
		Slope	0.04	Slope	0.04
CmD:					
Chiltoskie	40	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	1.00	Gravel	1.00
Heintooga	35	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	1.00	Gravel	1.00
		Too acid	1.00	Too acid	1.00
CnF:					
Clifton	80	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
CoB:					
Cotaco	85	Somewhat limited		Somewhat limited	
		Gravel	0.79	Gravel	0.79
		Depth to saturated zone	0.39	Depth to saturated zone	0.19
CuD:					
Cullasaja, very stony	50	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Large stones content	0.76	Large stones content	0.76

Table 7.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value
CuD:					
Tuckasegee, very stony	30	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Large stones content	0.76	Large stones content	0.76
CuE:					
Cullasaja, very stony	50	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Large stones content	0.76	Large stones content	0.76
Tuckasegee, very stony	30	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Large stones content	0.76	Large stones content	0.76
CuF:					
Cullasaja, extremely stony	50	Very limited		Very limited	
		Too steep	1.00	Large stones content	1.00
		Large stones content	1.00	Too steep	1.00
Rubble land	30	Not rated		Not rated	
Cw:					
Cullowhee	50	Very limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	0.43
		Depth to saturated zone	0.77	Flooding	0.40
Ela	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	0.40
Dd:					
Dellwood	40	Very limited		Not limited	
		Flooding	1.00		
Smokemont	25	Very limited		Somewhat limited	
		Flooding	1.00	Gravel	0.04
		Gravel	0.04		
Urban land	15	Not rated		Not rated	
Dg:					
Dellwood	50	Very limited		Somewhat limited	
		Flooding	1.00	Flooding	0.40
Smokemont	30	Very limited		Somewhat limited	
		Flooding	1.00	Flooding	0.40
		Gravel	0.04	Gravel	0.04

Table 7.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value
DhB:					
Dellwood	60	Very limited		Somewhat limited	
		Flooding	1.00	Flooding	0.40
Wesser	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00
		Flooding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Gravel	1.00
		Gravel	1.00	Flooding	0.40
DtD:					
Ditney	50	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
Unicoi	30	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00
DtF:					
Ditney	50	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
Unicoi	30	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00
EpD:					
Evard, windswept	55	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
Cowee, windswept	25	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
EpE:					
Evard, windswept	55	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
Cowee, windswept	25	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
EvD:					
Evard	55	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
Cowee	25	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
EvE:					
Evard	55	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
Cowee	25	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
EvF:					
Evard	55	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
Cowee	25	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00

Table 7.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value
HcE:					
Heintooga	45	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	1.00	Gravel	1.00
		Too acid	1.00	Too acid	1.00
Chiltoskie	35	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	1.00	Gravel	1.00
HrF:					
Heintooga	60	Very limited		Very limited	
		Too steep	1.00	Large stones content	1.00
		Gravel	1.00	Too steep	1.00
		Large stones content	1.00	Gravel	1.00
		Too acid	1.00	Too acid	1.00
Rubble land	20	Not rated		Not rated	
JbD:					
Junaluska	45	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
Brasstown	35	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	0.01	Gravel	0.01
JbE:					
Junaluska	45	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
Brasstown	35	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	0.01	Gravel	0.01
JtC:					
Junaluska	60	Somewhat limited		Somewhat limited	
		Slope	0.63	Slope	0.63
Tsali	20	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.63	Slope	0.63
		Gravel	0.06	Gravel	0.06
JtD:					
Junaluska	60	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
Tsali	20	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Gravel	0.06	Gravel	0.06
JtF:					
Junaluska	55	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00

Table 7.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value
JtF:					
Tsali	25	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Gravel	0.06	Gravel	0.06
LeD:					
Lauada	45	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	1.00	Gravel	1.00
Fannin	35	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	1.00	Gravel	1.00
LeE:					
Lauada	45	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	1.00	Gravel	1.00
Fannin	35	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	1.00	Gravel	1.00
LeF:					
Lauada	45	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	1.00	Gravel	1.00
Fannin	35	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	1.00	Gravel	1.00
LfD:					
Leatherwood, stony	80	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Too clayey	1.00	Too clayey	1.00
		Large stones content	0.06	Large stones content	0.06
LfE:					
Leatherwood, stony	80	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Too clayey	1.00	Too clayey	1.00
		Large stones content	0.06	Large stones content	0.06
LfF:					
Leatherwood, stony	80	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Too clayey	1.00	Too clayey	1.00
		Large stones content	0.06	Large stones content	0.06
LoB:					
Lonon	70	Not limited		Not limited	
LoC:					
Lonon	70	Somewhat limited		Somewhat limited	
		Slope	0.63	Slope	0.63

Table 7.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value
LoD:					
Lonon	90	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
LoE:					
Lonon	65	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
Rock outcrop	25	Not rated		Not rated	
LrD:					
Luftee	50	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Large stones content	0.53	Large stones content	0.53
		Gravel	0.35	Gravel	0.35
Anakeesta	30	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Large stones content	0.53	Large stones content	0.53
		Gravel	0.01	Gravel	0.01
LrF:					
Luftee	50	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Large stones content	0.53	Large stones content	0.53
		Gravel	0.35	Gravel	0.35
Anakeesta	30	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Large stones content	0.53	Large stones content	0.53
		Gravel	0.01	Gravel	0.01
NtC:					
Northcove	45	Somewhat limited		Somewhat limited	
		Large stones content	0.71	Large stones content	0.71
		Slope	0.63	Slope	0.63
Maymead	25	Somewhat limited		Somewhat limited	
		Slope	0.63	Slope	0.63
		Large stones content	0.53	Large stones content	0.53
Nowhere	15	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
		Large stones content	0.86	Large stones content	0.86
		Slope	0.63	Slope	0.63
NtD:					
Northcove	50	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Large stones content	0.71	Large stones content	0.71

Table 7.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value
NtD:					
Maymead	30	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Large stones content	0.53	Large stones content	0.53
NtE:					
Northcove	50	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Large stones content	0.71	Large stones content	0.71
Maymead	30	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Large stones content	0.53	Large stones content	0.53
OcD:					
Oconaluftee	45	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	0.19	Gravel	0.19
Guyot	20	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
Heintooga	15	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	1.00	Gravel	1.00
		Too acid	1.00	Too acid	1.00
OcF:					
Oconaluftee	50	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	0.19	Gravel	0.19
Heintooga	15	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	1.00	Gravel	1.00
		Too acid	1.00	Too acid	1.00
Rubble land	15	Not rated		Not rated	
OwC:					
Oconaluftee, windswept	50	Somewhat limited		Somewhat limited	
		Slope	0.63	Slope	0.63
		Gravel	0.19	Gravel	0.19
Guyot, windswept	15	Somewhat limited		Somewhat limited	
		Slope	0.63	Slope	0.63
Cataloochee, windswept	15	Very limited		Very limited	
		Too acid	1.00	Too acid	1.00
		Slope	0.63	Slope	0.63
OwD:					
Oconaluftee, windswept	50	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	0.19	Gravel	0.19

Table 7.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value
OwD:					
Guyot, windswept	15	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
Cataloochee, windswept	15	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Too acid	1.00	Too acid	1.00
OwE:					
Oconaluftee, windswept	50	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	0.19	Gravel	0.19
Guyot, windswept	15	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
Cataloochee, windswept	15	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Too acid	1.00	Too acid	1.00
OwF:					
Oconaluftee, windswept	50	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	0.19	Gravel	0.19
Guyot, windswept	15	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
Cataloochee, windswept	15	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Too acid	1.00	Too acid	1.00
Po:					
Potomac	80	Very limited		Very limited	
		Flooding	1.00	Large stones content	1.00
		Large stones content	1.00	Too sandy	0.81
		Too sandy	0.81	Flooding	0.40
		Gravel	0.12	Gravel	0.12
Rd:					
Reddies	45	Very limited		Somewhat limited	
		Flooding	1.00	Flooding	0.40
Dellwood	35	Very limited		Somewhat limited	
		Flooding	1.00	Flooding	0.40
RpF:					
Rock outcrop	50	Not rated		Not rated	
Pullback	30	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	1.00	Gravel	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00

Table 7.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value
RtF:					
Rock outcrop	50	Not rated		Not rated	
Luftee	30	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Large stones content	0.53	Large stones content	0.53
		Gravel	0.35	Gravel	0.35
RuF:					
Rock outcrop	50	Not rated		Not rated	
Unicoi	30	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00
Rv:					
Rosman	50	Very limited		Somewhat limited	
		Flooding	1.00	Flooding	0.40
Reddies	30	Very limited		Somewhat limited	
		Flooding	1.00	Flooding	0.40
Rw:					
Rosman	40	Very limited		Not limited	
		Flooding	1.00		
Reddies	30	Very limited		Not limited	
		Flooding	1.00		
Urban land	15	Not rated		Not rated	
RxF:					
Rubble land	50	Not rated		Not rated	
Spivey	30	Very limited		Very limited	
		Too steep	1.00	Large stones content	1.00
		Large stones content	1.00	Too steep	1.00
RZ:					
Rubble land	80	Not rated		Not rated	
SaD:					
Saunook, stony	80	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
SdC:					
Saunook, stony	60	Somewhat limited		Somewhat limited	
		Slope	0.63	Slope	0.63
Urban land	20	Not rated		Not rated	
SI:					
Slide area	100	Not rated		Not rated	
SnF:					
Snowbird	80	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00

Table 7.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value
SoD:					
Soco	50	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
Stecoah	35	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	0.04	Gravel	0.04
SoF:					
Soco	50	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
Stecoah	30	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	0.04	Gravel	0.04
SpD:					
Soco, windswept	50	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
Stecoah, windswept	30	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	0.04	Gravel	0.04
SpF:					
Soco, windswept	50	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
Stecoah, windswept	30	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	0.04	Gravel	0.04
SsB:					
Spivey	50	Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00
Santeetlah	25	Somewhat limited		Somewhat limited	
		Large stones content	0.76	Large stones content	0.76
Nowhere	15	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
		Large stones content	0.86	Large stones content	0.86
SsC:					
Spivey	50	Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00
		Slope	0.63	Slope	0.63
Santeetlah	25	Somewhat limited		Somewhat limited	
		Large stones content	0.76	Large stones content	0.76
		Slope	0.63	Slope	0.63

Table 7.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value
SsC:					
Nowhere	15	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
		Large stones content	0.86	Large stones content	0.86
		Slope	0.63	Slope	0.63
SsD:					
Spivey	50	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Large stones content	1.00	Large stones content	1.00
Santeetlah	30	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Large stones content	0.76	Large stones content	0.76
SsE:					
Spivey	60	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Large stones content	1.00	Large stones content	1.00
Santeetlah	20	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Large stones content	0.76	Large stones content	0.76
StB:					
Statler	85	Very limited		Not limited	
		Flooding	1.00		
StC:					
Statler	80	Very limited		Somewhat limited	
		Flooding	1.00	Slope	0.16
		Slope	0.16		
TaC:					
Tanasee	50	Very limited		Very limited	
		Gravel	1.00	Gravel	1.00
		Slope	0.16	Slope	0.16
Balsam	30	Very limited		Very limited	
		Gravel	1.00	Gravel	1.00
		Slope	0.16	Slope	0.16
TaD:					
Tanasee	50	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	1.00	Gravel	1.00
Balsam	30	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Gravel	1.00	Gravel	1.00

Table 7.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value
ThB:					
Thurmont, stony	50	Not limited		Not limited	
Dillard, stony	30	Not limited		Not limited	
ThC:					
Thurmont, stony	80	Somewhat limited		Somewhat limited	
		Slope	0.63	Slope	0.63
To:					
Toxaway	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Ponding	1.00
		Ponding	1.00		
TuC:					
Tuckasegee, stony	50	Somewhat limited		Somewhat limited	
		Slope	0.63	Slope	0.63
Cullasaja, stony	30	Somewhat limited		Somewhat limited	
		Slope	0.63	Slope	0.63
		Large stones content	0.32	Large stones content	0.32
Ud:					
Udorthents	85	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
W:					
Water	100	Not rated		Not rated	
WaC:					
Wayah, windswept	80	Somewhat limited		Somewhat limited	
		Slope	0.16	Slope	0.16
WaD:					
Wayah, windswept	80	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
WaF:					
Wayah, windswept	80	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
WeD:					
Wayah	80	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
WeF:					
Wayah	80	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00

Table 8.—Construction Materials, Part I

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
AwB:					
Alarka	60	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.25	Bottom layer	0.04
Wesser	20	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.05
		Bottom layer	0.46	Bottom layer	0.46
AwC:					
Alarka	60	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.25	Bottom layer	0.04
Whiteside	20	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
AxB:					
Allegheny	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
BaE:					
Balsam	50	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.02
		Thickest layer	0.00	Bottom layer	0.06
Tanasee	30	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.02
Bm:					
Biltmore	80	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.04
		Thickest layer	0.00	Thickest layer	0.69
BpC:					
Breakneck	55	Poor		Fair	
		Thickest layer	0.00	Bottom layer	0.01
		Bottom layer	0.00	Thickest layer	0.01
Pullback	25	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.02
BpD:					
Breakneck	55	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.01
		Thickest layer	0.00	Thickest layer	0.01

Table 8.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
BpD:					
Pullback	25	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.02
BpF:					
Breakneck	55	Poor		Fair	
		Thickest layer	0.00	Bottom layer	0.01
		Bottom layer	0.00	Thickest layer	0.01
Pullback	25	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.02
BrE:					
Breakneck	31	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.01
		Thickest layer	0.00	Thickest layer	0.01
Luftee	29	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Clingman	21	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.12
Pinnacle	19	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Organic matter content	0.00	Thickest layer	0.00
		Bottom layer	0.00	Organic matter content	0.00
BrF:					
Breakneck	31	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.01
		Bottom layer	0.00	Bottom layer	0.01
Luftee	29	Poor		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.00
Clingman	20	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.12
Pinnacle	19	Poor		Poor	
		Organic matter content	0.00	Organic matter content	0.00
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
BuF:					
Burton	45	Poor		Fair	
		Thickest layer	0.00	Bottom layer	0.02
		Bottom layer	0.00	Thickest layer	0.02
Craggey	35	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00

Table 8.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class	Potential source of gravel: Value	Potential source of sand: Rating class	Potential source of sand: Value
BuF:					
Rock outcrop	15	Not rated		Not rated	
CaB:					
Cades	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
CcF:					
Cataska	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Sylco	35	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
ChF:					
Cheoah	80	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
CkF:					
Chestnut	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Cleveland	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop	15	Not rated		Not rated	
CmC:					
Chiltoskie	40	Poor		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.00
Heintooga	25	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Horsetrough	15	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.04
CmD:					
Chiltoskie	40	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
Heintooga	35	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
CnF:					
Clifton	80	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00

Table 8.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
CoB:					
Cotaco	85	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
CuD:					
Cullasaja, very stony	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Tuckasegee, very stony	30	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
CuE:					
Cullasaja, very stony	50	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Tuckasegee, very stony	30	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
CuF:					
Cullasaja, extremely stony	50	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
Rubble land	30	Not rated		Not rated	
Cw:					
Cullowhee	50	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.10
		Thickest layer	0.00	Bottom layer	0.26
Ela	30	Poor		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.00
Dd:					
Dellwood	40	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
Smokemont	25	Fair		Fair	
		Bottom layer	0.54	Thickest layer	0.01
		Thickest layer	0.54	Bottom layer	0.09
Urban land	15	Not rated		Not rated	
Dg:					
Dellwood	50	Poor		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.00

Table 8.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
Dg:					
Smokemont	30	Fair		Fair	
		Bottom layer	0.54	Thickest layer	0.01
		Thickest layer	0.54	Bottom layer	0.09
DhB:					
Dellwood	60	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Wesser	20	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.05
		Bottom layer	0.46	Bottom layer	0.46
DtD:					
Ditney	50	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Unicoi	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
DtF:					
Ditney	50	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Unicoi	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
EpD:					
Evard, windswept	55	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.04
Cowee, windswept	25	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
EpE:					
Evard, windswept	55	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.04
Cowee, windswept	25	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
EvD:					
Evard	55	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.04
Cowee	25	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00

Table 8.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
EvE:					
Evard	55	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.04
Cowee	25	Poor		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.00
EvF:					
Evard	55	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.04
Cowee	25	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
HcE:					
Heintooga	45	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Chiltoskie	35	Poor		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.00
HrF:					
Heintooga	60	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Rubble land	20	Not rated		Not rated	
JbD:					
Junaluska	45	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Brasstown	35	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.01
JbE:					
Junaluska	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Brasstown	35	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.01
JtC:					
Junaluska	60	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Tsali	20	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 8.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
JtD:					
Junaluska	60	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Tsali	20	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
JtF:					
Junaluska	55	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Tsali	25	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
LeD:					
Lauada	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Fannin	35	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.01
		Thickest layer	0.00	Bottom layer	0.03
LeE:					
Lauada	45	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Fannin	35	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.01
		Bottom layer	0.00	Bottom layer	0.03
LeF:					
Lauada	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Fannin	35	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.01
		Bottom layer	0.00	Bottom layer	0.03
LfD:					
Leatherwood, stony	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
LfE:					
Leatherwood, stony	80	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
LfF:					
Leatherwood, stony	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 8.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
LoB:					
Lonon	70	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
LoC:					
Lonon	70	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
LoD:					
Lonon	90	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
LoE:					
Lonon	65	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
Rock outcrop	25	Not rated		Not rated	
LrD:					
Luftee	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Anakeesta	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
LrF:					
Luftee	50	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Anakeesta	30	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
NtC:					
Northcove	45	Poor		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.00
Maymead	25	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Nowhere	15	Poor		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.00
NtD:					
Northcove	50	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
Maymead	30	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00

Table 8.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
NtE:					
Northcove	50	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
Maymead	30	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
OcD:					
Oconaluftee	45	Poor		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.00
Guyot	20	Poor		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.00
Heintooga	15	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
OcF:					
Oconaluftee	50	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Heintooga	15	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
Rubble land	15	Not rated		Not rated	
OwC:					
Oconaluftee, windswept	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Guyot, windswept	15	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Cataloochee, windswept	15	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
OwD:					
Oconaluftee, windswept	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Guyot, windswept	15	Poor		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.00

Table 8.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
OwD:					
Cataloochee, windswept	15	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
OwE:					
Oconaluftee, windswept	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Guyot, windswept	15	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Cataloochee, windswept	15	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
OwF:					
Oconaluftee, windswept	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Guyot, windswept	15	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Cataloochee, windswept	15	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
Po:					
Potomac	80	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Rd:					
Reddies	45	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.63
Dellwood	35	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
RpF:					
Rock outcrop	50	Not rated		Not rated	
Pullback	30	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.02

Table 8.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
RtF:					
Rock outcrop--------	50	Not rated		Not rated	
Luftee--------------	30	Poor		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.00
RuF:					
Rock outcrop--------	50	Not rated		Not rated	
Unicoi--------------	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rv:					
Rosman--------------	50	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.03
		Thickest layer	0.00	Bottom layer	0.08
Reddies-------------	30	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.63
Rw:					
Rosman--------------	40	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.03
		Bottom layer	0.00	Bottom layer	0.08
Reddies-------------	30	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.63
Urban land----------	15	Not rated		Not rated	
RxF:					
Rubble land---------	50	Not rated		Not rated	
Spivey--------------	30	Poor		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.00
RZ:					
Rubble land---------	80	Not rated		Not rated	
SaD:					
Saunook, stony------	80	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.02
SdC:					
Saunook, stony------	60	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.02
Urban land----------	20	Not rated		Not rated	
SI:					
Slide area----------	100	Not rated		Not rated	

Table 8.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
SnF:					
Snowbird	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
SoD:					
Soco	50	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Stecoah	35	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
SoF:					
Soco	50	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Stecoah	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
SpD:					
Soco, windswept	50	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Stecoah, windswept	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
SpF:					
Soco, windswept	50	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Stecoah, windswept	30	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
SsB:					
Spivey	50	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
Santeetlah	25	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Nowhere	15	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
SsC:					
Spivey	50	Poor		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.00

Table 8.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
SsC:					
Santeetlah----------	25	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Nowhere-------------	15	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
SsD:					
Spivey--------------	50	Poor		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.00
Santeetlah----------	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
SsE:					
Spivey--------------	60	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
Santeetlah----------	20	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
StB:					
Statler-------------	85	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
StC:					
Statler-------------	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
TaC:					
Tanasee-------------	50	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.02
Balsam--------------	30	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.02
		Thickest layer	0.00	Bottom layer	0.06
TaD:					
Tanasee-------------	50	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.02
Balsam--------------	30	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.02
		Bottom layer	0.00	Bottom layer	0.06
ThB:					
Thurmont, stony-----	50	Poor		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.00

Table 8.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
ThB:					
Dillard, stony	30	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.04
ThC:					
Thurmont, stony	80	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
To:					
Toxaway	80	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.11
TuC:					
Tuckasegee, stony	50	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Cullasaja, stony	30	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Ud:					
Udorthents	85	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
W:					
Water	100	Not rated		Not rated	
WaC:					
Wayah, windswept	80	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.02
WaD:					
Wayah, windswept	80	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.02
WaF:					
Wayah, windswept	80	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.02
WeD:					
Wayah	80	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.02
WeF:					
Wayah	80	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.02

Table 8.—Construction Materials, Part II

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
AwB:							
Alarka	60	Fair		Poor		Poor	
		Too acid	0.50	Wetness depth	0.00	Wetness depth	0.00
		Stone content	0.64			Hard to reclaim (rock fragments)	0.00
						Too acid	0.68
Wesser	20	Poor		Poor		Poor	
		Too sandy	0.00	Wetness depth	0.00	Wetness depth	0.00
		Too acid	0.50			Hard to reclaim (rock fragments)	0.00
		Stone content	0.93			Rock fragments	0.00
						Too sandy	0.00
						Too acid	0.59
AwC:							
Alarka	60	Fair		Poor		Poor	
		Too acid	0.50	Wetness depth	0.00	Wetness depth	0.00
		Stone content	0.64			Hard to reclaim (rock fragments)	0.00
						Slope	0.37
						Too acid	0.68
Whiteside	20	Fair		Fair		Fair	
		Too acid	0.54	Wetness depth	0.76	Slope	0.37
		Organic matter content low	0.88			Wetness depth	0.76
						Rock fragments	0.92
						Too acid	0.98
AxB:							
Allegheny	90	Fair		Poor		Fair	
		Too acid	0.12	Low strength	0.00	Too clayey	0.21
		Too clayey	0.32			Too acid	0.59
		Organic matter content low	0.50				
BaE:							
Balsam	50	Poor		Poor		Poor	
		Stone content	0.00	Slope	0.00	Hard to reclaim (rock fragments)	0.00
		Too acid	0.00	Stones	0.00	Rock fragments	0.00
		Cobble content	0.85	Cobble content	0.08	Slope	0.00
						Too acid	0.76
Tanasee	30	Poor		Poor		Poor	
		Too acid	0.00	Slope	0.00	Slope	0.00
		Organic matter content low	0.32			Hard to reclaim (rock fragments)	0.01
						Rock fragments	0.68
						Too acid	0.95

Table 8.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
Bm:							
Biltmore	80	Poor		Good		Poor	
		Wind erosion	0.00			Too sandy	0.00
		Too sandy	0.00			Rock fragments	0.99
		Organic matter content low	0.12				
		Too acid	0.68				
BpC:							
Breakneck	55	Fair		Poor		Poor	
		Droughty	0.21	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.35			Depth to bedrock	0.35
		Too acid	0.50			Slope	0.50
		Organic matter content low	0.66			Too acid	0.68
Pullback	25	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00			Slope	0.50
		Too acid	0.50			Too acid	0.68
BpD:							
Breakneck	55	Fair		Poor		Poor	
		Droughty	0.21	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.35	Slope	0.12	Rock fragments	0.00
		Too acid	0.50			Depth to bedrock	0.35
		Organic matter content low	0.66			Too acid	0.68
Pullback	25	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.00	Slope	0.12	Depth to bedrock	0.00
		Too acid	0.50			Too acid	0.68
BpF:							
Breakneck	55	Fair		Poor		Poor	
		Droughty	0.21	Slope	0.00	Slope	0.00
		Depth to bedrock	0.35	Depth to bedrock	0.00	Rock fragments	0.00
		Too acid	0.50			Depth to bedrock	0.35
		Organic matter content low	0.66			Too acid	0.68
Pullback	25	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.00	Slope	0.00	Depth to bedrock	0.00
		Too acid	0.50			Too acid	0.68
BrE:							
Breakneck	31	Fair		Poor		Poor	
		Droughty	0.21	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.35	Slope	0.00	Rock fragments	0.00
		Too acid	0.50			Depth to bedrock	0.35
		Organic matter content low	0.66			Too acid	0.68
Luftee	29	Fair		Poor		Poor	
		Cobble content	0.39	Depth to bedrock	0.00	Slope	0.00
		Too acid	0.50	Slope	0.00	Rock fragments	0.00
		Depth to bedrock	0.84	Cobble content	0.01	Too acid	0.82
		Droughty	0.97			Depth to bedrock	0.84

Table 8.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
BrE:							
Clingman	21	Poor		Poor		Poor	
		Depth to bedrock	0.00	Slope	0.00	Organic matter content high	0.00
		Too acid	0.50	Depth to bedrock	0.00	Slope	0.00
						Too acid	0.00
						Rock fragments	0.00
						Depth to bedrock	0.00
Pinnacle	19	Fair		Poor		Poor	
		Too acid	0.50	Depth to bedrock	0.00	Too acid	0.00
		Depth to bedrock	0.95	Slope	0.00	Rock fragments	0.00
						Organic matter content high	0.00
						Slope	0.00
						Depth to bedrock	0.95
BrF:							
Breakneck	31	Fair		Poor		Poor	
		Droughty	0.21	Slope	0.00	Slope	0.00
		Depth to bedrock	0.35	Depth to bedrock	0.00	Rock fragments	0.00
		Too acid	0.50			Depth to bedrock	0.35
		Organic matter content low	0.66			Too acid	0.68
Luftee	29	Fair		Poor		Poor	
		Cobble content	0.39	Slope	0.00	Slope	0.00
		Too acid	0.50	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.84	Cobble content	0.01	Too acid	0.82
		Droughty	0.97			Depth to bedrock	0.84
Clingman	20	Poor		Poor		Poor	
		Depth to bedrock	0.00	Depth to bedrock	0.00	Slope	0.00
		Too acid	0.50	Slope	0.00	Too acid	0.00
						Rock fragments	0.00
						Organic matter content high	0.00
						Depth to bedrock	0.00
Pinnacle	19	Fair		Poor		Poor	
		Too acid	0.50	Slope	0.00	Too acid	0.00
		Depth to bedrock	0.95	Depth to bedrock	0.00	Rock fragments	0.00
						Organic matter content high	0.00
						Slope	0.00
						Depth to bedrock	0.95
BuF:							
Burton	45	Fair		Poor		Poor	
		Too acid	0.50	Slope	0.00	Slope	0.00
		Droughty	0.89	Depth to bedrock	0.00	Rock fragments	0.10
		Depth to bedrock	0.93	Cobble content	0.93	Too acid	0.76
						Depth to bedrock	0.93
Craggey	35	Poor		Poor		Poor	
		Depth to bedrock	0.00	Depth to bedrock	0.00	Slope	0.00
		Droughty	0.02	Slope	0.00	Depth to bedrock	0.00
		Too acid	0.50	Low strength	0.00	Rock fragments	0.00
						Too acid	0.76
Rock outcrop	15	Not rated		Not rated		Not rated	

Table 8.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
CaB:							
Cades	80	Fair		Fair		Poor	
		Organic matter content low	0.17	Cobble content	0.98	Hard to reclaim (rock fragments)	0.00
		Too clayey	0.23			Too clayey	0.17
		Too acid	0.50			Rock fragments	0.30
		Cobble content	0.99			Too acid	0.95
		Water erosion	0.99				
CcF:							
Cataska	45	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.00	Slope	0.00	Rock fragments	0.00
		Too acid	0.50			Depth to bedrock	0.00
						Too acid	0.59
Sylco	35	Fair		Poor		Poor	
		Droughty	0.20	Slope	0.00	Slope	0.00
		Too acid	0.50	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.79			Too acid	0.59
		Organic matter content low	0.88			Depth to bedrock	0.79
ChF:							
Cheoah	80	Fair		Poor		Poor	
		Too acid	0.46	Slope	0.00	Slope	0.00
		Droughty	0.97	Depth to bedrock	0.95	Rock fragments	0.04
						Hard to reclaim (rock fragments)	0.74
						Too acid	0.95
CkF:							
Chestnut	40	Fair		Poor		Poor	
		Droughty	0.12	Slope	0.00	Slope	0.00
		Too acid	0.50	Depth to bedrock	0.00	Rock fragments	0.68
		Depth to bedrock	0.71			Depth to bedrock	0.71
						Too acid	0.76
Cleveland	30	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.00	Slope	0.00	Depth to bedrock	0.00
		Too acid	0.54			Rock fragments	0.00
						Too acid	0.98
Rock outcrop	15	Not rated		Not rated		Not rated	
CmC:							
Chiltoskie	40	Poor		Good		Poor	
		Too acid	0.00			Hard to reclaim (rock fragments)	0.00
		Organic matter content low	0.82			Too acid	0.76
						Slope	0.84

Table 8.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
CmC:							
Heintooga	25	Poor		Poor		Poor	
		Stone content	0.00	Cobble content	0.00	Hard to reclaim (rock fragments)	0.00
		Cobble content	0.09	Stones	0.00	Rock fragments	0.00
		Too acid	0.50			Too acid	0.82
		Too sandy	0.95			Slope	0.84
		Organic matter content low	0.98			Too sandy	0.95
		Droughty	0.99				
Horsetrough	15	Poor		Poor		Poor	
		Too acid	0.00	Wetness depth	0.00	Wetness depth	0.00
		Too sandy	0.00	Cobble content	0.01	Rock fragments	0.00
		Cobble content	0.92	Depth to bedrock	0.23	Too sandy	0.00
		Stone content	0.96	Stones	0.88	Hard to reclaim (rock fragments)	0.88
						Too acid	0.88
						Slope	0.96
CmD:							
Chiltoskie	40	Poor		Poor		Poor	
		Too acid	0.00	Slope	0.00	Slope	0.00
		Organic matter content low	0.82			Hard to reclaim (rock fragments)	0.00
						Too acid	0.76
Heintooga	35	Poor		Poor		Poor	
		Stone content	0.00	Slope	0.00	Rock fragments	0.00
		Cobble content	0.09	Stones	0.00	Hard to reclaim (rock fragments)	0.00
		Too acid	0.50	Cobble content	0.00	Slope	0.00
		Too sandy	0.95			Too acid	0.82
		Organic matter content low	0.98			Too sandy	0.95
		Droughty	0.99				
CnF:							
Clifton	80	Poor		Poor		Poor	
		Too clayey	0.00	Slope	0.00	Slope	0.00
		Organic matter content low	0.12			Too clayey	0.00
		Too acid	0.68			Hard to reclaim (rock fragments)	0.50
						Rock fragments	0.95
CoB:							
Cotaco	85	Fair		Poor		Fair	
		Too acid	0.54	Low strength	0.00	Rock fragments	0.50
		Water erosion	0.99	Wetness depth	0.53	Wetness depth	0.53
						Too acid	0.98
CuD:							
Cullasaja, very stony	50	Poor		Poor		Poor	
		Stone content	0.00	Cobble content	0.00	Slope	0.00
		Cobble content	0.09	Slope	0.08	Hard to reclaim (rock fragments)	0.00
		Too acid	0.54	Stones	0.65	Rock fragments	0.00
		Droughty	0.99			Too acid	0.98

Table 8.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
CuD:							
Tuckasegee, very stony	30	Fair		Fair		Poor	
		Too acid	0.54	Slope	0.08	Slope	0.00
		Organic matter content low	0.88			Hard to reclaim (rock fragments)	0.00
						Rock fragments	0.02
						Too acid	0.98
CuE:							
Cullasaja, very stony	50	Poor		Poor		Poor	
		Stone content	0.00	Slope	0.00	Hard to reclaim (rock fragments)	0.00
		Cobble content	0.09	Cobble content	0.00	Rock fragments	0.00
		Too acid	0.54	Stones	0.65	Slope	0.00
		Droughty	0.99			Too acid	0.98
Tuckasegee, very stony	30	Fair		Poor		Poor	
		Too acid	0.54	Slope	0.00	Slope	0.00
		Organic matter content low	0.88			Hard to reclaim (rock fragments)	0.00
						Rock fragments	0.02
						Too acid	0.98
CuF:							
Cullasaja, extremely stony	50	Poor		Poor		Poor	
		Stone content	0.00	Slope	0.00	Slope	0.00
		Cobble content	0.09	Cobble content	0.00	Hard to reclaim (rock fragments)	0.00
		Too acid	0.54	Stones	0.65	Rock fragments	0.00
		Droughty	0.99			Too acid	0.98
Rubble land	30	Not rated		Not rated		Not rated	
Cw:							
Cullowhee	50	Fair		Fair		Poor	
		Too sandy	0.06	Wetness depth	0.32	Hard to reclaim (rock fragments)	0.00
		Organic matter content low	0.12			Too sandy	0.06
		Droughty	0.43			Wetness depth	0.32
		Too acid	0.68			Rock fragments	0.96
Ela	30	Fair		Poor		Poor	
		Too acid	0.50	Wetness depth	0.00	Wetness depth	0.00
		Stone content	0.86			Hard to reclaim (rock fragments)	0.00
						Too acid	0.41
						Rock fragments	0.59
Dd:							
Dellwood	40	Poor		Fair		Poor	
		Droughty	0.00	Cobble content	0.02	Rock fragments	0.00
		Too sandy	0.00			Too sandy	0.00
		Organic matter content low	0.50			Hard to reclaim (rock fragments)	0.00
		Cobble content	0.72				
		Too acid	0.88				

Table 8.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
Dd:							
Smokemont	25	Poor		Fair		Poor	
		Stone content	0.00	Stones	0.02	Hard to reclaim (rock fragments)	0.00
		Droughty	0.01			Rock fragments	0.00
		Too acid	0.50			Too acid	0.95
Urban land	15	Not rated		Not rated		Not rated	
Dg:							
Dellwood	50	Poor		Fair		Poor	
		Droughty	0.00	Cobble content	0.02	Too sandy	0.00
		Too sandy	0.00			Hard to reclaim (rock fragments)	0.00
		Organic matter content low	0.50			Rock fragments	0.00
		Cobble content	0.72				
		Too acid	0.88				
Smokemont	30	Poor		Fair		Poor	
		Stone content	0.00	Stones	0.02	Hard to reclaim (rock fragments)	0.00
		Droughty	0.01			Rock fragments	0.00
		Too acid	0.50			Too acid	0.95
DhB:							
Dellwood	60	Poor		Fair		Poor	
		Too sandy	0.00	Cobble content	0.02	Rock fragments	0.00
		Droughty	0.00			Too sandy	0.00
		Organic matter content low	0.50			Hard to reclaim (rock fragments)	0.00
		Cobble content	0.72				
		Too acid	0.88				
Wesser	20	Poor		Poor		Poor	
		Too sandy	0.00	Wetness depth	0.00	Hard to reclaim (rock fragments)	0.00
		Too acid	0.50			Wetness depth	0.00
		Stone content	0.93			Rock fragments	0.00
						Too sandy	0.00
						Too acid	0.59
DtD:							
Ditney	50	Fair		Poor		Poor	
		Organic matter content low	0.39	Depth to bedrock	0.00	Slope	0.00
		Too acid	0.50	Slope	0.08	Rock fragments	0.02
		Depth to bedrock	0.74			Depth to bedrock	0.74
		Droughty	0.93			Too acid	0.92
Unicoi	30	Poor		Poor		Poor	
		Depth to bedrock	0.00	Depth to bedrock	0.00	Slope	0.00
		Droughty	0.00	Slope	0.08	Depth to bedrock	0.00
		Too acid	0.50			Rock fragments	0.00
		Cobble content	0.99			Too acid	0.88

Table 8.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
DtF:							
Ditney	50	Fair		Poor		Poor	
		Organic matter content low	0.39	Slope	0.00	Slope	0.00
		Too acid	0.50	Depth to bedrock	0.00	Rock fragments	0.02
		Depth to bedrock	0.74			Depth to bedrock	0.74
		Droughty	0.93			Too acid	0.92
Unicoi	30	Poor		Poor		Poor	
		Depth to bedrock	0.00	Depth to bedrock	0.00	Slope	0.00
		Droughty	0.00	Slope	0.00	Depth to bedrock	0.00
		Too acid	0.50			Rock fragments	0.00
		Cobble content	0.99			Too acid	0.88
EpD:							
Evard, windswept	55	Fair		Fair		Poor	
		Organic matter content low	0.12	Slope	0.50	Slope	0.00
		Too acid	0.54			Rock fragments	0.95
						Hard to reclaim (rock fragments)	0.95
						Too acid	0.98
Cowee, windswept	25	Fair		Poor		Poor	
		Too acid	0.54	Depth to bedrock	0.00	Slope	0.00
		Organic matter content low	0.88	Slope	0.50	Rock fragments	0.76
		Depth to bedrock	0.99			Too acid	0.98
		Droughty	0.99			Depth to bedrock	0.99
EpE:							
Evard, windswept	55	Fair		Poor		Poor	
		Organic matter content low	0.12	Slope	0.00	Slope	0.00
		Too acid	0.54			Rock fragments	0.95
						Hard to reclaim (rock fragments)	0.95
						Too acid	0.98
Cowee, windswept	25	Fair		Poor		Poor	
		Too acid	0.54	Depth to bedrock	0.00	Slope	0.00
		Organic matter content low	0.88	Slope	0.00	Rock fragments	0.76
		Depth to bedrock	0.99			Too acid	0.98
		Droughty	0.99			Depth to bedrock	0.99
EvD:							
Evard	55	Fair		Fair		Poor	
		Organic matter content low	0.12	Slope	0.50	Slope	0.00
		Too acid	0.54			Rock fragments	0.95
						Hard to reclaim (rock fragments)	0.95
						Too acid	0.98
Cowee	25	Fair		Poor		Poor	
		Too acid	0.54	Depth to bedrock	0.00	Slope	0.00
		Organic matter content low	0.88	Slope	0.50	Rock fragments	0.76
		Depth to bedrock	0.99			Too acid	0.98
		Droughty	0.99			Depth to bedrock	0.99

Table 8.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
EvE:							
Evard	55	Fair		Poor		Poor	
		Organic matter content low	0.12	Slope	0.00	Slope	0.00
		Too acid	0.54			Rock fragments	0.95
						Hard to reclaim (rock fragments)	0.95
						Too acid	0.98
Cowee	25	Fair		Poor		Poor	
		Too acid	0.54	Slope	0.00	Slope	0.00
		Organic matter content low	0.88	Depth to bedrock	0.00	Rock fragments	0.76
		Depth to bedrock	0.99			Too acid	0.98
		Droughty	0.99			Depth to bedrock	0.99
EvF:							
Evard	55	Fair		Poor		Poor	
		Organic matter content low	0.12	Slope	0.00	Slope	0.00
		Too acid	0.54			Rock fragments	0.95
						Hard to reclaim (rock fragments)	0.95
						Too acid	0.98
Cowee	25	Fair		Poor		Poor	
		Too acid	0.54	Slope	0.00	Slope	0.00
		Organic matter content low	0.88	Depth to bedrock	0.00	Rock fragments	0.76
		Depth to bedrock	0.99			Too acid	0.98
		Droughty	0.99			Depth to bedrock	0.99
HcE:							
Heintooga	45	Poor		Poor		Poor	
		Stone content	0.00	Cobble content	0.00	Slope	0.00
		Cobble content	0.09	Slope	0.00	Hard to reclaim (rock fragments)	0.00
		Too acid	0.50	Stones	0.00	Rock fragments	0.00
		Too sandy	0.95			Too acid	0.82
		Organic matter content low	0.98			Too sandy	0.95
		Droughty	0.99				
Chiltoskie	35	Poor		Poor		Poor	
		Too acid	0.00	Slope	0.00	Slope	0.00
		Organic matter content low	0.82			Hard to reclaim (rock fragments)	0.00
						Too acid	0.76
HrF:							
Heintooga	60	Poor		Poor		Poor	
		Stone content	0.00	Stones	0.00	Rock fragments	0.00
		Cobble content	0.09	Cobble content	0.00	Hard to reclaim (rock fragments)	0.00
		Too acid	0.50	Slope	0.00	Slope	0.00
		Too sandy	0.95			Too acid	0.82
		Organic matter content low	0.98			Too sandy	0.95
		Droughty	0.99				
Rubble land	20	Not rated		Not rated		Not rated	

Table 8.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
JbD:							
Junaluska	45	Fair		Poor		Poor	
		Depth to bedrock	0.21	Depth to bedrock	0.00	Slope	0.00
		Droughty	0.21	Slope	0.12	Depth to bedrock	0.21
		Too acid	0.50			Rock fragments	0.68
						Too acid	0.76
Brasstown	35	Fair		Fair		Poor	
		Organic matter content low	0.12	Slope	0.12	Slope	0.00
				Depth to bedrock	0.23	Rock fragments	0.04
		Too acid	0.50			Too acid	0.76
						Hard to reclaim (rock fragments)	0.95
JbE:							
Junaluska	45	Fair		Poor		Poor	
		Depth to bedrock	0.21	Slope	0.00	Slope	0.00
		Droughty	0.21	Depth to bedrock	0.00	Depth to bedrock	0.21
		Too acid	0.50			Rock fragments	0.68
						Too acid	0.76
Brasstown	35	Fair		Poor		Poor	
		Organic matter content low	0.12	Slope	0.00	Slope	0.00
				Depth to bedrock	0.23	Rock fragments	0.04
		Too acid	0.50			Too acid	0.76
						Hard to reclaim (rock fragments)	0.95
JtC:							
Junaluska	60	Fair		Poor		Fair	
		Droughty	0.09	Depth to bedrock	0.00	Depth to bedrock	0.21
		Depth to bedrock	0.21			Slope	0.37
		Too acid	0.50			Too acid	0.76
						Rock fragments	0.82
Tsali	20	Poor		Poor		Poor	
		Depth to bedrock	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Droughty	0.00			Rock fragments	0.00
		Organic matter content low	0.12			Slope	0.37
						Too acid	0.76
		Too acid	0.50				
JtD:							
Junaluska	60	Fair		Poor		Poor	
		Droughty	0.09	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.21	Slope	0.50	Depth to bedrock	0.21
		Too acid	0.50			Too acid	0.76
						Rock fragments	0.82
Tsali	20	Poor		Poor		Poor	
		Depth to bedrock	0.00	Depth to bedrock	0.00	Slope	0.00
		Droughty	0.00	Slope	0.50	Depth to bedrock	0.00
		Organic matter content low	0.12			Rock fragments	0.00
						Too acid	0.76
		Too acid	0.50				

Table 8.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
JtF:							
Junaluska	55	Fair		Poor		Poor	
		Droughty	0.09	Slope	0.00	Slope	0.00
		Depth to bedrock	0.21	Depth to bedrock	0.00	Depth to bedrock	0.21
		Too acid	0.50			Too acid	0.76
						Rock fragments	0.82
Tsali	25	Poor		Poor		Poor	
		Depth to bedrock	0.00	Depth to bedrock	0.00	Slope	0.00
		Droughty	0.00	Slope	0.00	Depth to bedrock	0.00
		Organic matter content low	0.12			Rock fragments	0.00
						Too acid	0.76
		Too acid	0.50				
LeD:							
Lauada	45	Fair		Poor		Poor	
		Too acid	0.50	Depth to bedrock	0.00	Slope	0.00
		Organic matter content low	0.50	Slope	0.08	Depth to bedrock	0.84
						Too acid	0.99
		Depth to bedrock	0.84				
		Droughty	0.95				
Fannin	35	Poor		Fair		Poor	
		Too acid	0.00	Slope	0.08	Slope	0.00
		Organic matter content low	0.04			Rock fragments	0.00
						Too acid	0.99
LeE:							
Lauada	45	Fair		Poor		Poor	
		Organic matter content low	0.50	Slope	0.00	Slope	0.00
				Depth to bedrock	0.00	Depth to bedrock	0.84
		Too acid	0.50			Too acid	0.99
		Depth to bedrock	0.84				
		Droughty	0.95				
Fannin	35	Poor		Poor		Poor	
		Too acid	0.00	Slope	0.00	Rock fragments	0.00
		Organic matter content low	0.04			Slope	0.00
						Too acid	0.99
LeF:							
Lauada	45	Fair		Poor		Poor	
		Too acid	0.50	Slope	0.00	Slope	0.00
		Organic matter content low	0.50	Depth to bedrock	0.00	Depth to bedrock	0.84
						Too acid	0.99
		Depth to bedrock	0.84				
		Droughty	0.95				
Fannin	35	Poor		Poor		Poor	
		Too acid	0.00	Slope	0.00	Slope	0.00
		Organic matter content low	0.04			Rock fragments	0.00
						Too acid	0.99
LfD:							
Leatherwood, stony	80	Poor		Fair		Poor	
		Too clayey	0.00	Slope	0.12	Slope	0.00
		Stone content	0.00	Cobble content	0.66	Too clayey	0.00
		Too acid	0.01	Low strength	0.78	Rock fragments	0.02
						Too acid	0.82

Table 8.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
LfE:							
Leatherwood, stony	80	Poor		Poor		Poor	
		Too clayey	0.00	Slope	0.00	Slope	0.00
		Stone content	0.00	Cobble content	0.66	Too clayey	0.00
		Too acid	0.01	Low strength	0.78	Rock fragments	0.02
						Too acid	0.82
LfF:							
Leatherwood, stony	80	Poor		Poor		Poor	
		Too clayey	0.00	Slope	0.00	Slope	0.00
		Stone content	0.00	Cobble content	0.66	Too clayey	0.00
		Too acid	0.01	Low strength	0.78	Rock fragments	0.02
						Too acid	0.82
LoB:							
Lonon	70	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Organic matter content low	0.12			Rock fragments	0.88
						Too acid	0.98
		Too acid	0.54				
LoC:							
Lonon	70	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Organic matter content low	0.12			Slope	0.37
						Rock fragments	0.88
		Too acid	0.54			Too acid	0.98
LoD:							
Lonon	90	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Organic matter content low	0.12	Slope	0.08	Slope	0.00
						Rock fragments	0.88
		Too acid	0.54			Too acid	0.98
LoE:							
Lonon	65	Poor		Poor		Poor	
		Too clayey	0.00	Slope	0.00	Slope	0.00
		Organic matter content low	0.12	Low strength	0.00	Too clayey	0.00
						Rock fragments	0.88
		Too acid	0.54			Too acid	0.98
Rock outcrop	25	Not rated		Not rated		Not rated	
LrD:							
Luftee	50	Fair		Poor		Poor	
		Cobble content	0.39	Depth to bedrock	0.00	Slope	0.00
		Too acid	0.50	Cobble content	0.01	Rock fragments	0.00
		Depth to bedrock	0.84	Slope	0.08	Too acid	0.82
		Droughty	0.97			Depth to bedrock	0.84
Anakeesta	30	Fair		Fair		Poor	
		Too acid	0.50	Cobble content	0.02	Slope	0.00
		Cobble content	0.78	Slope	0.08	Rock fragments	0.00
				Depth to bedrock	0.16	Hard to reclaim (rock fragments)	0.00
						Too acid	0.82

Table 8.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
LrF:							
Luftee	50	Fair		Poor		Poor	
		Cobble content	0.39	Slope	0.00	Slope	0.00
		Too acid	0.50	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.84	Cobble content	0.01	Too acid	0.82
		Droughty	0.97			Depth to bedrock	0.84
Anakeesta	30	Fair		Poor		Poor	
		Too acid	0.50	Slope	0.00	Slope	0.00
		Cobble content	0.78	Cobble content	0.02	Rock fragments	0.00
				Depth to bedrock	0.16	Hard to reclaim (rock fragments)	0.00
						Too acid	0.82
NtC:							
Northcove	45	Poor		Poor		Poor	
		Stone content	0.00	Stones	0.00	Rock fragments	0.00
		Too acid	0.20	Cobble content	0.00	Hard to reclaim (rock fragments)	0.00
		Cobble content	0.42			Slope	0.37
		Organic matter content low	0.50			Too acid	0.76
Maymead	25	Fair		Fair		Fair	
		Too acid	0.50	Cobble content	0.99	Rock fragments	0.01
		Organic matter content low	0.88			Slope	0.37
						Hard to reclaim (rock fragments)	0.41
						Too acid	0.88
Nowhere	15	Poor		Poor		Poor	
		Stone content	0.00	Cobble content	0.00	Wetness depth	0.00
		Cobble content	0.00	Stones	0.00	Hard to reclaim (rock fragments)	0.00
		Organic matter content low	0.20	Wetness depth	0.00	Rock fragments	0.00
		Too acid	0.50			Slope	0.37
						Too acid	0.88
NtD:							
Northcove	50	Poor		Poor		Poor	
		Stone content	0.00	Stones	0.00	Slope	0.00
		Too acid	0.20	Cobble content	0.00	Hard to reclaim (rock fragments)	0.00
		Cobble content	0.42	Slope	0.08	Rock fragments	0.00
		Organic matter content low	0.50			Too acid	0.76
Maymead	30	Fair		Fair		Poor	
		Too acid	0.50	Slope	0.08	Slope	0.00
		Organic matter content low	0.88	Cobble content	0.99	Rock fragments	0.01
						Hard to reclaim (rock fragments)	0.41
						Too acid	0.88
NtE:							
Northcove	50	Poor		Poor		Poor	
		Stone content	0.00	Stones	0.00	Rock fragments	0.00
		Too acid	0.20	Cobble content	0.00	Slope	0.00
		Cobble content	0.42	Slope	0.00	Hard to reclaim (rock fragments)	0.00
		Organic matter content low	0.50			Too acid	0.76

Table 8.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
NtE:							
Maymead	30	Fair		Poor		Poor	
		Too acid	0.50	Slope	0.00	Slope	0.00
		Organic matter content low	0.88	Cobble content	0.99	Rock fragments	0.01
						Hard to reclaim (rock fragments)	0.41
						Too acid	0.88
OcD:							
Oconaluftee	45	Fair		Poor		Poor	
		Too acid	0.08	Slope	0.00	Slope	0.00
						Rock fragments	0.00
						Too acid	0.50
						Hard to reclaim (rock fragments)	0.82
Guyot	20	Fair		Poor		Poor	
		Organic matter content low	0.03	Slope	0.00	Slope	0.00
		Too acid	0.50			Too acid	0.59
						Rock fragments	0.98
						Hard to reclaim (rock fragments)	0.98
Heintooga	15	Poor		Poor		Poor	
		Stone content	0.00	Cobble content	0.00	Hard to reclaim (rock fragments)	0.00
		Cobble content	0.09	Stones	0.00		
		Too acid	0.50	Slope	0.00	Rock fragments	0.00
		Too sandy	0.95			Slope	0.00
		Organic matter content low	0.98			Too acid	0.92
						Too sandy	0.95
		Droughty	0.99				
OcF:							
Oconaluftee	50	Fair		Poor		Poor	
		Too acid	0.08	Slope	0.00	Slope	0.00
						Rock fragments	0.00
						Too acid	0.50
						Hard to reclaim (rock fragments)	0.82
Heintooga	15	Poor		Poor		Poor	
		Stone content	0.00	Slope	0.00	Hard to reclaim (rock fragments)	0.00
		Cobble content	0.09	Cobble content	0.00		
		Too acid	0.50	Stones	0.00	Rock fragments	0.00
		Too sandy	0.95			Slope	0.00
		Organic matter content low	0.98			Too acid	0.82
						Too sandy	0.95
		Droughty	0.99				
Rubble land	15	Not rated		Not rated		Not rated	
OwC:							
Oconaluftee, windswept	50	Fair		Good		Poor	
		Too acid	0.08			Rock fragments	0.00
						Slope	0.37
						Too acid	0.50
						Hard to reclaim (rock fragments)	0.82

Table 8.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
OwC:							
Guyot, windswept----	15	Fair		Good		Fair	
		Organic matter content low	0.03			Slope	0.37
		Too acid	0.50			Too acid	0.59
						Rock fragments	0.98
						Hard to reclaim (rock fragments)	0.98
Cataloochee, windswept----------	15	Fair		Poor		Fair	
		Too acid	0.50	Depth to bedrock	0.00	Too acid	0.32
		Depth to bedrock	0.65			Slope	0.37
		Droughty	0.72			Rock fragments	0.63
						Depth to bedrock	0.65
OwD:							
Oconaluftee, windswept----------	50	Fair		Poor		Poor	
		Too acid	0.08	Slope	0.00	Slope	0.00
						Rock fragments	0.00
						Too acid	0.50
						Hard to reclaim (rock fragments)	0.82
Guyot, windswept----	15	Fair		Poor		Poor	
		Organic matter content low	0.03	Slope	0.00	Slope	0.00
		Too acid	0.50			Too acid	0.59
						Rock fragments	0.98
						Hard to reclaim (rock fragments)	0.98
Cataloochee, windswept----------	15	Fair		Poor		Poor	
		Too acid	0.50	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.65	Slope	0.00	Too acid	0.32
		Droughty	0.72			Rock fragments	0.63
						Depth to bedrock	0.65
OwE:							
Oconaluftee, windswept----------	50	Fair		Poor		Poor	
		Too acid	0.08	Slope	0.00	Slope	0.00
						Rock fragments	0.00
						Too acid	0.50
						Hard to reclaim (rock fragments)	0.82
Guyot, windswept----	15	Fair		Poor		Poor	
		Organic matter content low	0.03	Slope	0.00	Slope	0.00
		Too acid	0.50			Too acid	0.59
						Rock fragments	0.98
						Hard to reclaim (rock fragments)	0.98
Cataloochee, windswept----------	15	Fair		Poor		Poor	
		Too acid	0.50	Slope	0.00	Slope	0.00
		Depth to bedrock	0.65	Depth to bedrock	0.00	Too acid	0.32
		Droughty	0.72			Rock fragments	0.63
						Depth to bedrock	0.65

Table 8.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
OwF:							
Oconaluftee, windswept	50	Fair		Poor		Poor	
		Too acid	0.08	Slope	0.00	Slope	0.00
						Rock fragments	0.00
						Too acid	0.50
						Hard to reclaim (rock fragments)	0.82
Guyot, windswept	15	Fair		Poor		Poor	
		Organic matter content low	0.03	Slope	0.00	Slope	0.00
		Too acid	0.50			Too acid	0.59
						Rock fragments	0.98
						Hard to reclaim (rock fragments)	0.98
Cataloochee, windswept	15	Fair		Poor		Poor	
		Too acid	0.50	Slope	0.00	Slope	0.00
		Depth to bedrock	0.65	Depth to bedrock	0.00	Too acid	0.32
		Droughty	0.72			Rock fragments	0.63
						Depth to bedrock	0.65
Po:							
Potomac	80	Poor		Poor		Poor	
		Too sandy	0.00	Cobble content	0.00	Too sandy	0.00
		Cobble content	0.00			Hard to reclaim (rock fragments)	0.00
		Droughty	0.00			Rock fragments	0.00
		Organic matter content low	0.12				
Rd:							
Reddies	45	Fair		Fair		Poor	
		Organic matter content low	0.12	Wetness depth	0.98	Hard to reclaim (rock fragments)	0.00
		Droughty	0.70			Wetness depth	0.98
		Too acid	0.88				
Dellwood	35	Poor		Fair		Poor	
		Too sandy	0.00	Cobble content	0.02	Too sandy	0.00
		Droughty	0.00			Hard to reclaim (rock fragments)	0.00
		Organic matter content low	0.50			Rock fragments	0.00
		Cobble content	0.72				
		Too acid	0.88				
RpF:							
Rock outcrop	50	Not rated		Not rated		Not rated	
Pullback	30	Poor		Poor		Poor	
		Droughty	0.00	Slope	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Depth to bedrock	0.00	Slope	0.00
		Too acid	0.50			Too acid	0.68
RtF:							
Rock outcrop	50	Not rated		Not rated		Not rated	

Table 8.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
RtF:							
Luftee	30	Fair		Poor		Poor	
		Cobble content	0.39	Slope	0.00	Rock fragments	0.00
		Too acid	0.50	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.84	Cobble content	0.01	Too acid	0.82
		Droughty	0.97			Depth to bedrock	0.84
RuF:							
Rock outcrop	50	Not rated		Not rated		Not rated	
Unicoi	30	Poor		Poor		Poor	
		Droughty	0.00	Slope	0.00	Slope	0.00
		Depth to bedrock	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Too acid	0.50			Rock fragments	0.00
		Cobble content	0.99			Too acid	0.88
Rv:							
Rosman	50	Fair		Good		Fair	
		Water erosion	0.37			Too acid	0.95
		Too acid	0.46				
		Organic matter content low	0.50				
Reddies	30	Fair		Fair		Poor	
		Organic matter content low	0.12	Wetness depth	0.98	Hard to reclaim (rock fragments)	0.00
		Droughty	0.70			Wetness depth	0.98
		Too acid	0.88				
Rw:							
Rosman	40	Fair		Good		Fair	
		Water erosion	0.37			Too acid	0.95
		Too acid	0.46				
		Organic matter content low	0.50				
Reddies	30	Fair		Fair		Poor	
		Organic matter content low	0.12	Wetness depth	0.98	Hard to reclaim (rock fragments)	0.00
		Droughty	0.70			Wetness depth	0.98
		Too acid	0.88				
Urban land	15	Not rated		Not rated		Not rated	
RxF:							
Rubble land	50	Not rated		Not rated		Not rated	
Spivey	30	Poor		Poor		Poor	
		Stone content	0.00	Slope	0.00	Slope	0.00
		Too acid	0.05	Stones	0.00	Rock fragments	0.00
		Droughty	0.34	Cobble content	0.47	Hard to reclaim (rock fragments)	0.00
						Too acid	0.88
RZ:							
Rubble land	80	Not rated		Not rated		Not rated	

Table 8.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
SaD:							
Saunook, stony	80	Fair		Fair		Poor	
		Too acid	0.80	Slope	0.08	Slope	0.00
						Hard to reclaim (rock fragments)	0.24
						Rock fragments	0.89
SdC:							
Saunook, stony	60	Fair		Good		Fair	
		Too acid	0.80			Hard to reclaim (rock fragments)	0.24
						Slope	0.37
						Rock fragments	0.89
Urban land	20	Not rated		Not rated		Not rated	
SI:							
Slide area	100	Not rated		Not rated		Not rated	
SnF:							
Snowbird	80	Fair		Poor		Poor	
		Too acid	0.50	Slope	0.00	Slope	0.00
		Organic matter content low	0.60	Low strength	0.00	Hard to reclaim (rock fragments)	0.00
				Depth to bedrock	0.89		
		Too clayey	0.76			Too clayey	0.50
						Rock fragments	0.82
						Too acid	0.99
SoD:							
Soco	50	Fair		Poor		Poor	
		Too acid	0.50	Depth to bedrock	0.00	Slope	0.00
		Organic matter content low	0.88	Slope	0.08	Too acid	0.50
						Depth to bedrock	0.97
		Droughty	0.93				
		Depth to bedrock	0.97				
Stecoah	35	Fair		Fair		Poor	
		Too acid	0.50	Slope	0.08	Slope	0.00
		Organic matter content low	0.88	Depth to bedrock	0.58	Rock fragments	0.00
						Too acid	0.50
						Hard to reclaim (rock fragments)	0.84
SoF:							
Soco	50	Fair		Poor		Poor	
		Too acid	0.50	Slope	0.00	Slope	0.00
		Organic matter content low	0.88	Depth to bedrock	0.00	Too acid	0.50
						Depth to bedrock	0.97
		Droughty	0.93				
		Depth to bedrock	0.97				
Stecoah	30	Fair		Poor		Poor	
		Too acid	0.50	Slope	0.00	Slope	0.00
		Organic matter content low	0.88	Depth to bedrock	0.58	Rock fragments	0.00
						Too acid	0.50
						Hard to reclaim (rock fragments)	0.84

Table 8.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
SpD:							
Soco, windswept	50	Fair		Poor		Poor	
		Too acid	0.50	Depth to bedrock	0.00	Slope	0.00
		Organic matter content low	0.88	Slope	0.12	Too acid	0.50
						Depth to bedrock	0.97
		Droughty	0.93				
		Depth to bedrock	0.97				
Stecoah, windswept	30	Fair		Fair		Poor	
		Too acid	0.50	Slope	0.12	Slope	0.00
		Organic matter content low	0.88	Depth to bedrock	0.58	Rock fragments	0.00
						Too acid	0.50
						Hard to reclaim (rock fragments)	0.84
SpF:							
Soco, windswept	50	Fair		Poor		Poor	
		Too acid	0.50	Slope	0.00	Slope	0.00
		Organic matter content low	0.88	Depth to bedrock	0.00	Too acid	0.50
						Depth to bedrock	0.97
		Droughty	0.93				
		Depth to bedrock	0.97				
Stecoah, windswept	30	Fair		Poor		Poor	
		Too acid	0.50	Slope	0.00	Slope	0.00
		Organic matter content low	0.88	Depth to bedrock	0.58	Rock fragments	0.00
						Too acid	0.50
						Hard to reclaim (rock fragments)	0.84
SsB:							
Spivey	50	Poor		Poor		Poor	
		Stone content	0.00	Stones	0.00	Rock fragments	0.00
		Too acid	0.05	Cobble content	0.47	Hard to reclaim (rock fragments)	0.00
		Droughty	0.34				
						Too acid	0.88
Santeetlah	25	Fair		Good		Fair	
		Too acid	0.20			Hard to reclaim (rock fragments)	0.16
						Rock fragments	0.76
						Too acid	0.76
Nowhere	15	Poor		Poor		Poor	
		Stone content	0.00	Cobble content	0.00	Rock fragments	0.00
		Cobble content	0.00	Stones	0.00	Wetness depth	0.00
		Organic matter content low	0.20	Wetness depth	0.00	Hard to reclaim (rock fragments)	0.00
		Too acid	0.50			Too acid	0.88
SsC:							
Spivey	50	Poor		Poor		Poor	
		Stone content	0.00	Stones	0.00	Rock fragments	0.00
		Too acid	0.05	Cobble content	0.47	Hard to reclaim (rock fragments)	0.00
		Droughty	0.34				
						Slope	0.37
						Too acid	0.88

Table 8.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
SsC:							
Santeetlah----------	25	Fair		Good		Fair	
		Too acid	0.20			Hard to reclaim (rock fragments)	0.16
						Slope	0.37
						Rock fragments	0.76
						Too acid	0.76
Nowhere------------	15	Poor		Poor		Poor	
		Stone content	0.00	Wetness depth	0.00	Wetness depth	0.00
		Cobble content	0.00	Stones	0.00	Hard to reclaim (rock fragments)	0.00
		Organic matter content low	0.20	Cobble content	0.00	Rock fragments	0.00
		Too acid	0.50			Slope	0.37
						Too acid	0.88
SsD:							
Spivey-------------	50	Poor		Poor		Poor	
		Stone content	0.00	Stones	0.00	Slope	0.00
		Too acid	0.05	Slope	0.08	Rock fragments	0.00
		Droughty	0.34	Cobble content	0.47	Hard to reclaim (rock fragments)	0.00
						Too acid	0.88
Santeetlah----------	30	Fair		Fair		Poor	
		Too acid	0.20	Slope	0.08	Slope	0.00
						Hard to reclaim (rock fragments)	0.16
						Rock fragments	0.76
						Too acid	0.76
SsE:							
Spivey-------------	60	Poor		Poor		Poor	
		Stone content	0.00	Slope	0.00	Slope	0.00
		Too acid	0.05	Stones	0.00	Rock fragments	0.00
		Droughty	0.34	Cobble content	0.47	Hard to reclaim (rock fragments)	0.00
						Too acid	0.88
Santeetlah----------	20	Fair		Poor		Poor	
		Too acid	0.20	Slope	0.00	Slope	0.00
						Hard to reclaim (rock fragments)	0.16
						Rock fragments	0.76
						Too acid	0.76
StB:							
Statler------------	85	Fair		Good		Fair	
		Organic matter content low	0.18			Rock fragments	0.88
		Too acid	0.74				
StC:							
Statler------------	80	Fair		Good		Fair	
		Organic matter content low	0.18			Slope	0.84
		Too acid	0.74			Rock fragments	0.88

Table 8.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
TaC:							
Tanasee	50	Poor		Good		Fair	
		Too acid	0.00			Hard to reclaim (rock fragments)	0.01
		Organic matter content low	0.32			Rock fragments	0.68
						Slope	0.84
						Too acid	0.95
Balsam	30	Poor		Poor		Poor	
		Too acid	0.00	Stones	0.00	Hard to reclaim (rock fragments)	0.00
		Stone content	0.00	Cobble content	0.08	Rock fragments	0.00
		Cobble content	0.85			Too acid	0.76
						Slope	0.84
TaD:							
Tanasee	50	Poor		Fair		Poor	
		Too acid	0.00	Slope	0.18	Slope	0.00
		Organic matter content low	0.32			Hard to reclaim (rock fragments)	0.01
						Rock fragments	0.68
						Too acid	0.95
Balsam	30	Poor		Poor		Poor	
		Too acid	0.00	Stones	0.00	Slope	0.00
		Stone content	0.00	Cobble content	0.08	Hard to reclaim (rock fragments)	0.00
		Cobble content	0.85	Slope	0.18	Rock fragments	0.00
						Too acid	0.76
ThB:							
Thurmont, stony	50	Fair		Good		Fair	
		Too acid	0.54			Rock fragments	0.82
		Organic matter content low	0.88			Too acid	0.98
Dillard, stony	30	Fair		Poor		Fair	
		Too acid	0.32	Low strength	0.00	Too acid	0.88
		Organic matter content low	0.88	Wetness depth	0.89	Wetness depth	0.89
ThC:							
Thurmont, stony	80	Fair		Good		Fair	
		Too acid	0.54			Slope	0.37
		Organic matter content low	0.88			Rock fragments	0.82
						Too acid	0.98
To:							
Toxaway	80	Fair		Poor		Poor	
		Too acid	0.32	Wetness depth	0.00	Wetness depth	0.00
		Organic matter content low	0.66			Too clayey	0.89
		Water erosion	0.90			Too acid	0.92
		Too clayey	0.90				

Table 8.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
TuC:							
Tuckasegee, stony	50	Fair		Good		Poor	
		Too acid	0.54			Hard to reclaim (rock fragments)	0.00
		Organic matter content low	0.88			Rock fragments	0.02
						Slope	0.37
						Too acid	0.98
Cullasaja, stony	30	Poor		Poor		Poor	
		Stone content	0.00	Cobble content	0.00	Hard to reclaim (rock fragments)	0.00
		Cobble content	0.09	Stones	0.65		
		Too acid	0.54			Rock fragments	0.00
		Droughty	0.99			Slope	0.37
						Too acid	0.98
Ud:							
Udorthents	85	Fair		Good		Poor	
		Organic matter content low	0.50			Slope	0.00
		Too acid	0.97				
W:							
Water	100	Not rated		Not rated		Not rated	
WaC:							
Wayah, windswept	80	Fair		Good		Poor	
		Organic matter content low	0.12			Rock fragments	0.00
						Hard to reclaim (rock fragments)	0.26
		Too acid	0.50				
						Slope	0.84
						Too acid	0.98
WaD:							
Wayah, windswept	80	Fair		Fair		Poor	
		Organic matter content low	0.12	Slope	0.08	Rock fragments	0.00
						Slope	0.00
		Too acid	0.50			Hard to reclaim (rock fragments)	0.26
						Too acid	0.98
WaF:							
Wayah, windswept	80	Fair		Poor		Poor	
		Organic matter content low	0.12	Slope	0.00	Rock fragments	0.00
						Slope	0.00
		Too acid	0.50			Hard to reclaim (rock fragments)	0.26
						Too acid	0.98
WeD:							
Wayah	80	Fair		Fair		Poor	
		Organic matter content low	0.12	Slope	0.08	Slope	0.00
						Rock fragments	0.00
		Too acid	0.50			Hard to reclaim (rock fragments)	0.26
						Too acid	0.98

Table 8.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
WeF:							
Wayah	80	Fair		Poor		Poor	
		Organic matter content low	0.12	Slope	0.00	Rock fragments	0.00
						Slope	0.00
		Too acid	0.50			Hard to reclaim (rock fragments)	0.26
						Too acid	0.98

Table 9.—Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
AwB:					
Alarka	60	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	1.00
		Filtering capacity	1.00	Slope	0.68
Wesser	20	Very limited		Very limited	
		Flooding	1.00	Ponding	1.00
		Ponding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	1.00
		Filtering capacity	1.00	Organic matter content	1.00
AwC:					
Alarka	60	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Slope	0.63		
Whiteside	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	1.00
		Slope	0.63	Seepage	1.00
		Slow water movement	0.50		
AxB:					
Allegheny	90	Somewhat limited		Somewhat limited	
		Slow water movement	0.50	Slope	0.68
				Seepage	0.50
BaE:					
Balsam	50	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Large stones	1.00	Large stones	1.00

Table 9.—Sanitary Facilities—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
BaE:					
Tanasee	30	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
Bm:					
Biltmore	80	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	0.02
		Depth to saturated zone	0.65		
BpC:					
Breakneck	55	Very limited		Very limited	
		Seepage, bottom layer	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slope	0.50	Seepage	1.00
Pullback	25	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Slope	0.50	Seepage	1.00
				Organic matter content	1.00
BpD:					
Breakneck	55	Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00
Pullback	25	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
				Organic matter content	1.00
BpF:					
Breakneck	55	Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00
Pullback	25	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
				Organic matter content	1.00

Table 9.—Sanitary Facilities—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
BrE:					
Breakneck	31	Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00
Luftee	29	Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00
		Filtering capacity	1.00	Large stones	1.00
		Large stones	0.61		
Clingman	21	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
				Organic matter content	1.00
Pinnacle	19	Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00
		Seepage, bottom layer	1.00	Organic matter content	1.00
		Depth to bedrock	1.00	Slope	1.00
		Filtering capacity	1.00	Seepage	1.00
BrF:					
Breakneck	31	Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00
Luftee	29	Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00
		Filtering capacity	1.00	Large stones	1.00
		Large stones	0.61		
Clingman	20	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
				Organic matter content	1.00

Table 9.—Sanitary Facilities—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
BrF:					
Pinnacle	19	Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00
		Seepage, bottom layer	1.00	Organic matter content	1.00
		Depth to bedrock	1.00	Slope	1.00
		Filtering capacity	1.00	Seepage	1.00
BuF:					
Burton	45	Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Large stones	0.01	Large stones	0.16
Craggey	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Organic matter content	1.00
Rock outcrop	15	Not rated		Not rated	
CaB:					
Cades	80	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.50	Slope	0.68
CcF:					
Cataska	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Too steep	1.00	Depth to soft bedrock	1.00
				Slope	1.00
Sylco	35	Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slow water movement	0.46	Seepage	0.53
ChF:					
Cheoah	80	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Depth to bedrock	0.47	Depth to soft bedrock	0.05
CkF:					
Chestnut	40	Very limited		Very limited	
		Too steep	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00

Table 9.—Sanitary Facilities—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
CkF:					
Cleveland	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
Rock outcrop	15	Not rated		Not rated	
CmC:					
Chiltoskie	40	Very limited		Very limited	
		Seepage, bottom layer	1.00	Slope	1.00
		Slope	0.16	Seepage	1.00
				Organic matter content	1.00
Heintooga	25	Very limited		Very limited	
		Seepage, bottom layer	1.00	Slope	1.00
		Large stones	1.00	Large stones	1.00
		Slope	0.16	Seepage	1.00
				Organic matter content	1.00
Horsetrough	15	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
		Depth to bedrock	0.91	Large stones	1.00
		Large stones	0.73	Depth to soft bedrock	0.77
CmD:					
Chiltoskie	40	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
				Organic matter content	1.00
Heintooga	35	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Large stones	1.00
		Large stones	1.00	Seepage	1.00
				Organic matter content	1.00
CnF:					
Clifton	80	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.50		

Table 9.—Sanitary Facilities—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
CoB:					
Cotaco	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.50	Slope	0.32
CuD:					
Cullasaja, very stony	50	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Large stones	1.00	Large stones	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
				Organic matter content	1.00
Tuckasegee, very stony	30	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
CuE:					
Cullasaja, very stony	50	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Large stones	1.00	Large stones	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
				Organic matter content	1.00
Tuckasegee, very stony	30	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
CuF:					
Cullasaja, extremely stony	50	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Large stones	1.00	Large stones	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
				Organic matter content	1.00
Rubble land	30	Not rated		Not rated	
Cw:					
Cullowhee	50	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	1.00
		Filtering capacity	1.00		

Table 9.—Sanitary Facilities—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
Cw:					
Ela	30	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	1.00
Dd:					
Dellwood	40	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	1.00
		Filtering capacity	1.00	Large stones	0.91
		Large stones	0.38	Slope	0.08
Smokemont	25	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Filtering capacity	1.00	Large stones	0.15
		Depth to saturated zone	0.40	Slope	0.08
		Large stones	0.03		
Urban land	15	Not rated		Not rated	
Dg:					
Dellwood	50	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	1.00
		Filtering capacity	1.00	Large stones	0.91
		Large stones	0.38	Slope	0.08
Smokemont	30	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Filtering capacity	1.00	Large stones	0.15
		Depth to saturated zone	0.40	Slope	0.08
		Large stones	0.03		

Table 9.—Sanitary Facilities—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
DhB:					
Dellwood	60	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	1.00
		Filtering capacity	1.00	Large stones	0.91
		Large stones	0.38	Slope	0.08
Wesser	20	Very limited		Very limited	
		Flooding	1.00	Ponding	1.00
		Ponding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	1.00
		Filtering capacity	1.00	Organic matter content	1.00
DtD:					
Ditney	50	Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
				Seepage	1.00
Unicoi	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Large stones	0.01		
DtF:					
Ditney	50	Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
				Seepage	1.00
Unicoi	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Large stones	0.01		
EpD:					
Evard, windswept	55	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Slow water movement	0.50	Seepage	0.50
		Depth to bedrock	0.22		

Table 9.—Sanitary Facilities—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
EpD:					
Cowee, windswept	25	Very limited		Very limited	
		Too steep	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slow water movement	0.50	Seepage	0.50
EpE:					
Evard, windswept	55	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Slow water movement	0.50	Seepage	0.50
		Depth to bedrock	0.22		
Cowee, windswept	25	Very limited		Very limited	
		Too steep	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slow water movement	0.50	Seepage	0.50
EvD:					
Evard	55	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Slow water movement	0.50	Seepage	0.50
		Depth to bedrock	0.22		
Cowee	25	Very limited		Very limited	
		Too steep	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slow water movement	0.50	Seepage	0.50
EvE:					
Evard	55	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Slow water movement	0.50	Seepage	0.50
		Depth to bedrock	0.22		
Cowee	25	Very limited		Very limited	
		Too steep	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slow water movement	0.50	Seepage	0.50
EvF:					
Evard	55	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Slow water movement	0.50	Seepage	0.50
		Depth to bedrock	0.22		
Cowee	25	Very limited		Very limited	
		Too steep	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slow water movement	0.50	Seepage	0.50

Table 9.—Sanitary Facilities—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
HcE:					
Heintooga	45	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Large stones	1.00
				Seepage	1.00
		Large stones	1.00	Organic matter content	1.00
Chiltoskie	35	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
				Organic matter content	1.00
HrF:					
Heintooga	60	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Large stones	1.00
				Seepage	1.00
		Large stones	1.00	Organic matter content	1.00
Rubble land	20	Not rated		Not rated	
JbD:					
Junaluska	45	Very limited		Very limited	
		Too steep	1.00	Depth to soft bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00
Brasstown	35	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Depth to bedrock	0.91	Depth to soft bedrock	0.77
		Slow water movement	0.46	Seepage	0.53
JbE:					
Junaluska	45	Very limited		Very limited	
		Too steep	1.00	Depth to soft bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00
Brasstown	35	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Depth to bedrock	0.91	Depth to soft bedrock	0.77
		Slow water movement	0.46	Seepage	0.53
JtC:					
Junaluska	60	Very limited		Very limited	
		Seepage, bottom layer	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slope	0.63	Seepage	1.00

Table 9.—Sanitary Facilities—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
JtC:					
Tsali	20	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	0.63	Slope	1.00
				Seepage	0.53
JtD:					
Junaluska	60	Very limited		Very limited	
		Too steep	1.00	Depth to soft bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00
Tsali	20	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Too steep	1.00	Slope	1.00
				Seepage	0.53
JtF:					
Junaluska	55	Very limited		Very limited	
		Too steep	1.00	Depth to soft bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00
Tsali	25	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Too steep	1.00	Slope	1.00
				Seepage	0.53
LeD:					
Lauada	45	Very limited		Very limited	
		Too steep	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slow water movement	0.50	Seepage	0.50
Fannin	35	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Slow water movement	0.50	Seepage	0.50
LeE:					
Lauada	45	Very limited		Very limited	
		Too steep	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slow water movement	0.50	Seepage	0.50
Fannin	35	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Slow water movement	0.50	Seepage	0.50

Table 9.—Sanitary Facilities—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
LeF:					
Lauada	45	Very limited		Very limited	
		Too steep	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slow water movement	0.50	Seepage	0.50
Fannin	35	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Slow water movement	0.50	Seepage	0.50
LfD:					
Leatherwood, stony	80	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Large stones	0.02	Organic matter content	1.00
				Large stones	0.77
LfE:					
Leatherwood, stony	80	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Large stones	0.02	Organic matter content	1.00
				Large stones	0.77
LfF:					
Leatherwood, stony	80	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Large stones	0.02	Organic matter content	1.00
				Large stones	0.77
LoB:					
Lonon	70	Somewhat limited		Somewhat limited	
		Slow water movement	0.46	Slope	0.68
				Seepage	0.53
LoC:					
Lonon	70	Somewhat limited		Very limited	
		Slope	0.63	Slope	1.00
		Slow water movement	0.46	Seepage	0.53
LoD:					
Lonon	90	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Slow water movement	0.46	Seepage	0.53
LoE:					
Lonon	65	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Slow water movement	0.46	Seepage	0.53
Rock outcrop	25	Not rated		Not rated	

Table 9.—Sanitary Facilities—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
LrD:					
Luftee	50	Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00
		Filtering capacity	1.00	Large stones	1.00
		Large stones	0.61		
Anakeesta	30	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to hard bedrock	0.84
		Depth to bedrock	0.94	Large stones	0.71
		Large stones	0.20		
LrF:					
Luftee	50	Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00
		Filtering capacity	1.00	Large stones	1.00
		Large stones	0.61		
Anakeesta	30	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Filtering capacity	1.00	Depth to hard bedrock	0.84
		Depth to bedrock	0.94	Large stones	0.71
		Large stones	0.20		
NtC:					
Northcove	45	Very limited		Very limited	
		Large stones	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Large stones	1.00
		Slope	0.63	Seepage	1.00
Maymead	25	Very limited		Very limited	
		Seepage, bottom layer	1.00	Slope	1.00
		Slope	0.63	Seepage	1.00
Nowhere	15	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
		Large stones	1.00	Large stones	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Seepage	1.00
		Slope	0.63	Ponding	1.00

Table 9.—Sanitary Facilities—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
NtD:					
Northcove	50	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Large stones	1.00	Large stones	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
Maymead	30	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
NtE:					
Northcove	50	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Large stones	1.00	Large stones	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
Maymead	30	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
OcD:					
Oconaluftee	45	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
				Seepage	1.00
Guyot	20	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
				Organic matter content	1.00
		Depth to bedrock	0.30		
Heintooga	15	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Large stones	1.00
				Seepage	1.00
		Large stones	1.00	Organic matter content	1.00
OcF:					
Oconaluftee	50	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
				Seepage	1.00
Heintooga	15	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Large stones	1.00
				Seepage	1.00
		Large stones	1.00	Organic matter content	1.00
Rubble land	15	Not rated		Not rated	

Table 9.—Sanitary Facilities—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
OwC:					
Oconaluftee, windswept	50	Very limited		Very limited	
		Seepage, bottom layer	1.00	Slope	1.00
		Slope	0.63	Seepage	1.00
Guyot, windswept	15	Very limited		Very limited	
		Seepage, bottom layer	1.00	Slope	1.00
		Slope	0.63	Seepage	1.00
		Depth to bedrock	0.30	Organic matter content	1.00
Cataloochee, windswept	15	Very limited		Very limited	
		Seepage, bottom layer	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slope	0.63	Seepage	1.00
				Organic matter content	1.00
OwD:					
Oconaluftee, windswept	50	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
Guyot, windswept	15	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Depth to bedrock	0.30	Organic matter content	1.00
Cataloochee, windswept	15	Very limited		Very limited	
		Too steep	1.00	Depth to soft bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00
				Organic matter content	1.00
OwE:					
Oconaluftee, windswept	50	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
Guyot, windswept	15	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Depth to bedrock	0.30	Organic matter content	1.00

Table 9.—Sanitary Facilities—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
OwE:					
Cataloochee, windswept	15	Very limited		Very limited	
		Too steep	1.00	Depth to soft bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00
				Organic matter content	1.00
OwF:					
Oconaluftee, windswept	50	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
Guyot, windswept	15	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Depth to bedrock	0.30	Organic matter content	1.00
Cataloochee, windswept	15	Very limited		Very limited	
		Too steep	1.00	Depth to soft bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00
				Organic matter content	1.00
Po:					
Potomac	80	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Large stones	1.00	Large stones	1.00
		Filtering capacity	1.00		
		Depth to saturated zone	0.43		
Rd:					
Reddies	45	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	1.00
				Slope	0.08
Dellwood	35	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	1.00
		Filtering capacity	1.00	Large stones	0.91
		Large stones	0.38	Slope	0.08

Table 9.—Sanitary Facilities—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
RpF:					
Rock outcrop	50	Not rated		Not rated	
Pullback	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
				Organic matter content	1.00
RtF:					
Rock outcrop	50	Not rated		Not rated	
Luftee	30	Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00
		Filtering capacity	1.00	Large stones	1.00
		Large stones	0.61		
RuF:					
Rock outcrop	50	Not rated		Not rated	
Unicoi	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Large stones	0.01		
Rv:					
Rosman	50	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Depth to saturated zone	0.99	Depth to saturate zone	0.78
Reddies	30	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	1.00
Rw:					
Rosman	40	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Depth to saturated zone	0.99	Depth to saturated zone	0.78

Table 9.—Sanitary Facilities—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
Rw:					
Reddies	30	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	1.00
Urban land	15	Not rated		Not rated	
RxF:					
Rubble land	50	Not rated		Not rated	
Spivey	30	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Large stones	1.00	Large stones	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Filtering capacity	1.00		
RZ:					
Rubble land	80	Not rated		Not rated	
SaD:					
Saunook, stony	80	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Slow water movement	0.50	Seepage	0.50
SdC:					
Saunook, stony	60	Somewhat limited		Very limited	
		Slope	0.63	Slope	1.00
		Slow water movement	0.50	Seepage	0.50
Urban land	20	Not rated		Not rated	
SI:					
Slide area	100	Not rated		Not rated	
SnF:					
Snowbird	80	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Depth to bedrock	0.57	Seepage	0.50
		Slow water movement	0.50	Depth to soft bedrock	0.11
SoD:					
Soco	50	Very limited		Very limited	
		Too steep	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
Stecoah	35	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Depth to bedrock	0.78	Depth to soft bedrock	0.42

Table 9.—Sanitary Facilities—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
SoF:					
Soco	50	Very limited		Very limited	
		Too steep	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
Stecoah	30	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Depth to bedrock	0.78	Depth to soft bedrock	0.42
SpD:					
Soco, windswept	50	Very limited		Very limited	
		Too steep	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
Stecoah, windswept	30	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Depth to bedrock	0.78	Depth to soft bedrock	0.42
SpF:					
Soco, windswept	50	Very limited		Very limited	
		Too steep	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
Stecoah, windswept	30	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Depth to bedrock	0.78	Depth to soft bedrock	0.42
SsB:					
Spivey	50	Very limited		Very limited	
		Large stones	1.00	Large stones	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Filtering capacity	1.00	Slope	0.68
Santeetlah	25	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
				Slope	0.68
Nowhere	15	Very limited		Very limited	
		Depth to saturated zone	1.00	Large stones	1.00
		Large stones	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Ponding	1.00	Ponding	1.00
				Slope	0.68

Table 9.—Sanitary Facilities—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
SsC:					
Spivey	50	Very limited		Very limited	
		Large stones	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Large stones	1.00
		Filtering capacity	1.00	Seepage	1.00
		Slope	0.63		
Santeetlah	25	Very limited		Very limited	
		Seepage, bottom layer	1.00	Slope	1.00
		Slope	0.63	Seepage	1.00
Nowhere	15	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
		Large stones	1.00	Large stones	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Seepage	1.00
		Slope	0.63	Ponding	1.00
SsD:					
Spivey	50	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Large stones	1.00	Large stones	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Filtering capacity	1.00		
Santeetlah	30	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
SsE:					
Spivey	60	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Large stones	1.00	Large stones	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Filtering capacity	1.00		
Santeetlah	20	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
StB:					
Statler	85	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Flooding	0.40	Flooding	0.40
				Slope	0.08

Table 9.—Sanitary Facilities—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
StC:					
Statler	80	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
				Slope	1.00
		Flooding	0.40	Flooding	0.40
		Slope	0.16		
TaC:					
Tanasee	50	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
				Slope	1.00
		Slope	0.16		
Balsam	30	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
				Slope	1.00
		Large stones	1.00	Large stones	1.00
		Slope	0.16		
TaD:					
Tanasee	50	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
Balsam	30	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
				Large stones	1.00
		Large stones	1.00		
ThB:					
Thurmont, stony	50	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
				Slope	0.68
		Depth to saturated zone	0.84	Depth to saturated zone	0.17
		Slow water movement	0.50		
Dillard, stony	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
				Slope	0.32
		Slow water movement	0.50		
ThC:					
Thurmont, stony	80	Very limited		Very limited	
		Seepage, bottom layer	1.00	Slope	1.00
				Seepage	1.00
		Depth to saturated zone	0.84	Depth to saturated zone	0.17
		Slope	0.63		
		Slow water movement	0.50		

Table 9.—Sanitary Facilities—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
To:					
Toxaway	80	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	1.00
		Filtering capacity	1.00	Ponding	1.00
		Ponding	1.00	Organic matter content	1.00
TuC:					
Tuckasegee, stony	50	Very limited		Very limited	
		Seepage, bottom layer	1.00	Slope	1.00
		Slope	0.63	Seepage	1.00
Cullasaja, stony	30	Very limited		Very limited	
		Large stones	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Large stones	1.00
		Slope	0.63	Seepage	1.00
				Organic matter content	1.00
Ud:					
Udorthents	85	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Slow water movement	0.82	Seepage	0.18
W:					
Water	100	Not rated		Not rated	
WaC:					
Wayah, windswept	80	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Slope	0.16	Slope	1.00
WaD:					
Wayah, windswept	80	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
WaF:					
Wayah, windswept	80	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
WeD:					
Wayah	80	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00

Table 9.—Sanitary Facilities—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
WeF:					
Wayah	80	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00

Table 10.—Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AwB:							
Alarka	60	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
		Slope	0.32	Seepage	0.11		
Wesser	20	Very limited		Very limited		Very limited	
		Seepage	1.00	Ponding	1.00	Cutbanks cave	1.00
				Depth to saturated zone	1.00		
				Seepage	1.00		
AwC:							
Alarka	60	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
		Slope	1.00	Seepage	0.11		
Whiteside	20	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Depth to saturated zone	0.95	Cutbanks cave	1.00
		Slope	1.00			Depth to saturated zone	0.02
AxB:							
Allegheny	90	Somewhat limited		Not limited		Very limited	
		Seepage	0.70			Depth to water	1.00
		Slope	0.32				
BaE:							
Balsam	50	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Depth to water	1.00
		Slope	1.00	Large stones	1.00		
Tanasee	30	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	1.00				
Bm:							
Biltmore	80	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Cutbanks cave	1.00
						Depth to saturated zone	0.99
BpC:							
Breakneck	55	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.91	Depth to water	1.00
		Slope	1.00	Seepage	0.48		
		Depth to bedrock	0.91				
Pullback	25	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	1.00				

Table 10.—Water Management—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
BpD:							
Breakneck	55	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.91	Depth to water	1.00
		Slope	1.00	Seepage	0.48		
		Depth to bedrock	0.91				
Pullback	25	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	1.00				
BpF:							
Breakneck	55	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.91	Depth to water	1.00
		Slope	1.00	Seepage	0.48		
		Depth to bedrock	0.91				
Pullback	25	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	1.00				
BrE:							
Breakneck	31	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.91	Depth to water	1.00
		Slope	1.00	Seepage	0.48		
		Depth to bedrock	0.91				
Luftee	29	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Depth to water	1.00
		Slope	1.00	Thin layer	0.74		
		Depth to bedrock	0.74	Large stones	0.61		
Clingman	21	Very limited		Very limited		Very limited	
		Slope	1.00	Organic matter content	1.00	Depth to water	1.00
		Depth to bedrock	1.00	Seepage	1.00		
				Thin layer	1.00		
Pinnacle	19	Very limited		Not rated		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.65				
BrF:							
Breakneck	31	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.91	Depth to water	1.00
		Slope	1.00	Seepage	0.48		
		Depth to bedrock	0.91				
Luftee	29	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Depth to water	1.00
		Slope	1.00	Thin layer	0.74		
		Depth to bedrock	0.74	Large stones	0.61		
Clingman	20	Very limited		Very limited		Very limited	
		Slope	1.00	Organic matter content	1.00	Depth to water	1.00
		Depth to bedrock	1.00	Seepage	1.00		
				Thin layer	1.00		

Table 10.—Water Management—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
BrF:							
Pinnacle	19	Very limited		Not rated		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.65				
BuF:							
Burton	45	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.66	Depth to water	1.00
		Slope	1.00	Seepage	0.01		
		Depth to bedrock	0.66	Large stones	0.01		
Craggey	35	Very limited		Very limited		Very limited	
		Slope	1.00	Organic matter content	1.00	Depth to water	1.00
		Depth to bedrock	1.00	Thin layer	1.00		
Rock outcrop	15	Not rated		Not rated		Not rated	
CaB:							
Cades	80	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	0.32				
CcF:							
Cataska	45	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	0.74	Seepage	0.20		
Sylco	35	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.77	Depth to water	1.00
		Depth to bedrock	0.77				
		Seepage	0.72				
ChF:							
Cheoah	80	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.01	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.01				
CkF:							
Chestnut	40	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.81	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.08				
Cleveland	30	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	1.00	Seepage	0.40		
Rock outcrop	15	Not rated		Not rated		Not rated	
CmC:							
Chiltoskie	40	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	1.00				
Heintooga	25	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Depth to water	1.00
		Slope	1.00	Large stones	1.00		

Table 10.—Water Management—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
CmC:							
Horsetrough	15	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
		Slope	1.00			Large stones	0.73
		Depth to bedrock	0.01	Seepage	1.00		
				Large stones	0.73		
				Thin layer	0.22		
CmD:							
Chiltoskie	40	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	1.00				
Heintooga	35	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Depth to water	1.00
		Slope	1.00	Large stones	1.00		
CnF:							
Clifton	80	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	1.00				
CoB:							
Cotaco	85	Very limited		Somewhat limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	0.99	Cutbanks cave	0.10
		Slope	0.08			Depth to saturated zone	0.01
				Piping	0.82		
CuD:							
Cullasaja, very stony	50	Very limited		Very limited		Very limited	
		Seepage	1.00	Large stones	1.00	Depth to water	1.00
		Slope	1.00	Seepage	0.21		
Tuckasegee, very stony	30	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	1.00				
CuE:							
Cullasaja, very stony	50	Very limited		Very limited		Very limited	
		Seepage	1.00	Large stones	1.00	Depth to water	1.00
		Slope	1.00	Seepage	0.21		
Tuckasegee, very stony	30	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	1.00				
CuF:							
Cullasaja, extremely stony	50	Very limited		Very limited		Very limited	
		Seepage	1.00	Large stones	1.00	Depth to water	1.00
		Slope	1.00	Seepage	0.21		
Rubble land	30	Not rated		Not rated		Not rated	

Table 10.—Water Management—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
Cw:							
Cullowhee	50	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
				Seepage	1.00		
Ela	30	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
				Seepage	1.00		
Dd:							
Dellwood	40	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Cutbanks cave	1.00
				Depth to saturated zone	0.43	Large stones	0.38
				Large stones	0.38	Depth to saturated zone	0.25
Smokemont	25	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Depth to water	1.00
				Large stones	0.03		
Urban land	15	Not rated		Not rated		Not rated	
Dg:							
Dellwood	50	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Cutbanks cave	1.00
				Depth to saturated zone	0.43	Large stones	0.38
				Large stones	0.38	Depth to saturated zone	0.25
Smokemont	30	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Depth to water	1.00
				Large stones	0.03		
DhB:							
Dellwood	60	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Cutbanks cave	1.00
				Depth to saturated zone	0.43	Large stones	0.38
				Large stones	0.38	Depth to saturated zone	0.25
Wesser	20	Very limited		Very limited		Very limited	
		Seepage	1.00	Ponding	1.00	Cutbanks cave	1.00
				Depth to saturated zone	1.00		
				Seepage	1.00		
DtD:							
Ditney	50	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.79	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.66				
Unicoi	30	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	1.00	Large stones	0.01		

Table 10.—Water Management—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
DtF:							
Ditney	50	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.79	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.66				
Unicoi	30	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	1.00	Large stones	0.01		
EpD:							
Evard, windswept	55	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.70				
Cowee, windswept	25	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.56	Depth to water	1.00
		Seepage	0.70				
		Depth to bedrock	0.02				
EpE:							
Evard, windswept	55	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.70				
Cowee, windswept	25	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.56	Depth to water	1.00
		Seepage	0.70				
		Depth to bedrock	0.02				
EvD:							
Evard	55	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.70				
Cowee	25	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.56	Depth to water	1.00
		Seepage	0.70				
		Depth to bedrock	0.02				
EvE:							
Evard	55	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.70				
Cowee	25	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.56	Depth to water	1.00
		Seepage	0.70				
		Depth to bedrock	0.02				
EvF:							
Evard	55	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.70				
Cowee	25	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.56	Depth to water	1.00
		Seepage	0.70				
		Depth to bedrock	0.02				

Table 10.—Water Management—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
HcE:							
Heintooga-----------	45	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Depth to water	1.00
		Slope	1.00	Large stones	1.00		
Chiltoskie----------	35	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	1.00				
HrF:							
Heintooga-----------	60	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Depth to water	1.00
		Slope	1.00	Large stones	1.00		
Rubble land---------	20	Not rated		Not rated		Not rated	
JbD:							
Junaluska-----------	45	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.95	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.23				
Brasstown-----------	35	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.22	Depth to water	1.00
		Seepage	0.72				
		Depth to bedrock	0.01				
JbE:							
Junaluska-----------	45	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.95	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.23				
Brasstown-----------	35	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.22	Depth to water	1.00
		Seepage	0.72				
		Depth to bedrock	0.01				
JtC:							
Junaluska-----------	60	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.95	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.23				
Tsali---------------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	0.53				
JtD:							
Junaluska-----------	60	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.95	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.23				
Tsali---------------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	0.53				

Table 10.—Water Management—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
JtF:							
Junaluska	55	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.95	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.23				
Tsali	25	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	0.53				
LeD:							
Lauada	45	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.74	Depth to water	1.00
		Seepage	0.70				
		Depth to bedrock	0.05				
Fannin	35	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.70				
LeE:							
Lauada	45	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.74	Depth to water	1.00
		Seepage	0.70				
		Depth to bedrock	0.05				
Fannin	35	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.70				
LeF:							
Lauada	45	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.74	Depth to water	1.00
		Seepage	0.70				
		Depth to bedrock	0.05				
Fannin	35	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.70				
LfD:							
Leatherwood, stony	80	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Large stones	0.02	Depth to water	1.00
		Slope	1.00				
LfE:							
Leatherwood, stony	80	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Large stones	0.02	Depth to water	1.00
		Slope	1.00				
LfF:							
Leatherwood, stony	80	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Large stones	0.02	Depth to water	1.00
		Slope	1.00				
LoB:							
Lonon	70	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Hard to pack	0.58	Depth to water	1.00
		Slope	0.32				

Table 10.—Water Management—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
LoC:							
Lonon	70	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.58	Depth to water	1.00
		Seepage	0.72				
LoD:							
Lonon	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.58	Depth to water	1.00
		Seepage	0.72				
LoE:							
Lonon	65	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.58	Depth to water	1.00
		Seepage	0.72				
Rock outcrop	25	Not rated		Not rated		Not rated	
LrD:							
Luftee	50	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Depth to water	1.00
		Slope	1.00	Thin layer	0.74		
		Depth to bedrock	0.74	Large stones	0.61		
Anakeesta	30	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Depth to water	1.00
		Slope	1.00	Thin layer	0.26		
		Depth to bedrock	0.26	Large stones	0.20		
LrF:							
Luftee	50	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Depth to water	1.00
		Slope	1.00	Thin layer	0.74		
		Depth to bedrock	0.74	Large stones	0.61		
Anakeesta	30	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Depth to water	1.00
		Slope	1.00	Thin layer	0.26		
		Depth to bedrock	0.26	Large stones	0.20		
NtC:							
Northcove	45	Very limited		Very limited		Very limited	
		Seepage	1.00	Large stones	1.00	Depth to water	1.00
		Slope	1.00				
Maymead	25	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	1.00				
Nowhere	15	Very limited		Very limited		Very limited	
		Seepage	1.00	Large stones	1.00	Large stones	1.00
		Slope	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
				Ponding	1.00		
				Seepage	0.18		
NtD:							
Northcove	50	Very limited		Very limited		Very limited	
		Seepage	1.00	Large stones	1.00	Depth to water	1.00
		Slope	1.00				

Table 10.—Water Management—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
NtD:							
Maymead	30	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	1.00				
NtE:							
Northcove	50	Very limited		Very limited		Very limited	
		Seepage	1.00	Large stones	1.00	Depth to water	1.00
		Slope	1.00				
Maymead	30	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	1.00				
OcD:							
Oconaluftee	45	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	1.00				
Guyot	20	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
		Slope	1.00				
Heintooga	15	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Depth to water	1.00
		Slope	1.00	Large stones	1.00		
OcF:							
Oconaluftee	50	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	1.00				
Heintooga	15	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Depth to water	1.00
		Slope	1.00	Large stones	1.00		
Rubble land	15	Not rated		Not rated		Not rated	
OwC:							
Oconaluftee, windswept	50	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	1.00				
Guyot, windswept	15	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
		Slope	1.00				
Cataloochee, windswept	15	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.83	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.09				
OwD:							
Oconaluftee, windswept	50	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	1.00				

Table 10.—Water Management—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
OwD:							
Guyot, windswept	15	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
		Slope	1.00				
Cataloochee, windswept	15	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.83	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.09				
OwE:							
Oconaluftee, windswept	50	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	1.00				
Guyot, windswept	15	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
		Slope	1.00				
Cataloochee, windswept	15	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.83	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.09				
OwF:							
Oconaluftee, windswept	50	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	1.00				
Guyot, windswept	15	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
		Slope	1.00				
Cataloochee, windswept	15	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.83	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.09				
Po:							
Potomac	80	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Depth to water	1.00
				Large stones	1.00		
Rd:							
Reddies	45	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Cutbanks cave	1.00
				Depth to saturated zone	0.68	Depth to saturated zone	0.14
Dellwood	35	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Cutbanks cave	1.00
				Depth to saturated zone	0.43	Large stones	0.38
				Large stones	0.38	Depth to saturated zone	0.25

Table 10.—Water Management—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
RpF:							
Rock outcrop	50	Not rated		Not rated		Not rated	
Pullback	30	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	1.00				
RtF:							
Rock outcrop	50	Not rated		Not rated		Not rated	
Luftee	30	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Depth to water	1.00
		Slope	1.00	Thin layer	0.74		
		Depth to bedrock	0.74	Large stones	0.61		
RuF:							
Rock outcrop	50	Not rated		Not rated		Not rated	
Unicoi	30	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	1.00	Large stones	0.01		
Rv:							
Rosman	50	Very limited		Not limited		Somewhat limited	
		Seepage	1.00			Depth to saturated zone	0.78
						Cutbanks cave	0.10
Reddies	30	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Cutbanks cave	1.00
				Depth to saturated zone	0.68	Depth to saturated zone	0.14
Rw:							
Rosman	40	Very limited		Not limited		Somewhat limited	
		Seepage	1.00			Depth to saturated zone	0.78
						Cutbanks cave	0.10
Reddies	30	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Cutbanks cave	1.00
				Depth to saturated zone	0.68	Depth to saturated zone	0.14
Urban land	15	Not rated		Not rated		Not rated	
RxF:							
Rubble land	50	Not rated		Not rated		Not rated	
Spivey	30	Very limited		Very limited		Very limited	
		Seepage	1.00	Large stones	1.00	Depth to water	1.00
		Slope	1.00				
RZ:							
Rubble land	80	Not rated		Not rated		Not rated	
SaD:							
Saunook, stony	80	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.70				

Table 10.—Water Management—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
SdC:							
Saunook, stony	60	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.70				
Urban land	20	Not rated		Not rated		Not rated	
SI:							
Slide area	100	Not rated		Not rated		Not rated	
SnF:							
Snowbird	80	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.03	Depth to water	1.00
		Seepage	0.70				
		Depth to bedrock	0.01				
SoD:							
Soco	50	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.61	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.02				
Stecoah	35	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.11	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.01				
SoF:							
Soco	50	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.61	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.02				
Stecoah	30	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.11	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.01				
SpD:							
Soco, windswept	50	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.61	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.02				
Stecoah, windswept	30	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.11	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.01				
SpF:							
Soco, windswept	50	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.61	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.02				
Stecoah, windswept	30	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.11	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.01				

Table 10.—Water Management—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
SsB:							
Spivey	50	Very limited		Very limited		Very limited	
		Seepage	1.00	Large stones	1.00	Depth to water	1.00
		Slope	0.32				
Santeetlah	25	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	0.32				
Nowhere	15	Very limited		Very limited		Very limited	
		Seepage	1.00	Large stones	1.00	Large stones	1.00
		Slope	0.32	Depth to saturated zone	1.00	Cutbanks cave	0.10
				Ponding	1.00		
				Seepage	0.18		
SsC:							
Spivey	50	Very limited		Very limited		Very limited	
		Seepage	1.00	Large stones	1.00	Depth to water	1.00
		Slope	1.00				
Santeetlah	25	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	1.00				
Nowhere	15	Very limited		Very limited		Very limited	
		Seepage	1.00	Large stones	1.00	Large stones	1.00
		Slope	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
				Ponding	1.00		
				Seepage	0.18		
SsD:							
Spivey	50	Very limited		Very limited		Very limited	
		Seepage	1.00	Large stones	1.00	Depth to water	1.00
		Slope	1.00				
Santeetlah	30	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	1.00				
SsE:							
Spivey	60	Very limited		Very limited		Very limited	
		Seepage	1.00	Large stones	1.00	Depth to water	1.00
		Slope	1.00				
Santeetlah	20	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	1.00				
StB:							
Statler	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Piping	0.50	Depth to water	1.00
StC:							
Statler	80	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Piping	0.50	Depth to water	1.00
		Slope	1.00				

Table 10.—Water Management—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
TaC:							
Tanasee	50	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	1.00				
Balsam	30	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Depth to water	1.00
		Slope	1.00	Large stones	1.00		
TaD:							
Tanasee	50	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	1.00				
Balsam	30	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Depth to water	1.00
		Slope	1.00	Large stones	1.00		
ThB:							
Thurmont, stony	50	Very limited		Not limited		Very limited	
		Seepage	1.00			Cutbanks cave	1.00
		Slope	0.32			Depth to saturated zone	0.96
Dillard, stony	30	Very limited		Somewhat limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	0.86	Cutbanks cave	0.10
		Slope	0.08	Piping	0.79	Depth to saturated zone	0.06
ThC:							
Thurmont, stony	80	Very limited		Not limited		Very limited	
		Seepage	1.00			Cutbanks cave	1.00
		Slope	1.00			Depth to saturated zone	0.96
To:							
Toxaway	80	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
				Ponding	1.00		
				Piping	0.27		
TuC:							
Tuckasegee, stony	50	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	1.00				
Cullasaja, stony	30	Very limited		Very limited		Very limited	
		Seepage	1.00	Large stones	1.00	Depth to water	1.00
		Slope	1.00	Seepage	0.21		
Ud:							
Udorthents	85	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.43				
W:							
Water	100	Not rated		Not rated		Not rated	

Table 10.—Water Management—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Pond reservoir areas: Value	Embankments, dikes, and levees: Rating class and limiting features	Embankments, dikes, and levees: Value	Aquifer-fed excavated ponds: Rating class and limiting features	Aquifer-fed excavated ponds: Value
WaC:							
Wayah, windswept----	80	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	1.00				
WaD:							
Wayah, windswept----	80	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	1.00				
WaF:							
Wayah, windswept----	80	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	1.00				
WeD:							
Wayah---------------	80	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	1.00				
WeF:							
Wayah---------------	80	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	1.00				

Table 11.—Physical and Chemical Analyses of Selected Soils

Map unit symbol	User pedon ID	Pedon type	Component name	Lab ID	Lab pedon number
AwB	99NC087001		Alarka	NSSL	00P0231
AwB	99NC605 Alarka-OSD	OSD	Alarka	NSSL	00P0232
AwB	99NC173 Wesser-OSD	OSD	Wesser	NSSL	00P0233
AxB	00TN009002		Allegheny	NSSL	01P0044
AxB	00TN009010		Allegheny	NSSL	01P0052
BpC	01TN009001		Pullback	NSSL	01N1066
BpC	02NC173 Pullback-OSD	OSD	Pullback	NSSL	02N1022
BpD	01TN009002		Breakneck	NSSL	01N1065
BpD	01TN155009		Breakneck	NSSL	01N1061
BpD	02NC173007		Breakneck	NSSL	02N1024
BpD	02TN155 Breakneck-OSD	OSD	Breakneck	NSSL	02N1017
BpD	03TN155001		Breakneck	NSSL	03N0711
BrE	01TN155 Pinnacle-OSD	OSD	Pinnacle	NSSL	01N0568
CaB	00TN009 Cades-OSD	OSD	Cades	NSSL	01P0048
CaB	00TN009007		Cades	NSSL	01P0049
CaB	00TN009008		Cades	NSSL	01P0050
CcF	04NC173002		Cataska	NSSL	04N0777
CcF	04NC173003		Sylco	NSSL	04N0778
ChF	99NC173005		Cheoah	NSSL	00P0236
CmC	00NC173 Chiltoskie-OSD	OSD	Chiltoskie	NSSL	00P1193
CmC	00NC173 Heintooga-OSD	OSD	Heintooga	NSSL	00P1194
CmC	00NC087 Horsetrough-OSD	OSD	Horsetrough	NSSL	00P1197
CmD	00NC087003		Chiltoskie	NSSL	00P1196
CnF	01NC087007		Clifton	NSSL	01N0574
CnF	01NC173001		Clifton	NSSL	01N0571
CnF	99NC173003		Clifton	NSSL	00P0234
CoB	00TN009001		Cotaco	NSSL	01P0043
Dg	99NC173 Smokemont-OSD	OSD	Smokemont	NSSL	00P0235
DtD	04TN009001		Ditney	NSSL	04N0774
DtF	01NC087001		Ditney	NSSL	01N1062
DtF	01TN155002		Ditney	NSSL	01N0569
DtF	01NC087002		Unicoi	NSSL	01N1063
HcE	03NC087002		Heintooga	NSSL	03N0710
JbD	04NC173001		Junaluska	NSSL	04N0776
JbD	04TN155001		Brasstown	NSSL	04N0779
JtC	04NC075001		Tsali	NSSL	04N0775
JtD	04NC039001		Tsali	NSSL	04N0780
LeE	02NC173 Lauada-OSD	OSD	Lauada	NSSL	02N1025
LeE	02NC173001		Lauada	NSSL	02N1018
LeE	02NC173002		Lauada	NSSL	02N1019
LeE	02NC173003		Lauada	NSSL	02N1020
LeE	02NC173009		Fannin	NSSL	02N1026
LfE	99NC173 Leatherwood-OSD	OSD	Leatherwood	NSSL	00P0237
LfF	01NC173002		Leatherwood	NSSL	01N0572
LfF	01NC173003		Leatherwood	NSSL	01N0573
LoB	00TN009003		Lonon	NSSL	01P0045
LoB	00TN009004		Lonon	NSSL	01P0046
LrD	01TN155008		Luftee	NSSL	01N1060
LrD	03TN155002		Anakeesta	NSSL	03N0712
LrF	01TN155 Luftee-OSD	OSD	Luftee	NSSL	01N1057
LrF	01TN155004		Luftee	NSSL	01N1056
LrF	01TN155007		Luftee	NSSL	01N1059
LrF	01NC173004		Anakeesta	NSSL	01N1058
LrF	01TN155 Anakeesta-OSD	OSD	Anakeesta	NSSL	01N1055
OcF	00NC173001	TUD	Oconaluftee	NSSL	00P1192
OcF	00NC173004		Oconaluftee	NSSL	00P1195
OwC	00NC087 Cataloochee-OSD	OSD	Cataloochee	NSSL	00P1191
OwC	00NC087001 Guyot-OSD	OSD	Guyot	NSSL	00P1190
OwD	03NC173002		Cataloochee	NSSL	03N0714
OwD	03NC173003		Cataloochee	NSSL	03N0715
OwE	02NC173006		Guyot	NSSL	02N1023
Rd	03NC173001		Reddies	NSSL	03N0713
Rv	00TN009005		Rosman	NSSL	01P0047

Table 11.—Physical and Chemical Analyses of Selected Soils—Continued

Map unit symbol	User pedon ID	Pedon type	Component name	Lab ID	Lab pedon number
SnF	01TN155003		Snowbird	NSSL	01N0570
SsB	02TN155001		Spivey	NSSL	02N1016
SsB	02NC173010		Nowhere	NSSL	02N1027
SsC	02NC173 Nowhere-OSD	OSD	Nowhere	NSSL	02N1021
TaD	02NC087002		Tanasee	NSSL	02N1015
To	00TN009009		Toxaway	NSSL	01P0051
WeD	01NC173005		Wayah	NSSL	01N1064
WeD	02NC087001		Wayah	NSSL	02N1014

Table 12.—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: >250 mm	Fragments: 75-250 mm	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	Cm				Pct	Pct					Pct	
AwB:												
Alarka----------	0-8	Moderately decomposed plant material	PT	A-8	0	0	0	0	0	0	---	---
	3-18	Highly decomposed plant material	PT	A-8	0	0	0	0	0	0	---	---
	7-25	Highly decomposed plant material	PT	A-8	0	0	0	0	0	0	---	---
	10-33	Loam, sandy loam, sandy clay loam, clay loam	ML	A-7-5	0	0	100	100	92-100	67-84	38-64	11-24
	13-53	Loam, sandy loam, sandy clay loam, clay loam	CL	A-6	0	0	100	100	89-100	57-74	29-49	12-24
	21-91	Sandy loam, fine sandy loam, very fine sandy loam, loam	CL	A-4	0	0	85-100	84-100	71-100	38-60	17-35	2-13
	36-152	Very gravelly sandy loam, very gravelly loamy sand, very gravelly fine sandy loam	GC-GM	A-1-a	16-23	6-8	40-48	38-46	29-40	13-20	18-31	2-10
Wesser----------	0-8	Muck	PT	A-8	0	0	0	0	0	0	---	---
	3-15	Sandy loam	ML	A-4, A-6, A-7-5	0	0	100	100	81-96	40-55	27-63	2-13
	6-33	Sand, loamy sand, loamy fine sand	SM	A-2-5	0	0	100	100	89-100	28-43	0-59	NP-9
	13-49	Sand, loamy sand, loamy fine sand	SM	A-2-4	0	0	76-100	75-100	64-100	12-31	0-41	NP-9
	19-158	Extremely gravelly loamy sand, extremely gravelly sand	GW	A-1, A-1-a	8-12	10-28	11-25	7-22	5-18	1-5	0-33	NP-10

Table 12.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >250 mm	Fragments: 75-250 mm	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	Cm				Pct	Pct					Pct	
AwC:												
Alarka----------	0-8	Moderately decomposed plant material	PT	A-8	0	0	0	0	0	0	---	---
	3-18	Highly decomposed plant material	PT	A-8	0	0	0	0	0	0	---	---
	7-25	Highly decomposed plant material	PT	A-8	0	0	0	0	0	0	---	---
	10-33	Loam, sandy loam, sandy clay loam, clay loam	ML	A-7-5	0	0	100	100	92-100	67-84	38-64	11-24
	13-53	Loam, sandy loam, sandy clay loam, clay loam	CL	A-6	0	0	100	100	89-100	57-74	29-49	12-24
	21-91	Sandy loam, fine sandy loam, very fine sandy loam, loam	CL	A-4	0	0	85-100	84-100	71-100	38-60	17-35	2-13
	36-152	Very gravelly sandy loam, very gravelly loamy sand, very gravelly fine sandy loam	GC-GM	A-1-a	16-23	6-8	40-48	38-46	29-40	13-20	18-31	2-10
Whiteside-------	0-36	Fine sandy loam	ML, SM	A-2, A-4, A-5	0	0-3	93-100	79-100	68-98	32-54	20-46	2-12
	14-119	Sandy clay loam, loam, fine sandy loam, gravelly sandy clay loam	SC	A-2, A-6	0	0-5	90-100	72-100	59-99	31-61	28-45	12-25
	47-135	Loamy sand, loamy fine sand, sandy loam, gravelly loamy sand	SM, SC-SM	A-2-4	0	0-5	90-100	73-100	53-90	9-30	0-32	NP-13
	53-178	Sandy clay loam, fine sandy loam, sandy loam, gravelly sandy loam	CL-ML, SC-SM, SC	A-2-4, A-4, A-6	0	0-5	90-100	72-100	53-100	25-61	18-44	4-25
AxB:												
Allegheny-------	0-20	Loam	CL, ML	A-4, A-7-6	0	0	88-100	76-100	57-90	43-71	26-45	7-18
	8-132	Clay loam, loam, sandy clay loam	CL, ML, SC, SM	A-4, A-6, A-7-6	0	0	89-100	79-100	55-97	42-81	23-50	7-28
	52-183	Clay, clay loam, sandy loam, gravelly sandy loam	CL, GC, ML, CH	A-1, A-2, A-4, A-6, A-7-6	0	0-4	55-100	53-100	28-100	23-98	17-66	3-43

Table 12.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>250 mm	75-250 mm	4	10	40	200		
	Cm				Pct	Pct					Pct	
BaE:												
Balsam----------	0-5	Moderately decomposed plant material	PT	A-8	0	0	0	0	0	0	---	---
	2-33	Cobbly sandy loam, stony sandy loam, cobbly loam, very cobbly fine sandy loam	SM	A-1-b, A-2-5, A-5	0-34	28-51	39-83	37-83	27-79	15-53	33-79	1-17
	13-122	Very cobbly sandy loam, very stony sandy loam, very cobbly loam, extremely cobbly sandy loam	GM, SM	A-1-b, A-2-4	6-39	33-43	25-83	11-78	8-73	4-48	17-47	1-18
	48-165	Very cobbly loamy sand, very cobbly fine sandy loam, very stony loam, very stony fine sandy loam, extremely cobbly loamy sand	SM, GM, SP-SM	A-2-4, A-1-b	6-39	33-43	25-83	11-78	7-71	3-37	16-41	1-19
Tanasee---------	0-5	Moderately decomposed plant material	PT	A-8	0-20	0-41	0	0	0	0	---	---
	2-20	Clay loam, cobbly clay loam	ML, MH	A-7-5	0-32	0-32	61-100	59-100	52-100	38-77	45-68	18-27
	8-46	Loam, sandy loam, cobbly sandy loam	ML, CL	A-4, A-6	0-25	0-25	69-100	68-100	51-95	37-74	19-43	3-18
	18-84	Clay loam, loam, sandy loam, sandy clay loam, cobbly sandy clay loam	CL	A-4, A-6	0-20	0-20	75-100	74-100	57-100	41-81	24-50	9-28
	33-142	Loam, sandy loam, cobbly sandy loam, very cobbly sandy loam	ML, CL	A-4, A-6	0-32	0-32	53-100	51-100	36-91	22-64	18-39	3-19
	56-200	Very cobbly sandy loam, cobbly sandy loam, cobbly loam	SM, SC-SM	A-2-4, A-1-b	0-32	16-32	52-88	50-87	38-82	17-44	0-33	NP-13
Bm:												
Biltmore--------	0-25	Sand	SM, SP-SM	A-2-4	0	0-4	93-100	87-100	63-82	5-14	0-28	NP-5
	10-203	Loamy fine sand, sand, fine sand	SM	A-2-4	0	0-5	96-100	88-100	78-100	21-36	0-25	NP-7
BpC:												
Breakneck-------	0-30	Loam, channery loam, clay loam, channery clay loam	SM, CL, GC	A-6, A-4, A-2-6	0-6	0-13	60-100	48-100	32-100	21-76	24-58	3-28
	12-71	Channery sandy loam, sandy loam, channery loam, loam	SM, GC-GM	A-2, A-1-b	0-1	0-1	60-93	53-86	37-74	21-48	0-33	NP-13
	28-200	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 12.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >250 mm	Fragments: 75-250 mm	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	Cm				Pct	Pct					Pct	
BpC:												
Pullback--------	0-3	Peat	PT	A-8	0	0	0	0	0	0	---	---
	1-20	Loam, channery loam, clay loam, channery clay loam, sandy loam	CL, SM	A-6, A-4, A-5	0	0-24	64-100	63-100	47-100	24-70	0-74	NP-23
	8-41	Channery sandy loam, sandy loam, channery loam, loam	CL, SM	A-4, A-6	0	0-20	71-100	70-100	54-100	28-64	0-47	NP-18
	16-200	Unweathered bedrock			---	---	---	---	---	---	---	---
BpD:												
Breakneck-------	0-30	Loam, channery loam, clay loam, channery clay loam	SM, CL, GC	A-6, A-4, A-2-6	0-6	0-13	60-100	48-100	32-100	21-76	24-58	3-28
	12-71	Channery sandy loam, sandy loam, channery loam, loam	SM, GC-GM	A-2, A-1-b	0-1	0-1	60-93	53-86	37-74	21-48	0-33	NP-13
	28-200	Unweathered bedrock			---	---	---	---	---	---	---	---
BpD:												
Pullback--------	0-3	Peat	PT	A-8	0	0	0	0	0	0	---	---
	1-20	Loam, channery loam, clay loam, channery clay loam, sandy loam	CL, SM	A-6, A-4, A-5	0	0-24	64-100	63-100	47-100	24-70	0-74	NP-23
	8-41	Channery sandy loam, sandy loam, channery loam, loam	CL, SM	A-4, A-6	0	0-20	71-100	70-100	54-100	28-64	0-47	NP-18
	16-200	Unweathered bedrock			---	---	---	---	---	---	---	---
BpF:												
Breakneck-------	0-30	Loam, channery loam, clay loam, channery clay loam	SM, CL, GC	A-6, A-4, A-2-6	0-6	0-13	60-100	48-100	32-100	21-76	24-58	3-28
	12-71	Channery sandy loam, sandy loam, channery loam, loam	SM, GC-GM	A-2, A-1-b	0-1	0-1	60-93	53-86	37-74	21-48	0-33	NP-13
	28-200	Unweathered bedrock			---	---	---	---	---	---	---	---
Pullback--------	0-3	Peat	PT	A-8	0	0	0	0	0	0	---	---
	1-20	Loam, channery loam, clay loam, channery clay loam, sandy loam	CL, SM	A-6, A-4, A-5	0	0-24	64-100	63-100	47-100	24-70	0-74	NP-23
	8-41	Channery sandy loam, sandy loam, channery loam, loam	CL, SM	A-4, A-6	0	0-20	71-100	70-100	54-100	28-64	0-47	NP-18
	16-200	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 12.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>250 mm	75-250 mm	4	10	40	200		
	Cm				Pct	Pct					Pct	
BrE:												
Breakneck-------	0-30	Loam, channery loam, clay loam, channery clay loam	SM, CL, GC	A-6, A-4, A-2-6	0-6	0-13	60-100	48-100	32-100	21-76	24-58	3-28
	12-71	Channery sandy loam, sandy loam, channery loam, loam	SM, GC-GM	A-2, A-1-b	0-1	0-1	60-93	53-86	37-74	21-48	0-33	NP-13
	28-200	Unweathered bedrock			---	---	---	---	---	---	---	---
Luftee----------	0-28	Very channery loam, channery clay loam, channery silt loam	SM, SC-SM, GM	A-2-7	0	25-59	18-62	16-61	11-57	8-48	41-74	4-23
	11-51	Very channery loam, extremely channery loam, extremely channery sandy loam	SM, SC-SM, GM	A-2-4, A-4, A-2-7	0	10-35	36-87	35-86	24-77	19-63	30-58	4-18
	20-86	Extremely channery sandy loam, extremely channery loam	GM, GC-GM	A-2, A-1-b	0	13-39	27-82	25-82	17-74	12-56	0-41	NP-17
	34-200	Unweathered bedrock			---	---	---	---	---	---	---	---
Clingman--------	0-38	Peat	PT	A-8	0-2	---	---	---	---	---	---	---
	15-48	Loamy sand, sandy loam, loam	SC-SM, SM	A-2-4, A-2-5	0-1	0-3	92-100	83-100	62-90	12-30	27-63	2-13
	19-200	Unweathered bedrock			---	---	---	---	---	---	---	---
Pinnacle--------	0-48	Mucky peat, peat	PT	A-8	---	---	---	---	---	---	---	---
	19-66	Muck	PT	A-8	---	---	---	---	---	---	---	---
	26-92	Muck	PT	A-8	---	---	---	---	---	---	---	---
	36-200	Unweathered bedrock			---	---	---	---	---	---	---	---
BrF:												
Breakneck-------	0-30	Loam, channery loam, clay loam, channery clay loam	SM, CL, GC	A-6, A-4, A-2-6	0-6	0-13	60-100	48-100	32-100	21-76	24-58	3-28
	12-71	Channery sandy loam, sandy loam, channery loam, loam	SM, GC-GM	A-2, A-1-b	0-1	0-1	60-93	53-86	37-74	21-48	0-33	NP-13
	28-200	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 12.—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	>250 mm	75-250 mm	4	10	40	200		
	Cm				Pct	Pct					Pct	
BrF:												
Luftee----------	0-28	Very channery loam, channery clay loam, channery silt loam	SM, SC-SM, GM	A-2-7	0	25-59	18-62	16-61	11-57	8-48	41-74	4-23
	11-51	Channery loam, very channery loam, extremely channery loam, extremely channery sandy loam	SM, SC-SM, GM	A-2-4, A-4, A-2-7	0	10-35	36-87	35-86	24-77	19-63	30-58	4-18
	20-86	Channery sandy loam, extremely channery sandy loam, extremely channery loam	GM, GC-GM	A-2, A-1-b	0	13-39	27-82	25-82	17-74	12-56	0-41	NP-17
	34-200	Unweathered bedrock			---	---	---	---	---	---	---	---
Clingman--------	0-38	Peat	PT	A-8	0-2	---	---	---	---	---	---	---
	15-48	Loamy sand, sandy loam, loam	SC-SM, SM	A-2-4, A-2-5	0-1	0-3	92-100	83-100	62-90	12-30	27-63	2-13
	19-200	Unweathered bedrock			---	---	---	---	---	---	---	---
Pinnacle--------	0-48	Peat, mucky peat	PT	A-8	0	0	---	---	---	---	---	---
	19-66	Muck	PT	A-8	0	0	---	---	---	---	---	---
	26-92	Muck	PT	A-8	0	0	---	---	---	---	---	---
	36-200	Unweathered bedrock			---	---	---	---	---	---	---	---
BuF:												
Burton----------	0-46	Cobbly sandy loam, sandy loam	SM	A-2, A-4, A-5, A-2-5	2-6	4-29	93-98	70-98	50-83	24-47	34-61	2-11
	18-91	Cobbly sandy loam, very cobbly fine sandy loam, stony sandy loam	SM, SC-SM	A-1-b, A-2, A-2-4	0-11	10-25	74-88	50-84	36-71	17-40	16-30	2-12
	36-200	Unweathered bedrock			---	---	---	---	---	---	---	---
Craggey---------	0-10	Muck	PT	A-8	0-2	0-5	0	0	0	0	---	---
	4-28	Cobbly mucky loam, mucky loam, gravelly fine sandy loam	OH	A-5, A-4	0	10-43	100	100	86-100	55-73	35-77	3-16
	11-200	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop.												

Table 12.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >250 mm	Fragments: 75-250 mm	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	Cm				Pct	Pct					Pct	
CaB:												
Cades	0-10	Silt loam	ML, CL	A-4, A-7-6	0	0-8	79-100	78-100	62-95	54-84	26-47	7-18
	4-26	Silty clay loam, loam, silt loam, channery silty clay loam	ML, CL	A-4, A-7-6	0	0-10	74-100	73-100	55-100	48-94	24-54	7-28
	10-69	Silty clay loam, loam, clay loam, channery silty clay loam	CL	A-7-6	0	0-15	80-100	80-100	61-99	55-91	28-50	12-28
	27-182	Extremely channery sandy clay loam, extremely channery clay loam	GC	A-2, A-2-6	0	33-40	24-44	22-43	15-39	11-30	29-50	13-28
CcF:												
Cataska	0-13	Channery silt loam	CL-ML, CL, GM, ML	A-4, A-6	0-5	11-21	76-86	65-84	57-82	46-68	24-39	7-15
	5-46	Very channery silt loam, very channery loam, extremely channery loam	GC-GM, GC	A-2, A-2-6	0-1	11-23	42-63	15-54	14-53	11-44	23-36	7-15
	18-86	Weathered bedrock			---	---	---	---	---	---	---	---
	34-200	Unweathered bedrock			---	---	---	---	---	---	---	---
Sylco	0-13	Channery silt loam	ML, GC, GC-GM, SC	A-4, A-6	0-2	0-6	74-82	48-70	43-69	35-59	27-45	9-17
	5-61	Channery silt loam, very channery silt loam, flaggy loam, very channery silty clay loam	CL, GC, GC-GM, SC	A-2-4, A-4, A-6	0-2	5-14	72-88	45-79	38-79	33-75	26-45	9-25
	24-84	Channery silt loam, very channery silt loam, very flaggy loam, very flaggy silty clay loam, extremely flaggy loam	GC, GC-GM, SC	A-2, A-4, A-6	0-2	16-38	52-82	26-82	22-82	19-78	26-45	9-25
	33-200	Unweathered bedrock			---	---	---	---	---	---	---	---
ChF:												
Cheoah	0-33	Channery loam	SM	A-4, A-5, A-7-5, A-2-7	0-5	6-14	80-90	55-76	42-73	24-48	22-51	3-18
	13-114	Channery sandy clay loam, fine sandy loam, silt loam	CL, ML, SC, SM	A-4, A-6	0-2	0-6	74-100	54-100	37-92	19-59	0-47	NP-18
	45-142	Channery sandy loam, channery fine sandy loam, channery silt loam	CL, ML, SC, SM	A-4, A-2-6	0-4	5-12	82-96	59-96	42-91	21-57	0-41	NP-19
	56-162	Weathered bedrock		A-2	---	---	---	---	---	---	---	---

Table 12.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >250 mm	Fragments: 75-250 mm	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	Cm				Pct	Pct					Pct	
CkF:												
Chestnut--------	0-41	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-2, A-4, A-5, A-2-4	0-1	0-3	92-100	81-100	69-100	28-50	18-48	2-13
	16-81	Loam, gravelly loam, gravelly fine sandy loam, sandy loam	SC-SM, SM, CL	A-2, A-4	0-3	0-16	83-98	61-98	47-96	32-71	16-39	2-17
	32-102	Weathered bedrock			---	---	---	---	---	---	---	---
Cleveland-------	0-38	Gravelly fine sandy loam, sandy loam, gravelly sandy loam	SM	A-1, A-2, A-4, A-2-4	0-2	2-9	76-90	53-90	46-90	19-44	18-48	3-13
	15-200	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop.												
CmC:												
Chiltoskie------	0-5	Peat	PT	A-8	0	0	0	0	0	0	---	---
	2-20	Loam	ML, OL	A-4, A-6, A-7-5	0	0-12	84-100	84-100	62-93	42-70	40-68	3-18
	8-36	Channery loam, loam, channery sandy loam	SM, CL	A-4	0	0-24	65-100	64-100	50-99	34-74	20-43	3-18
	14-66	Loam, sandy loam, channery loam	ML, CL	A-4	0	0-22	68-100	68-100	56-100	38-76	19-43	3-18
	26-104	Loam, sandy loam, channery loam	ML, CL	A-4	0	0-22	68-100	68-100	49-92	40-79	19-41	3-19
	41-155	Very gravelly sandy loam, very channery sandy loam	GC-GM	A-2, A-1-b	0	0	33-55	30-53	20-48	11-33	0-39	NP-19
Heintooga-------	0-3	Peat	PT	A-8	0	0	0	0	0	0	---	---
	1-10	Very flaggy loam	SM, GM, PT	A-4, A-8	16-24	36-52	51-73	50-73	37-69	24-50	---	---
	4-31	Very flaggy loam, very flaggy fine sandy loam	SM, GM	A-4, A-6	14-22	32-48	55-77	54-76	43-75	29-56	22-58	3-18
	12-64	Extremely channery fine sandy loam, extremely channery loam	GM	A-2, A-1-a	0-10	35-50	23-39	22-38	17-36	10-24	0-41	NP-13
	25-155	Extremely flaggy coarse sandy loam, extremely flaggy sandy loam	SM, GM	A-2, A-1-b	20-25	43-54	36-60	35-59	20-45	10-29	0-35	NP-13

Table 12.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >250 mm	Fragments: 75-250 mm	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	Cm				Pct	Pct					Pct	
CmC:												
Horsetrough-----	0-18	Flaggy fine sandy loam	SM	A-4	13-19	15-33	84-100	83-100	61-93	33-60	0-52	NP-13
	7-33	Extremely channery loamy coarse sand, extremely channery sandy loam	GM, GP-GM	A-1, A-1-a	0-11	36-53	17-38	15-36	10-29	3-14	0-33	NP-10
	13-71	Extremely channery coarse sand, extremely channery loamy coarse sand, extremely channery loamy sand, extremely channery sand	GM, GP-GM	A-1, A-1-a	0-11	35-52	18-39	16-38	10-30	3-13	0-31	NP-10
	28-84	Channery loamy sand, channery sand	SM	A-2, A-2-4	0	11-23	67-85	66-85	47-73	21-40	0-31	NP-10
	33-102	Fine sandy loam, loamy sand, sand, channery loamy sand, very channery fine sandy loam	SM	A-4, A-2-4	0	7-33	44-91	43-91	35-91	17-54	0-33	NP-13
	40-117	Loamy coarse sand, loamy sand, sand, channery loamy sand, very channery loamy sand	SM	A-2, A-2-4	0	7-33	44-91	43-91	29-75	13-42	0-28	NP-10
	46-158	Weathered bedrock			---	---	---	---	---	---	---	---
CmD:												
Chiltoskie------	0-5	Peat	PT	A-8	0	0	0	0	0	0	---	---
	2-20	Loam	ML, OL	A-4, A-6, A-7-5	0	0-12	84-100	84-100	62-93	42-70	40-68	3-18
	8-36	Channery loam, loam, channery sandy loam	ML, CL	A-4	0	0-24	65-100	64-100	50-99	34-74	20-43	3-18
	14-66	Loam, sandy loam, channery loam	ML, CL	A-4	0	0-22	68-100	68-100	56-100	38-76	19-43	3-18
	26-104	Loam, sandy loam, channery loam	ML, CL	A-4	0	0-22	68-100	68-100	49-92	40-79	19-41	3-19
	41-155	Very gravelly sandy loam, very channery sandy loam	GC-GM	A-2, A-1-b	0	0	33-55	30-53	20-48	11-33	0-39	NP-19
Heintooga-------	0-3	Peat	PT	A-8	0	0	0	0	0	0	---	---
	1-10	Very flaggy loam	SM, GM, PT	A-4, A-8	16-24	36-52	51-73	50-73	37-69	24-50	---	---
	4-31	Very flaggy loam, very flaggy fine sandy loam	SM, GM	A-4, A-6	14-22	32-48	55-77	54-76	43-75	29-56	22-58	3-18
	12-64	Extremely channery fine sandy loam, extremely channery loam	GM	A-2, A-1-a	0-10	35-50	23-39	22-38	17-36	10-24	0-41	NP-13
	25-155	Extremely flaggy coarse sandy loam, extremely flaggy sandy loam	SM, GM	A-2, A-1-b	20-25	43-54	36-60	35-59	20-45	10-29	0-35	NP-13

Table 12.—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	>250 mm	75-250 mm	4	10	40	200		
	Cm				Pct	Pct					Pct	
CnF:												
Clifton----------	0-20	Clay loam	ML, CL	A-6, A-7, A-7-6	0	0-5	89-100	78-100	66-98	51-78	36-56	18-28
	8-102	Clay, clay loam	CH	A-7, A-7-6	0	0-5	95-100	79-100	63-100	50-88	37-61	21-39
	40-201	Fine sandy loam, loam, cobbly fine sandy loam	CL, ML, SC, SM	A-4, A-6	0-12	0-29	90-100	85-100	70-100	28-55	16-38	2-19
CoB:												
Cotaco-----------	0-20	Silty clay loam	ML, SC-SM	A-6, A-7-6	0	0	80-100	56-100	53-100	50-100	39-62	18-28
	8-80	Silt loam, clay loam, loam, gravelly silt loam	ML, SC, SM, CL	A-4, A-6	0	0	78-100	56-100	46-100	42-100	20-52	4-28
	31-132	Gravelly silt loam, clay loam, loam	CL, ML, SC, SM	A-2, A-4, A-6	0	0	78-100	57-100	50-100	35-94	18-50	4-28
	52-172	Silt loam, clay loam, loam	ML, CL-ML	A-4	0	0	100	100	92-100	63-100	0-50	NP-28
CuD:												
Cullasaja, very stony-----------	0-46	Cobbly loam	GM, SM, OL	A-2-5, A-5	0	36-50	66-100	66-100	52-98	34-69	29-67	3-16
	18-122	Very cobbly fine sandy loam, very stony sandy loam, cobbly loam, very bouldery fine sandy loam, very stony loam	GM, SM, SC	A-1-b, A-2-4	12-17	30-45	70-95	46-95	39-95	16-49	18-41	3-17
	48-157	Extremely stony loamy sand, very cobbly sandy loam, extremely cobbly sandy loam, extremely stony sandy loam, extremely bouldery sandy loam	GM, SM, SC-SM	A-1-a, A-2-4	20-36	39-55	61-97	30-97	20-77	7-35	16-30	2-12
Tuckasegee, very stony-----------	0-33	Fine sandy loam	SM	A-2, A-4, A-5, A-2-5	0	0-8	89-100	75-100	67-97	30-48	31-63	7-13
	13-66	Fine sandy loam, loam, sandy loam, gravelly loam	ML, SM, CL	A-4, A-6	0-2	0-16	88-100	64-100	53-95	38-71	27-43	9-18
	26-119	Gravelly sandy clay loam, gravelly fine sandy loam, sandy clay loam, cobbly sandy loam	SC	A-4, A-2-4, A-2-6	0-3	18-29	81-93	67-93	54-86	28-50	26-39	9-19
	47-165	Cobbly sandy loam, very cobbly sandy loam, loam	SC-SM, SC	A-1-b, A-2-4, A-6, A-4	0-4	25-62	81-100	62-100	48-92	23-52	20-36	6-17

Table 12.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >250 mm	Fragments: 75-250 mm	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	Cm				Pct	Pct					Pct	
CuE:												
Cullasaja, very stony----------	0-46	Cobbly loam	GM, SM, OL	A-2-5, A-5	0	36-50	66-100	66-100	52-98	34-69	29-67	3-16
	18-122	Very cobbly fine sandy loam, very stony sandy loam, cobbly loam, very bouldery fine sandy loam, very stony loam	GM, SM, SC	A-1-b, A-2-4	12-17	30-45	70-95	46-95	39-95	16-49	18-41	3-17
	48-157	Extremely stony loamy sand, very cobbly sandy loam, extremely cobbly sandy loam, extremely bouldery sandy loam, extremely stony sandy loam	GM, SM, SC-SM	A-1-a, A-2-4	20-36	39-55	61-97	30-97	20-77	7-35	16-30	2-12
Tuckasegee, very stony----------	0-33	Fine sandy loam	SM	A-2, A-4, A-5, A-2-5	0	0-14	83-100	59-100	53-97	24-48	31-63	7-13
	13-66	Fine sandy loam, loam, sandy loam, gravelly loam	ML, SM, CL	A-4, A-6	0-2	0-16	88-100	64-100	53-95	38-71	27-43	9-18
	26-119	Gravelly sandy clay loam, gravelly fine sandy loam, sandy clay loam, cobbly sandy loam	SC	A-4, A-2-4, A-2-6	0-3	18-29	81-93	67-93	54-86	28-50	26-39	9-19
	47-165	Cobbly sandy loam, very cobbly sandy loam, loam	SC-SM, SC	A-1-b, A-2-4, A-6, A-4	0-4	25-62	81-100	62-100	48-92	23-52	20-36	6-17
CuF:												
Cullasaja, extremely stony	0-46	Cobbly loam	GM, SM, OL	A-2-5, A-5	0	36-50	66-100	66-100	52-98	34-69	29-67	3-16
	18-122	Very cobbly fine sandy loam, very stony sandy loam, cobbly loam, very bouldery fine sandy loam, very stony loam	GM, SM, SC	A-1-b, A-2-4	12-17	30-45	70-95	46-95	39-95	16-49	18-41	3-17
	48-157	Extremely stony loamy sand, very cobbly sandy loam, extremely cobbly sandy loam, extremely bouldery sandy loam, extremely stony sandy loam	GM, SM, SC-SM	A-1-a, A-2-4	20-36	39-55	61-97	30-97	20-77	7-35	16-30	2-12
Rubble land.												

Table 12.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>250 mm	75-250 mm	4	10	40	200		
	Cm				Pct	Pct					Pct	
Cw:												
Cullowhee-------	0-25	Sandy loam	SM	A-2-4, A-4	0	0-3	93-100	79-100	57-85	28-48	23-50	2-11
	10-79	Loamy sand, loamy fine sand, sandy loam	SM, SC-SM	A-2-4	0	0-4	92-100	80-100	62-84	17-28	16-26	2-7
	31-152	Extremely gravelly sand, very gravelly sand, very cobbly sand, sand	GP-GM, SP-SM, SW	A-1-a	0-4	10-33	50-89	12-89	9-70	1-9	0-19	NP-2
Ela-------------	0-41	Fine sandy loam, sandy loam, loam, coarse sandy loam	ML, SM	A-4	0	0-4	91-100	76-100	67-100	46-78	0-52	NP-13
	16-81	Fine sandy loam, gravelly fine sandy loam, gravelly sandy loam, gravelly loam, gravelly coarse sandy loam	SM, SC-SM	A-2-4, A-4	0	0-16	81-92	80-91	68-91	34-54	0-37	NP-13
	32-155	Extremely cobbly sandy loam, extremely gravelly coarse sand, very gravelly sand, very cobbly loamy sand, cobbly sandy loam	GM, GP-GM, SM, SP-SM	A-1, A-1-a	0-17	23-45	26-74	23-73	18-68	7-33	0-31	NP-10
Dd:												
Dellwood--------	0-20	Cobbly loam	SM	A-4	0-4	14-24	77-88	67-87	57-80	39-57	24-44	3-9
	8-36	Extremely gravelly sand, very gravelly sand, very gravelly loamy sand, gravelly sand	GP, GP-GM, SP, GW	A-1, A-1-a	0-5	16-47	18-83	15-82	11-66	1-11	0-25	NP-4
	14-152	Extremely gravelly sand, very cobbly sand, extremely gravelly coarse sand	GM, GP, GP-GM, SP	A-1, A-1-a	0-5	26-40	32-68	29-67	12-30	2-6	0-19	NP-1

Table 12.—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	>250 mm	75-250 mm	4	10	40	200		
	Cm				Pct	Pct					Pct	
Dd:												
Smokemont-------	0-28	Gravelly sandy loam, cobbly sandy loam, gravelly fine sandy loam, cobbly fine sandy loam	SM	A-2-4, A-4, A-1-b	0-10	9-11	63-83	62-82	40-65	19-37	26-45	1-12
	11-69	Extremely gravelly sandy loam, very gravelly coarse sandy loam, extremely gravelly loamy coarse sand	GM, SM, GW-GM, SW-SM, GP-GC	A-2-4, A-1-a	6-20	10-20	25-62	22-60	16-52	8-32	19-37	1-13
	27-158	Extremely gravelly loamy coarse sand, very cobbly sand, extremely gravelly coarse sand	GM, GP, GP-GM	A-1, A-1-a	7-17	11-17	15-45	12-42	6-29	3-17	0-33	NP-10
Urban land.												
Dg:												
Dellwood--------	0-20	Cobbly loam	SM	A-4	0-4	14-24	77-88	67-87	57-80	39-57	24-44	3-9
	8-36	Extremely gravelly sand, very gravelly sand, very gravelly loamy sand, gravelly sand	GP, GP-GM, SP, GW	A-1, A-1-a	0-5	16-47	18-83	15-82	11-66	1-11	0-25	NP-4
	14-152	Extremely gravelly sand, very cobbly sand, extremely gravelly coarse sand	GM, GP, GP-GM, SP	A-1, A-1-a	0-5	26-40	32-68	29-67	12-30	2-6	0-19	NP-1
Smokemont-------	0-28	Gravelly sandy loam, cobbly sandy loam, gravelly fine sandy loam, cobbly fine sandy loam	SM	A-2-4, A-4, A-1-b	0-10	9-11	63-83	62-82	40-65	19-37	26-45	1-12
	11-69	Extremely gravelly sandy loam, very gravelly coarse sandy loam, extremely gravelly loamy coarse sand	GM, SM, GW-GM, SW-SM, GP-GC	A-2-4, A-1-a	6-20	10-20	25-62	22-60	16-52	8-32	19-37	1-13
	27-158	Extremely gravelly loamy coarse sand, very cobbly sand, extremely gravelly coarse sand	GM, GP, GP-GM	A-1, A-1-a	7-17	11-17	15-45	12-42	6-29	3-17	0-33	NP-10

Table 12.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >250 mm	Fragments: 75-250 mm	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	Cm				Pct	Pct					Pct	
DhB:												
Dellwood	0-20	Cobbly loam	SM	A-4	0-4	14-24	77-88	67-87	57-80	39-57	24-44	3-9
	8-36	Extremely gravelly sand, very gravelly sand, very gravelly loamy sand, gravelly sand	GP, GP-GM, SP, GW	A-1, A-1-a	0-5	16-47	18-83	15-82	11-66	1-11	0-25	NP-4
	14-152	Extremely gravelly sand, very cobbly sand, extremely gravelly coarse sand	GM, GP, GP-GM, SP	A-1, A-1-a	0-5	26-40	32-68	29-67	12-30	2-6	0-19	NP-1
Wesser	0-8	Muck	PT	A-8	0	0	0	0	0	0	---	---
	3-15	Sandy loam	ML	A-4, A-6, A-7-5	0	0	100	100	81-96	40-55	27-63	2-13
	6-33	Sand, loamy sand, loamy fine sand	SM	A-2-5	0	0	100	100	89-100	28-43	0-59	NP-9
	13-49	Sand, loamy sand, loamy fine sand	SM	A-2-4	0	0	76-100	75-100	64-100	12-31	0-41	NP-9
	19-158	Extremely gravelly loamy sand, extremely gravelly sand	GW	A-1, A-1-a	8-12	10-28	11-25	7-22	5-18	1-5	0-33	NP-10
DtD:												
Ditney	0-10	Loam	SC-SM, SM	A-2-4, A-4	0	0-8	77-82	76-82	56-71	34-47	24-52	3-13
	4-25	Loam, sandy loam, cobbly loam	CL-ML, ML, SC-SM, SM, SC	A-2-4, A-4	0	6-30	63-100	62-100	43-86	27-61	0-41	NP-13
	10-52	Loam, gravelly loam, gravelly sandy loam	SM, SC	A-4	0	0	55-92	54-92	40-80	26-57	19-35	3-13
	20-82	Gravelly loam, gravelly sandy loam	SM, SC	A-4	0	0	57-79	55-78	40-66	27-48	18-33	3-13
	32-91	Weathered bedrock			---	---	---	---	---	---	---	---
	36-200	Unweathered bedrock			---	---	---	---	---	---	---	---
Unicoi	0-10	Loam, channery loam, gravelly fine sandy loam	SC-SM, SM, ML	A-2, A-4	0	0-14	64-82	62-81	50-77	35-58	23-52	2-13
	4-38	Cobbly loam, very cobbly loam, very cobbly sandy loam, very stony loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0	19-43	61-86	60-85	49-82	34-61	17-35	2-13
	15-200	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 12.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >250 mm	Fragments: 75-250 mm	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	Cm				Pct	Pct					Pct	
DtF:												
Ditney----------	0-10	Loam	SC-SM, SM	A-2-4, A-4	0	0-8	77-82	76-82	56-71	34-47	24-52	3-13
	4-25	Loam, sandy loam, cobbly loam	CL-ML, ML, SC-SM, SM, SC	A-2-4, A-4	0	6-30	63-100	62-100	43-86	27-61	0-41	NP-13
	10-52	Loam, gravelly loam, gravelly sandy loam	SM, SC	A-4	0	0	55-92	54-92	40-80	26-57	19-35	3-13
	20-82	Gravelly loam, gravelly sandy loam	SM, SC	A-4	0	0	57-79	55-78	40-66	27-48	18-33	3-13
	32-91	Weathered bedrock			---	---	---	---	---	---	---	---
	36-200	Unweathered bedrock			---	---	---	---	---	---	---	---
Unicoi----------	0-10	Loam, channery loam, gravelly fine sandy loam	SC-SM, SM, ML	A-4, A-2	0	0-14	64-82	62-81	50-77	35-58	23-52	2-13
	4-38	Cobbly loam, very cobbly loam, very cobbly sandy loam, very stony loam	GC-GM, GM, SC-SM, SM	A-4, A-2	0	19-43	61-86	60-85	49-82	34-61	17-35	2-13
	15-200	Unweathered bedrock			---	---	---	---	---	---	---	---
EpD:												
Evard, windswept	0-13	Fine sandy loam	ML, SM, SC	A-2, A-4, A-2-4	0	0-3	89-100	79-100	67-100	27-50	18-41	2-13
	5-89	Sandy clay loam, clay loam	CL, SC	A-2, A-6, A-7-6	0	0-2	90-100	77-100	62-95	34-59	29-44	13-25
	35-114	Fine sandy loam, loam, sandy clay loam, gravelly sandy clay loam	CL, SC	A-2, A-4, A-2-6	0	0-6	81-100	60-100	46-94	21-53	22-40	7-21
	45-155	Sandy loam, loam, loamy sand, gravelly sandy loam	SC-SM, SM, SC	A-4, A-2-4	0	0-15	81-100	63-100	43-84	19-46	16-32	2-13
	61-168	Weathered bedrock			---	---	---	---	---	---	---	---
Cowee, windswept	0-25	Sandy loam	SC-SM, SM, SC	A-2, A-2-4, A-4, A-5, A-2-5	0-2	0-5	92-100	81-100	58-83	27-45	21-41	4-13
	10-97	Sandy clay loam, clay loam, gravelly sandy loam, gravelly sandy clay loam	CL, SC	A-2, A-6, A-7	0-1	0-14	86-98	68-98	53-93	29-58	28-45	12-25
	38-114	Weathered bedrock			---	---	---	---	---	---	---	---

Table 12.—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	>250 mm	75-250 mm	4	10	40	200		
	Cm				Pct	Pct					Pct	
EpE:												
Evard, windswept	0-13	Fine sandy loam	ML, SM, SC	A-2, A-4, A-2-4	0	0-3	89-100	79-100	67-100	27-50	18-41	2-13
	5-89	Sandy clay loam, clay loam	CL, SC	A-2, A-6, A-7-6	0	0-1	89-100	75-100	60-95	33-59	29-44	13-25
	35-114	Fine sandy loam, loam, sandy clay loam, gravelly sandy clay loam	CL, SC	A-2, A-4, A-2-6	0	0-6	81-100	60-100	46-94	21-53	22-40	7-21
	45-155	Sandy loam, loam, loamy sand, gravelly sandy loam	SC-SM, SM, SC	A-4, A-2-4	0	0-15	81-100	63-100	43-84	19-46	16-32	2-13
	61-168	Weathered bedrock			---	---	---	---	---	---	---	---
Cowee, windswept	0-25	Sandy loam	SC-SM, SM, SC	A-2, A-2-4, A-4, A-5, A-2-5	0-2	0-5	92-100	81-100	58-83	27-45	21-41	4-13
	10-97	Sandy clay loam, clay loam, gravelly sandy loam, gravelly sandy clay loam	CL, SC	A-2, A-6, A-7	0-1	0-14	86-98	68-98	53-93	29-58	28-45	12-25
	38-114	Weathered bedrock			---	---	---	---	---	---	---	---
EvD:												
Evard-----------	0-13	Fine sandy loam	ML, SM, SC	A-2, A-4, A-2-4	0	0-3	89-100	79-100	67-100	27-50	18-41	2-13
	5-89	Sandy clay loam, clay loam	CL, SC	A-2, A-6, A-7-6	0	0-1	89-100	75-100	60-95	33-59	29-44	13-25
	35-114	Fine sandy loam, loam, sandy clay loam, gravelly sandy clay loam	CL, SC	A-2, A-4, A-2-6	0	0-6	81-100	60-100	46-94	21-53	22-40	7-21
	45-155	Sandy loam, loam, loamy sand, gravelly sandy loam	SC-SM, SM, SC	A-4, A-2-4	0	0-15	81-100	63-100	43-84	19-46	16-32	2-13
	61-168	Weathered bedrock			---	---	---	---	---	---	---	---
Cowee-----------	0-25	Sandy loam	SC-SM, SM, SC	A-2, A-2-4, A-4, A-5, A-2-5	0-2	0-5	92-100	81-100	58-83	27-45	21-41	4-13
	10-97	Sandy clay loam, clay loam, gravelly sandy loam, gravelly sandy clay loam	CL, SC	A-2, A-6, A-7	0-1	0-14	86-98	68-98	53-93	29-58	28-45	12-25
	38-114	Weathered bedrock			---	---	---	---	---	---	---	---

Table 12.—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	>250 mm	75-250 mm	4	10	40	200		
	Cm				Pct	Pct					Pct	
EvE:												
Evard-----------	0-13	Fine sandy loam	ML, SM, SC	A-2, A-4, A-2-4	0	0-3	89-100	79-100	67-100	27-50	18-41	2-13
	5-89	Sandy clay loam, clay loam	CL, SC	A-2, A-6, A-7-6	0	0-1	89-100	75-100	60-95	33-59	29-44	13-25
	35-114	Fine sandy loam, loam, sandy clay loam, gravelly sandy clay loam	CL, SC	A-2, A-4, A-2-6	0	0-6	81-100	60-100	46-94	21-53	22-40	7-21
	45-155	Sandy loam, loam, loamy sand, gravelly sandy loam	SC-SM, SM, SC	A-4, A-2-4	0	0-15	81-100	63-100	43-84	19-46	16-32	2-13
	61-168	Weathered bedrock			---	---	---	---	---	---	---	---
Cowee-----------	0-25	Sandy loam	SC-SM, SM, SC	A-2, A-2-4, A-4, A-5, A-2-5	0-2	0-5	92-100	81-100	58-83	27-45	21-41	4-13
	10-97	Sandy clay loam, clay loam, gravelly sandy loam, gravelly sandy clay loam	CL, SC	A-2, A-6, A-7	0-1	0-14	86-98	68-98	53-93	29-58	28-45	12-25
	38-114	Weathered bedrock			---	---	---	---	---	---	---	---
EvF:												
Evard-----------	0-13	Fine sandy loam	ML, SM, SC	A-2, A-4, A-2-4	0	0-3	89-100	79-100	67-100	27-50	18-41	2-13
	5-89	Sandy clay loam, clay loam	CL, SC	A-2, A-6, A-7-6	0	0-2	90-100	77-100	62-95	34-59	29-44	13-25
	35-114	Fine sandy loam, loam, sandy clay loam, gravelly sandy clay loam	CL, SC	A-2, A-4, A-2-6	0	0-6	81-100	60-100	46-94	21-53	22-40	7-21
	45-155	Sandy loam, loam, loamy sand, gravelly sandy loam	SC-SM, SM, SC	A-4, A-2-4	0	0-15	81-100	63-100	43-84	19-46	16-32	2-13
	61-168	Weathered bedrock			---	---	---	---	---	---	---	---
Cowee-----------	0-25	Sandy loam	SC-SM, SM, SC	A-2, A-2-4, A-4, A-5, A-2-5	0-2	0-5	92-100	81-100	58-83	27-45	21-41	4-13
	10-97	Sandy clay loam, clay loam, gravelly sandy loam, gravelly sandy clay loam	CL, SC	A-2, A-6, A-7	0-1	0-14	86-98	68-98	53-93	29-58	28-45	12-25
	38-114	Weathered bedrock			---	---	---	---	---	---	---	---

Table 12.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>250 mm	75-250 mm	4	10	40	200		
	Cm				Pct	Pct					Pct	
HcE:												
Heintooga	0-3	Peat	PT	A-8	0	0	0	0	0	0	---	---
	1-10	Very flaggy loam	SM, GM, PT	A-4, A-8	16-24	36-52	51-73	50-73	37-69	24-50	---	---
	4-31	Very flaggy loam, very flaggy fine sandy loam	SM, GM	A-4, A-6	14-22	32-48	55-77	54-76	43-75	29-56	22-58	3-18
	12-64	Extremely channery fine sandy loam, extremely channery loam	GM	A-2, A-1-a	0-10	35-50	23-39	22-38	17-36	10-24	0-41	NP-13
	25-155	Extremely flaggy coarse sandy loam, extremely flaggy sandy loam	SM, GM	A-2, A-1-b	20-25	43-54	36-60	35-59	20-45	10-29	0-35	NP-13
Chiltoskie	0-5	Peat	PT	A-8	0	0	0	0	0	0	---	---
	2-20	Loam	ML, OH	A-4, A-6, A-7-5	0	0-12	84-100	84-100	62-93	42-70	40-68	3-18
	8-36	Channery loam, loam, channery sandy loam	SM, CL	A-4	0	0-24	65-100	64-100	50-99	34-74	20-43	3-18
	14-66	Loam, sandy loam, channery loam	ML, CL	A-4	0	0-22	68-100	68-100	56-100	38-76	19-43	3-18
	26-104	Loam, sandy loam, channery loam	ML, CL	A-4	0	0-22	68-100	68-100	49-92	40-79	19-41	3-19
	41-155	Very gravelly sandy loam, very channery sandy loam	GC-GM	A-2, A-1-b	0	0	33-55	30-53	20-48	11-33	0-39	NP-19
HrF:												
Heintooga	0-3	Peat	PT	A-8	0	0	0	0	0	0	---	---
	1-10	Very flaggy loam	SM, GM, PT	A-4, A-8	16-24	36-52	51-73	50-73	37-69	24-50	---	---
	4-31	Very flaggy loam, very flaggy fine sandy loam	SM, GM	A-4, A-6	14-22	32-48	55-77	54-76	43-75	29-56	22-58	3-18
	12-64	Extremely channery fine sandy loam, extremely channery loam	GM	A-2, A-1-b, A-1-a	0-10	35-50	23-39	22-38	17-36	10-24	0-41	NP-13
	25-155	Extremely flaggy coarse sandy loam, extremely flaggy sandy loam	SM, GM	A-2, A-1-b	20-25	43-54	36-60	35-59	20-45	10-29	0-35	NP-13
Rubble land.												
JbD:												
Junaluska	0-28	Loam	ML, SM, CL-ML	A-4, A-6	0	0-3	91-100	80-100	66-94	46-68	20-40	3-12
	11-53	Channery loam, channery clay loam, sandy clay loam	CL, SC	A-6, A-7	0	5-15	78-100	77-100	60-95	32-59	28-45	12-25
	21-66	Channery loam, channery clay loam, sandy loam	CL, SC	A-6, A-7	0	5-14	78-100	77-100	63-100	32-62	24-44	9-25
	26-79	Weathered bedrock			---	---	---	---	---	---	---	---

Table 12.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >250 mm	Fragments: 75-250 mm	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	Cm				Pct	Pct					Pct	
JbD:												
Brasstown-------	0-15	Channery loam	ML, SM, SC-SM	A-4	0-2	7-20	77-91	59-77	49-73	34-53	20-40	3-12
	6-74	Channery loam, channery sandy clay loam, sandy clay loam	CL, SC	A-6, A-7-6	0-2	1-12	82-100	59-100	47-95	25-59	27-44	12-25
	29-117	Channery fine sandy loam, channery very fine sandy loam, loam	SC	A-4, A-2-4	0-2	1-11	80-100	60-100	52-99	20-46	18-32	4-13
	46-152	Weathered bedrock			---	---	---	---	---	---	---	---
JbE:												
Junaluska-------	0-28	Loam	ML, SM, CL-ML	A-4, A-6	0	0-3	91-100	80-100	66-94	46-68	20-40	3-12
	11-53	Channery loam, channery clay loam, sandy clay loam	CL, SC	A-6, A-7	0	5-15	78-100	77-100	60-95	32-59	28-45	12-25
	21-66	Channery loam, channery clay loam, sandy loam	CL, SC	A-6, A-7	0	5-14	78-100	77-100	63-100	32-62	24-44	9-25
	26-79	Weathered bedrock			---	---	---	---	---	---	---	---
Brasstown-------	0-15	Channery loam	ML, SM, SC-SM	A-4	0-2	7-20	77-91	59-77	49-73	34-53	20-40	3-12
	6-74	Channery loam, channery sandy clay loam, sandy clay loam	CL, SC	A-6, A-7-6	0-2	1-12	82-100	59-100	47-95	25-59	27-44	12-25
	29-117	Channery fine sandy loam, channery very fine sandy loam, loam	SC	A-4, A-2-4	0-2	1-11	80-100	60-100	52-99	20-46	18-32	4-13
	46-152	Weathered bedrock			---	---	---	---	---	---	---	---
JtC:												
Junaluska-------	0-28	Loam	ML, SM, CL-ML	A-4	0	5-8	85-97	84-96	70-90	48-66	20-40	3-12
	11-53	Channery loam, channery clay loam, sandy clay loam	CL, SC	A-6, A-7	0	5-15	78-100	77-100	60-95	32-59	28-45	12-25
	21-66	Channery loam, channery clay loam, sandy loam	CL, SC	A-6, A-7	0	5-14	78-100	77-100	63-100	32-62	24-44	9-25
	26-79	Weathered bedrock			---	---	---	---	---	---	---	---
Tsali-----------	0-20	Channery loam	ML, SM, SC	A-5, A-4	0-2	5-12	82-88	59-80	47-76	32-55	18-41	2-13
	8-46	Channery sandy clay loam, channery loam, channery clay loam, loam	CL, SC	A-6, A-7	0-7	5-11	84-96	60-96	50-96	37-76	27-44	12-25
	18-152	Weathered bedrock			---	---	---	---	---	---	---	---

Table 12.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>250 mm	75-250 mm	4	10	40	200		
	Cm				Pct	Pct					Pct	
JtD:												
Junaluska-------	0-28	Loam	ML, SM, CL-ML	A-4	0	5-8	85-97	84-96	70-90	48-66	20-40	3-12
	11-53	Channery loam, channery clay loam, sandy clay loam	CL, SC	A-6, A-7	0	5-15	78-100	77-100	60-95	32-59	28-45	12-25
	21-66	Channery loam, channery clay loam, sandy loam	CL, SC	A-6, A-7	0	5-14	78-100	77-100	63-100	32-62	24-44	9-25
	26-79	Weathered bedrock			---	---	---	---	---	---	---	---
Tsali-----------	0-20	Channery loam	ML, SM, SC	A-4, A-5	0-2	5-12	82-88	59-80	47-76	32-55	18-41	2-13
	8-46	Channery sandy clay loam, channery loam, channery clay loam, loam	CL, SC	A-6, A-7	0-7	5-11	84-96	60-96	50-96	37-76	27-44	12-25
	18-152	Weathered bedrock			---	---	---	---	---	---	---	---
JtF:												
Junaluska-------	0-28	Loam	ML, SM, CL-ML	A-4	0	5-8	85-97	84-96	70-90	48-66	20-40	3-12
	11-53	Channery loam, channery clay loam, sandy clay loam	CL, SC	A-6, A-7	0	5-15	77-100	77-100	60-95	32-59	28-45	12-25
	21-66	Channery loam, channery clay loam, sandy loam	CL, SC	A-6, A-7	0	5-14	78-100	77-100	63-100	32-62	24-44	9-25
	26-79	Weathered bedrock			---	---	---	---	---	---	---	---
Tsali-----------	0-20	Channery loam	ML, SM, SC	A-4, A-5	0-2	5-12	82-88	59-80	47-76	32-55	18-41	2-13
	8-46	Channery clay loam, channery sandy clay loam, channery loam, loam	CL, SC	A-6, A-7	0-7	5-11	84-96	60-96	50-96	37-76	27-44	12-25
	18-152	Weathered bedrock			---	---	---	---	---	---	---	---
LeD:												
Lauada----------	0-3	Moderately decomposed plant material	PT	A-8	0	0	0	0	0	0	---	---
	1-20	Sandy loam	SM	A-4	0	0	80-100	79-100	56-87	26-49	0-46	NP-13
	8-64	Sandy clay loam	SC	A-6	0	0	82-100	82-100	69-100	40-64	29-47	13-24
	25-86	Fine sandy loam	SC	A-4, A-6	0	0	76-100	75-100	57-89	27-49	18-33	4-13
	34-158	Weathered bedrock			---	---	---	---	---	---	---	---

Table 12.—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	>250 mm	75-250 mm	4	10	40	200		
	Cm				Pct	Pct					Pct	
LeD:												
Fannin----------	0-3	Moderately decomposed plant material	PT	A-8	0	0-5	0	0	0	0	---	---
	1-18	Sandy loam	SM, SC-SM	A-2, A-2-4	0	0	100	100	73-90	26-43	0-37	NP-13
	7-75	Gravelly sandy clay loam, gravelly loam, gravelly clay loam	SC	A-4, A-2-6	0	0	61-74	59-73	42-71	18-42	18-45	4-25
	30-145	Sandy loam, loam, clay loam, sandy clay loam	SC	A-4, A-6	0	0	100	100	73-100	32-59	18-44	4-25
	57-190	Sandy loam, clay loam, sandy clay loam, loam	ML, SM, SC	A-7, A-4, A-6	0	2-12	96-100	82-100	58-100	20-61	0-49	NP-28
	75-200	Weathered bedrock			---	---	---	---	---	---	---	---
LeE:												
Lauada----------	0-3	Moderately decomposed plant material	PT	A-8	0	0	0	0	0	0	---	---
	1-20	Sandy loam	SM	A-4	0	0	80-100	79-100	56-87	26-49	0-46	NP-13
	8-64	Sandy clay loam	SC	A-6	0	0	82-100	82-100	69-100	40-64	29-47	13-24
	25-86	Fine sandy loam	SC	A-4, A-6	0	0	76-100	75-100	57-89	27-49	18-33	4-13
	34-158	Weathered bedrock			---	---	---	---	---	---	---	---
Fannin----------	0-3	Moderately decomposed plant material	PT	A-8	0	0-5	0	0	0	0	---	---
	1-18	Sandy loam	SM, SC-SM	A-2, A-2-4	0	0	100	100	73-90	26-43	0-37	NP-13
	7-75	Gravelly sandy clay loam, gravelly loam, gravelly clay loam	SC	A-4, A-2-6	0	0	61-74	59-73	42-71	18-42	18-45	4-25
	30-145	Sandy loam, loam, clay loam, sandy clay loam	SC	A-4, A-6	0	0	100	100	73-100	32-59	18-44	4-25
	57-190	Sandy loam, clay loam, sandy clay loam, loam	ML, SM, SC	A-7, A-4, A-6	0	2-12	96-100	82-100	58-100	20-61	0-49	NP-28
	75-200	Weathered bedrock			---	---	---	---	---	---	---	---
LeF:												
Lauada----------	0-3	Moderately decomposed plant material	PT	A-8	0	0	0	0	0	0	---	---
	1-20	Sandy loam	SM	A-4	0	0	80-100	79-100	56-87	26-49	0-46	NP-13
	8-64	Sandy clay loam	SC	A-6	0	0	82-100	82-100	69-100	40-64	29-47	13-24
	25-86	Fine sandy loam	SC	A-4, A-6	0	0	76-100	75-100	57-89	27-49	18-33	4-13
	34-158	Weathered bedrock			---	---	---	---	---	---	---	---

Table 12.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>250 mm	75-250 mm	4	10	40	200		
	Cm				Pct	Pct					Pct	
LeF:												
Fannin----------	0-3	Moderately decomposed plant material	PT	A-8	0	0-5	0	0	0	0	---	---
	1-18	Sandy loam	SM, SC-SM	A-2, A-2-4	0	0	100	100	73-90	26-43	0-37	NP-13
	7-75	Gravelly sandy clay loam, gravelly loam, gravelly clay loam	SC	A-4, A-2-6	0	0	62-75	59-73	42-71	18-42	18-45	4-25
	30-145	Sandy loam, loam, clay loam, sandy clay loam	SC	A-4, A-6	0	0	100	100	73-100	32-59	18-44	4-25
	57-190	Sandy loam, clay loam, sandy clay loam, loam	ML, SM, SC	A-7, A-4, A-6	0	2-12	96-100	82-100	58-100	20-61	0-49	NP-28
	75-200	Weathered bedrock			---	---	---	---	---	---	---	---
LfD:												
Leatherwood, stony----------	0-18	Cobbly clay	CL, OH	A-7-5	0-12	0-44	84-100	83-100	77-100	63-95	45-93	18-41
	7-39	Clay, cobbly clay, clay loam	CL, MH	A-7-5	0-19	0-40	100	100	78-100	61-94	41-84	18-42
	15-98	Clay, cobbly clay, clay loam, sandy clay	CL, CH	A-7-6	0-19	0-39	100	100	84-100	68-93	44-70	24-43
	39-139	Clay, clay loam, sandy clay, cobbly clay loam	CL	A-6, A-7-6	0-16	0-35	100	100	74-100	55-88	35-67	18-43
	55-200	Loam, clay loam, stony sandy clay loam	CL	A-6	17-41	0-1	86-100	86-100	61-91	41-68	29-50	13-28
LfE:												
Leatherwood, stony----------	0-18	Cobbly clay	CL, OH	A-7-5	0-12	0-44	84-100	83-100	77-100	63-95	45-93	18-41
	7-39	Clay, cobbly clay, clay loam	CL, MH	A-7-5	0-19	0-40	100	100	78-100	61-94	41-84	18-42
	15-98	Clay, cobbly clay, clay loam, sandy clay	CL, CH	A-7-6	0-19	0-39	100	100	84-100	68-93	44-70	24-43
	39-139	Clay, clay loam, sandy clay, cobbly clay loam	CL	A-6, A-7-6	0-16	0-35	100	100	74-100	55-88	35-67	18-43
	55-200	Loam, clay loam, stony sandy clay loam	CL	A-6	17-41	0-1	86-100	86-100	61-91	41-68	29-50	13-28
LfF:												
Leatherwood, stony----------	0-18	Cobbly clay	CL, OH	A-7-5	0-12	0-44	84-100	83-100	77-100	63-95	45-93	18-41
	7-39	Clay, cobbly clay, clay loam	CL, MH	A-7-5	0-19	0-40	100	100	78-100	61-94	41-84	18-42
	15-98	Clay, cobbly clay, clay loam, sandy clay	CL, CH	A-7-6	0-19	0-39	100	100	84-100	68-93	44-70	24-43
	39-139	Clay, clay loam, sandy clay, cobbly clay loam	CL	A-6, A-7-6	0-16	0-35	100	100	74-100	55-88	35-67	18-43
	55-200	Loam, clay loam, stony sandy clay loam	CL	A-6	17-41	0-1	86-100	86-100	61-91	41-68	29-50	13-28

Table 12.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>250 mm	75-250 mm	4	10	40	200		
	Cm				Pct	Pct					Pct	
LoB:												
Lonon-----------	0-21	Silty clay loam	CL	A-6, A-7-6	0-2	0-7	87-100	67-100	58-99	51-90	36-52	18-28
	8-152	Clay, loam, sandy clay loam, clay loam, cobbly clay loam	CL, ML, SC, SM, CH	A-4, A-6, A-7-6	0-2	0-5	89-100	73-100	38-94	29-82	18-57	4-36
	60-170	Clay loam, cobbly loam, cobbly sandy clay loam, cobbly clay loam	CL, ML, SC, SM	A-2, A-4, A-6	0	11-24	84-96	83-96	48-86	32-68	18-49	4-28
LoC:												
Lonon-----------	0-21	Silty clay loam	CL	A-6, A-7-6	0-2	0-7	87-100	67-100	58-99	51-90	36-52	18-28
	8-152	Clay, loam, sandy clay loam, clay loam, cobbly clay loam	CL, ML, SC, SM, CH	A-4, A-6, A-7-6	0-2	0-5	89-100	73-100	38-94	29-82	18-57	4-36
	60-170	Clay loam, cobbly loam, cobbly sandy clay loam, cobbly clay loam	CL, ML, SC, SM	A-2, A-4, A-6	0	11-24	84-96	83-96	48-86	32-68	18-49	4-28
LoD:												
Lonon-----------	0-21	Silty clay loam	CL	A-6, A-7-6	0-2	0-7	87-100	67-100	58-99	51-90	36-52	18-28
	8-152	Clay, loam, sandy clay loam, clay loam, cobbly clay loam	CL, ML, SC, SM, CH	A-4, A-6, A-7-6	0-2	0-5	89-100	73-100	38-94	29-82	18-57	4-36
	60-170	Clay loam, cobbly loam, cobbly sandy clay loam, cobbly clay loam	CL, ML, SC, SM	A-2, A-4, A-6	0	11-24	84-96	83-96	48-86	32-68	18-49	4-28
LoE:												
Lonon-----------	0-21	Silty clay loam	CL	A-6, A-7-6	0-2	0-7	87-100	67-100	58-99	51-90	36-52	18-28
	8-152	Clay, loam, sandy clay loam, clay loam, cobbly clay loam	CL, ML, SC, SM, CH	A-4, A-6, A-7-6	0-2	0-5	89-100	73-100	38-94	29-82	18-57	4-36
	60-170	Clay loam, cobbly loam, cobbly sandy clay loam, cobbly clay loam	CL, ML, SC, SM	A-2, A-4, A-6	0	11-24	84-96	83-96	48-86	32-68	18-49	4-28
Rock outcrop.												

Table 12.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >250 mm	Fragments: 75-250 mm	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	Cm				Pct	Pct					Pct	
LrD:												
Luftee----------	0-28	Very channery loam	SM, SC-SM, GM	A-2-7	0	25-59	18-62	16-61	11-52	8-43	41-74	4-23
	11-51	Channery loam, very channery loam, extremely channery loam, extremely channery sandy loam	SM, SC-SM, GM	A-2-4, A-4, A-2-7	0	10-35	36-87	35-86	24-77	19-63	30-58	4-18
	20-86	Channery sandy loam, extremely channery sandy loam, extremely channery loam	GM, GC-GM	A-2, A-1-b	0	13-39	27-82	25-82	17-74	12-56	0-41	NP-17
	34-200	Unweathered bedrock			---	---	---	---	---	---	---	---
Anakeesta-------	0-10	Channery loam	SM, SC-SM, GM	A-2-4, A-4, A-7-5	0	14-27	59-81	58-80	41-72	29-56	40-68	3-18
	4-20	Channery loam, channery silt loam	SM, GM	A-2, A-6	0	13-19	57-83	56-82	37-71	25-54	24-58	3-18
	8-36	Channery loam, extremely channery loam, extremely channery sandy loam	SM, SC-SM, GC	A-2-4, A-4	0	13-36	22-83	20-83	14-73	9-55	20-47	3-18
	14-75	Extremely channery loam, very channery sandy loam, extremely channery sandy loam	SM, GP-GC	A-2, A-2-4	0	25-37	22-62	20-61	13-53	9-41	18-43	2-18
	30-114	Extremely channery coarse sandy loam, extremely channery loam, very channery sandy loam	SM, GP-GC	A-2, A-2-4	0	23-36	26-67	24-66	14-51	9-37	0-35	NP-13
	45-200	Unweathered bedrock			---	---	---	---	---	---	---	---
LrF:												
Luftee----------	0-28	Very channery loam	SM, SC-SM, GM	A-2-7	0	25-59	18-62	16-61	11-52	8-43	41-74	4-23
	11-51	Channery loam, very channery loam, extremely channery loam, extremely channery sandy loam	SM, SC-SM, GM	A-2-4, A-4, A-2-7	0	10-35	36-87	35-86	24-77	19-63	30-58	4-18
	20-86	Channery sandy loam, extremely channery sandy loam, extremely channery loam	GM, GC-GM	A-2, A-1-b	0	13-39	27-82	25-82	17-74	12-56	0-41	NP-17
	34-200	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 12.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >250 mm	Fragments: 75-250 mm	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	Cm				Pct	Pct					Pct	
LrF:												
Anakeesta-------	0-10	Channery loam	SM, SC-SM, GM	A-2-4, A-4, A-7-5	0	14-27	59-81	58-80	41-72	29-56	40-68	3-18
	4-20	Channery loam, channery silt loam	SM, GM	A-2, A-6	0	13-19	57-83	56-82	38-71	26-54	25-58	4-18
	8-36	Channery loam, extremely channery loam, extremely channery sandy loam	SM, SC-SM, GC	A-2-4, A-4	0	13-36	22-83	20-83	14-73	9-55	20-47	3-18
	14-75	Extremely channery loam, very channery sandy loam, extremely channery sandy loam	SM, GP-GC	A-2, A-2-4	0	25-37	22-62	20-61	13-53	9-41	18-43	2-18
	30-114	Extremely channery coarse sandy loam, extremely channery loam, very channery sandy loam	SM, GP-GC	A-2, A-2-4	0	23-36	26-67	24-66	14-51	9-37	0-35	NP-13
	45-200	Unweathered bedrock			---	---	---	---	---	---	---	---
NtC:												
Northcove-------	0-7	Very cobbly sandy loam	SC-SM, SM	A-1-b, A-2-4	14-26	25-37	74-85	53-74	38-63	18-35	17-33	2-12
	3-152	Very cobbly loam, very cobbly sandy loam, very stony loam, very flaggy loam	GC-GM, GM, SC-SM, SM	A-2-4, A-4	13-25	30-38	77-89	59-84	47-79	32-57	16-31	2-12
	60-203	Very cobbly sandy loam, very stony loamy sand, extremely stony loamy sand	GC-GM, GM, SM, SC-SM	A-1-b, A-2-4	17-37	30-54	46-91	44-90	30-77	13-43	0-30	NP-12
Maymead---------	0-13	Loam, cobbly sandy loam	CL-ML, GM, ML, SM, CL	A-4	0-1	10-22	73-93	72-93	59-86	40-62	20-35	3-12
	5-168	Gravelly loam, cobbly loam, cobbly sandy loam, loam	CL-ML, GM, ML, SM, SC	A-4	0	10-18	80-93	62-93	49-86	33-62	17-31	2-12
Nowhere---------	0-41	Very cobbly fine sandy loam	SM, GM	A-4, A-2-4	0	56-64	52-100	50-100	41-97	20-54	0-58	NP-18
	16-71	Extremely cobbly fine sandy loam, very cobbly sandy loam, very cobbly loam	SM, SC-SM	A-2, A-2-4	30-45	28-46	49-100	47-100	37-97	16-52	0-35	NP-13
	28-158	Extremely cobbly fine sandy loam, very cobbly sandy loam, very cobbly loam	SM	A-2, A-2-4	31-48	29-54	67-100	66-100	52-96	24-54	0-33	NP-13

Table 12.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >250 mm	Fragments 75-250 mm	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	Cm				Pct	Pct					Pct	
NtD:												
Northcove-------	0-7	Very cobbly sandy loam	SC-SM, SM	A-1-b, A-2-4	14-26	25-37	74-85	53-74	38-63	18-35	17-33	2-12
	3-152	Very cobbly loam, very cobbly sandy loam, very stony loam, very flaggy loam	GC-GM, GM, SC-SM, SM	A-2-4, A-4	13-25	30-38	77-89	59-84	47-79	32-57	16-31	2-12
	60-203	Very cobbly sandy loam, very stony loamy sand, extremely stony loamy sand	GC-GM, GM, SM, SC-SM	A-1-b, A-2-4	17-37	30-54	46-91	44-90	30-77	13-43	0-30	NP-12
Maymead---------	0-13	Loam, cobbly sandy loam	CL-ML, GM, ML, SM, CL	A-4	0-1	10-22	73-93	72-93	59-86	40-62	20-35	3-12
	5-168	Gravelly loam, cobbly loam, cobbly sandy loam, loam	CL-ML, GM, ML, SM, SC	A-4	0	10-18	80-93	62-93	49-86	33-62	17-31	2-12
NtE:												
Northcove-------	0-7	Very cobbly sandy loam	SC-SM, SM	A-1-b, A-2-4	14-26	25-37	74-85	53-74	38-63	18-35	17-33	2-12
	3-152	Very cobbly loam, very cobbly sandy loam, very stony loam, very flaggy loam	GC-GM, GM, SC-SM, SM	A-2-4, A-4	13-25	30-38	77-89	59-84	47-79	32-57	16-31	2-12
	60-203	Very cobbly sandy loam, very stony loamy sand, extremely stony loamy sand	GC-GM, GM, SM, SC-SM	A-1-b, A-2-4	17-37	30-54	46-91	44-90	30-77	13-43	0-30	NP-12
Maymead---------	0-13	Loam, cobbly sandy loam	CL-ML, GM, ML, SM, CL	A-4	0-1	10-22	73-93	72-93	59-86	40-62	20-35	3-12
	5-168	Gravelly loam, cobbly loam, cobbly sandy loam, loam	CL-ML, GM, ML, SM, SC	A-4	0	10-18	80-93	62-93	49-86	33-62	17-31	2-12
OcD:												
Oconaluftee-----	0-31	Channery loam	GM, ML, SM	A-4, A-5	0-5	6-14	79-88	54-75	45-75	31-58	35-68	3-18
	12-125	Channery loam, channery silt loam, channery fine sandy loam, loam	GM, ML, SM, CL, SC, SC-SM	A-4, A-5	0-4	5-12	81-96	58-96	47-96	32-74	17-41	2-19
	49-185	Loam, flaggy fine sandy loam, channery fine sandy loam	ML, SC-SM, SM, CL, CL-ML	A-4	0-7	5-19	84-100	67-100	55-97	37-70	16-32	2-13
	73-200	Weathered bedrock			---	---	---	---	---	---	---	---

Table 12.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >250 mm	Fragments: 75-250 mm	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	Cm				Pct	Pct					Pct	
OcD:												
Guyot-----------	0-28	Clay loam	OH	A-7-5	0	0-16	78-100	77-100	66-94	56-80	58-92	17-22
	11-72	Sandy loam, loam, fine sandy loam	ML, CL	A-4	0	0-10	87-100	87-100	68-98	42-69	18-42	3-18
	28-150	Fine sandy loam, loamy sand, sandy loam	SM, SC-SM	A-4	0	0-10	87-100	86-100	75-97	38-54	16-27	2-10
	59-183	Weathered bedrock			---	---	---	---	---	---	---	---
Heintooga-------	0-3	Peat	PT	A-8	0	0	0	0	0	0	---	---
	1-10	Very flaggy loam	SM, PT	A-4, A-8	16-24	36-52	51-73	50-73	37-69	24-50	---	---
	4-31	Very flaggy loam, very flaggy fine sandy loam	SM, GM	A-4, A-6	14-22	32-48	55-77	54-76	43-75	29-56	22-58	3-18
	12-64	Extremely channery fine sandy loam, extremely channery loam	GM	A-2, A-1-a	0-10	35-50	23-39	22-38	17-36	10-24	0-41	NP-13
	25-155	Extremely flaggy coarse sandy loam, extremely flaggy sandy loam	SM, GM	A-2, A-1-b	20-25	43-54	36-60	35-59	20-45	10-29	0-35	NP-13
OcF:												
Oconaluftee-----	0-31	Channery loam	GM, ML, SM	A-4, A-5	0-5	6-14	79-88	54-75	45-75	31-58	35-68	3-18
	12-125	Channery loam, channery silt loam, channery fine sandy loam, loam	GM, ML, SM, CL, SC, SC-SM	A-4, A-5	0-4	5-12	81-96	58-96	47-96	32-74	17-41	2-19
	49-185	Loam, flaggy fine sandy loam, channery fine sandy loam	ML, SC-SM, SM, CL, CL-ML	A-4	0-7	5-19	84-100	67-100	55-97	37-70	16-32	2-13
	73-200	Weathered bedrock			---	---	---	---	---	---	---	---
Heintooga-------	0-3	Peat	PT	A-8	0	0	0	0	0	0	---	---
	1-10	Very flaggy loam	SM, PT	A-4, A-8	16-24	36-52	51-73	50-73	37-69	24-50	---	---
	4-31	Very flaggy loam, very flaggy fine sandy loam	SM, GM	A-4, A-6	14-22	32-48	55-77	54-76	43-75	29-56	22-58	3-18
	12-64	Extremely channery fine sandy loam, extremely channery loam	GM	A-2, A-1-a	0-10	35-50	23-39	22-38	17-36	10-24	0-41	NP-13
	25-155	Extremely flaggy coarse sandy loam, extremely flaggy sandy loam	SM, GM	A-2, A-1-b	20-25	43-54	36-60	35-59	20-45	10-29	0-35	NP-13
Rubble land.												

Table 12.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>250 mm	75-250 mm	4	10	40	200		
	Cm				Pct	Pct					Pct	
OwC:												
Oconaluftee, windswept------	0-30	Channery loam	GM, ML, SM	A-4, A-5	0-5	6-14	79-88	54-75	45-75	31-58	35-68	3-18
	12-112	Channery loam, channery silt loam, channery fine sandy loam, loam	GM, ML, SM, CL, SC, SC-SM	A-4, A-5	0-4	5-12	81-96	58-96	47-96	32-74	17-41	2-19
	44-152	Loam, flaggy fine sandy loam, channery fine sandy loam	ML, SC-SM, SM, CL, CL-ML	A-4	0-7	5-19	84-100	67-100	55-97	37-70	16-32	2-13
Guyot, windswept	0-28	Clay loam	OH	A-7-5	0	0-16	78-100	77-100	66-94	56-80	58-92	17-22
	11-72	Sandy loam, loam, fine sandy loam	ML, CL	A-4	0	0-10	87-100	87-100	68-98	42-69	18-42	3-18
	28-150	Fine sandy loam, loamy sand, sandy loam	SM, SC-SM	A-4	0	0-10	87-100	86-100	75-97	38-54	16-27	2-10
	59-183	Weathered bedrock			---	---	---	---	---	---	---	---
Cataloochee, windswept------	0-23	Loam, channery loam, clay loam, channery clay loam	OH	A-7-5	0	0-18	76-100	75-100	59-100	48-86	---	---
	9-48	Channery loam, loam, sandy loam, channery sandy loam	ML, CL	A-4, A-6	0	0-18	75-100	75-100	59-91	47-75	29-46	9-18
	19-64	Channery sandy loam, channery loamy sand, sandy loam	SM, SC-SM	A-2-4, A-4	0	0-22	69-100	68-100	49-89	25-54	0-33	NP-13
	25-79	Channery sandy loam, channery fine sandy loam, channery loamy sand, sandy loam	SC-SM, SM	A-2-4, A-4	0	0-22	69-100	68-100	52-93	26-56	0-33	NP-13
	31-153	Weathered bedrock			---	---	---	---	---	---	---	---
OwD:												
Oconaluftee, windswept------	0-30	Channery loam	GM, ML, SM	A-4, A-5	0-5	6-14	79-88	54-75	45-75	31-58	35-68	3-18
	12-112	Channery loam, channery silt loam, channery fine sandy loam, loam	GM, ML, SM, CL, SC, SC-SM	A-4, A-5	0-4	5-12	81-96	58-96	47-96	32-74	17-41	2-19
	44-152	Loam, flaggy fine sandy loam, channery fine sandy loam	ML, SC-SM, SM, CL, CL-ML	A-4	0-7	5-19	84-100	67-100	55-97	37-70	16-32	2-13

Table 12.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>250 mm	75-250 mm	4	10	40	200		
	Cm				Pct	Pct					Pct	
OwD:												
Guyot, windswept	0-28	Clay loam	OH	A-7-5	0	0-16	78-100	77-100	66-94	56-80	58-92	17-22
	11-72	Sandy loam, loam, fine sandy loam	ML, CL	A-4	0	0-10	87-100	87-100	68-98	42-69	18-42	3-18
	28-150	Fine sandy loam, loamy sand, sandy loam	SM, SC-SM	A-4	0	0-10	87-100	86-100	75-97	38-54	16-27	2-10
	59-183	Weathered bedrock			---	---	---	---	---	---	---	---
Cataloochee, windswept------	0-23	Loam, channery loam, clay loam, channery clay loam	OH	A-7-5	0	0-18	76-100	75-100	59-100	48-86	---	---
	9-48	Channery loam, loam, sandy loam, channery sandy loam	ML, CL	A-4, A-6	0	0-18	75-100	75-100	59-91	47-75	29-46	9-18
	19-64	Channery sandy loam, channery loamy sand, sandy loam	SM, SC-SM	A-2-4, A-4	0	0-22	69-100	68-100	49-89	25-54	0-33	NP-13
	25-79	Channery sandy loam, channery fine sandy loam, channery loamy sand, sandy loam	SC-SM, SM	A-2-4, A-4	0	0-22	69-100	68-100	52-93	26-56	0-33	NP-13
	31-153	Weathered bedrock			---	---	---	---	---	---	---	---
OwE:												
Oconaluftee, windswept------	0-30	Channery loam	ML, SM	A-4, A-5	0-5	6-14	79-88	54-75	45-71	31-52	35-61	3-11
	12-112	Channery loam, channery silt loam, channery fine sandy loam, loam	GM, ML, SM, CL, SC, SC-SM	A-4	0-4	5-12	81-96	58-96	47-90	32-66	17-33	2-12
	44-152	Loam, flaggy fine sandy loam, channery fine sandy loam	ML, SC-SM, SM, CL, CL-ML	A-4	0-7	5-19	84-100	67-100	55-95	37-68	16-30	2-12
Guyot, windswept	0-28	Clay loam	OH	A-7-5	0	0-16	78-100	77-100	66-94	56-80	58-92	17-22
	11-72	Sandy loam, loam, fine sandy loam	ML, CL	A-4	0	0-10	87-100	87-100	68-98	42-69	18-42	3-18
	28-150	Fine sandy loam, loamy sand, sandy loam	SM, SC-SM	A-4	0	0-10	87-100	86-100	75-97	38-54	16-27	2-10
	59-183	Weathered bedrock			---	---	---	---	---	---	---	---

Table 12.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>250 mm	75-250 mm	4	10	40	200		
	Cm				Pct	Pct					Pct	
OwE:												
Cataloochee, windswept------	0-23	Loam, channery loam, clay loam, channery clay loam	OH	A-7-5	0	0-18	76-100	75-100	59-100	48-86	---	---
	9-48	Channery loam, loam, sandy loam, channery sandy loam	ML, CL	A-4, A-6	0	0-18	75-100	75-100	59-91	47-75	29-46	9-18
	19-64	Channery sandy loam, channery loamy sand, sandy loam	SM, SC-SM	A-2-4, A-4	0	0-22	69-100	68-100	49-89	25-54	0-33	NP-13
	25-79	Channery sandy loam, channery fine sandy loam, channery loamy sand, sandy loam	SC-SM, SM	A-2-4, A-4	0	0-22	69-100	68-100	52-93	26-56	0-33	NP-13
	31-153	Weathered bedrock			---	---	---	---	---	---	---	---
OwF:												
Oconaluftee, windswept------	0-30	Channery loam	ML, SM	A-4, A-5	0-5	6-14	79-88	54-75	45-71	31-52	35-61	3-11
	12-112	Channery loam, channery silt loam, channery fine sandy loam, loam	GM, ML, SM, CL, SC, SC-SM	A-4	0-4	5-12	81-96	58-96	47-90	32-66	17-33	2-12
	44-152	Loam, flaggy fine sandy loam, channery fine sandy loam	ML, SC-SM, SM, CL, CL-ML	A-4	0-7	5-19	84-100	67-100	55-95	37-68	16-30	2-12
Guyot, windswept	0-28	Clay loam	OH	A-7-5	0	0-16	78-100	77-100	66-94	56-80	58-92	17-22
	11-72	Sandy loam, loam, fine sandy loam	ML, CL	A-4	0	0-10	87-100	87-100	68-98	42-69	18-42	3-18
	28-150	Fine sandy loam, loamy sand, sandy loam	SM, SC-SM	A-4	0	0-10	87-100	86-100	75-97	38-54	16-27	2-10
	59-183	Weathered bedrock			---	---	---	---	---	---	---	---

Table 12.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>250 mm	75-250 mm	4	10	40	200		
	Cm				Pct	Pct					Pct	
OwF:												
Cataloochee, windswept------	0-23	Loam, channery loam, clay loam, channery clay loam	OH	A-7-5	0	0-18	76-100	75-100	59-100	48-86	---	---
	9-48	Channery loam, loam, sandy loam, channery sandy loam	ML, CL	A-4, A-6	0	0-18	75-100	75-100	59-91	47-75	29-46	9-18
	19-64	Channery sandy loam, channery loamy sand, sandy loam	SM, SC-SM	A-2-4, A-4	0	0-22	69-100	68-100	49-89	25-54	0-33	NP-13
	25-79	Channery sandy loam, channery fine sandy loam, channery loamy sand, sandy loam	SC-SM, SM	A-2-4, A-4	0	0-22	69-100	68-100	52-93	26-56	0-33	NP-13
	31-153	Weathered bedrock			---	---	---	---	---	---	---	---
Po:												
Potomac---------	0-5	Very cobbly loamy sand	GM, GW-GM, SM, SW-SM, GC-GM	A-1, A-2, A-1-b	0	31-37	54-72	52-70	40-58	11-18	15-26	1-6
	2-152	Extremely cobbly loamy sand, very gravelly loamy sand, very cobbly sand	GM, GW-GM, SM, SW-SM	A-2, A-1, A-1-b	0	31-61	44-72	41-70	30-58	8-20	0-23	NP-6
Rd:												
Reddies---------	0-36	Fine sandy loam	ML, SM	A-2-4, A-4	0	0-3	93-100	79-100	68-98	32-54	23-46	2-12
	14-66	Fine sandy loam, sandy loam, gravelly sandy loam	ML, SM, SC-SM	A-2-4, A-4	0-1	0-13	90-100	69-100	59-98	28-54	17-31	2-12
	26-152	Very gravelly sand, very cobbly sand, extremely gravelly sand, very cobbly loamy sand	SP-SM, SP	A-1-a, A-1-b	0-1	9-23	74-83	28-56	21-47	2-9	0-23	NP-6
Dellwood--------	0-20	Cobbly loam	SM	A-4	0-4	14-24	77-88	67-87	57-80	39-57	24-44	3-9
	8-36	Extremely gravelly sand, very gravelly sand, very gravelly loamy sand, gravelly sand	GP, GP-GM, SP, GW	A-1, A-1-a	0-5	16-47	18-83	15-82	11-66	1-11	0-25	NP-4
	14-152	Extremely gravelly sand, very cobbly sand, extremely gravelly coarse sand	GM, GP, GP-GM, SP	A-1, A-1-a	0-5	26-40	32-68	29-67	12-30	2-6	0-19	NP-1

Table 12.—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	>250 mm	75-250 mm	4	10	40	200		
	Cm				Pct	Pct					Pct	
RpF:												
Rock outcrop.												
Pullback--------	0-3	Peat	PT	A-8	0	0	0	0	0	0	---	---
	1-20	Loam, channery loam, clay loam, channery clay loam, sandy loam	CL, SM	A-6, A-4, A-5	0	0-24	64-100	63-100	47-100	24-70	0-74	NP-23
	8-41	Channery sandy loam, sandy loam, channery loam, loam	CL, SM	A-4, A-6	0	0-20	71-100	70-100	54-100	28-64	0-47	NP-18
	16-200	Unweathered bedrock			---	---	---	---	---	---	---	---
RtF:												
Rock outcrop.												
Luftee----------	0-28	Very channery loam	SM, SC-SM, GM	A-2-7	0	25-59	18-62	16-61	11-52	8-43	41-74	4-23
	11-51	Channery loam, very channery loam, extremely channery loam, extremely channery sandy loam	SM, SC-SM, GM	A-2-4, A-4, A-2-7	0	10-35	36-87	35-86	24-77	19-63	30-58	4-18
	20-86	Channery sandy loam, extremely channery sandy loam, extremely channery loam	GM, GC-GM	A-2, A-1-b	0	13-39	27-82	25-82	17-74	12-56	0-41	NP-17
	34-200	Unweathered bedrock			---	---	---	---	---	---	---	---
RuF:												
Rock outcrop.												
Unicoi----------	0-10	Loam, channery loam, gravelly fine sandy loam	SC-SM, SM, ML	A-4, A-2	0	0-14	64-82	62-81	50-77	35-58	23-52	2-13
	4-38	Cobbly loam, very cobbly loam, very cobbly sandy loam, very stony loam	GC-GM, GM, SC-SM, SM	A-4, A-2	0	19-43	61-86	60-85	49-82	34-61	17-35	2-13
	15-200	Unweathered bedrock			---	---	---	---	---	---	---	---
Rv:												
Rosman----------	0-30	Silt loam	ML, SC-SM	A-4, A-7-6	0	0	94-100	81-100	68-100	58-91	23-58	4-18
	12-54	Loam, fine sandy loam, sandy loam	ML, SC-SM, CL	A-4	0	0	94-100	83-100	76-100	51-81	21-43	4-18
	21-107	Fine sandy loam, sandy loam	SC-SM	A-4	0	0	100	100	89-100	34-51	0-33	NP-13
	42-175	Fine sandy loam, sandy loam	SM	A-2-4, A-4	0	0	100	100	87-100	28-45	0-33	NP-13

Table 12.—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	>250 mm	75- 250 mm	4	10	40	200		
	Cm				Pct	Pct					Pct	
Rv:												
Reddies----------	0-36	Fine sandy loam	ML, SM	A-2-4, A-4	0	0-3	93-100	79-100	68-98	32-54	23-46	2-12
	14-66	Fine sandy loam, sandy loam, gravelly sandy loam	ML, SM, SC-SM	A-2-4, A-4	0-1	0-13	90-100	69-100	59-98	28-54	17-31	2-12
	26-152	Very gravelly sand, very cobbly sand, extremely gravelly sand, very cobbly loamy sand	SP-SM, SP	A-1-a, A-1-b	0-1	9-23	74-83	28-56	21-47	2-9	0-23	NP-6
Rw:												
Rosman-----------	0-30	Silt loam	ML, SC-SM	A-4, A-7-6	0	0	94-100	81-100	68-100	58-91	23-58	4-18
	12-54	Loam, fine sandy loam, sandy loam	ML, SC-SM, CL	A-4	0	0	94-100	83-100	76-100	51-81	21-43	4-18
	21-107	Fine sandy loam, sandy loam	SM, SC-SM	A-4	0	0	100	100	89-100	34-51	0-33	NP-13
	42-175	Fine sandy loam, sandy loam	SM	A-4, A-2-4	0	0	100	100	87-100	28-45	0-33	NP-13
Reddies----------	0-36	Fine sandy loam	ML, SM	A-2-4, A-4	0	0-3	93-100	79-100	68-98	32-54	23-46	2-12
	14-66	Fine sandy loam, sandy loam, gravelly sandy loam	ML, SM, SC-SM	A-2-4, A-4	0-1	0-13	90-100	69-100	59-98	28-54	17-31	2-12
	26-152	Very gravelly sand, very cobbly sand, extremely gravelly sand, very cobbly loamy sand	SP-SM, SP	A-1-a, A-1-b	0-1	9-23	74-83	28-56	21-47	2-9	0-23	NP-6
Urban land.												
RxF:												
Rubble land.												
Spivey-----------	0-33	Cobbly loam, very bouldery sandy loam	ML, SM	A-4, A-5	26-60	18-28	100	100	71-88	36-53	0-52	NP-13
	13-114	Very bouldery fine sandy loam, very cobbly sandy loam, extremely bouldery sandy loam	SM, SC-SM	A-4	38-63	17-41	100	100	75-92	39-56	0-37	NP-13
	45-122	Very cobbly loam, very stony loam, extremely bouldery sandy loam	GM, SM, GC-GM	A-1, A-2, A-4, A-1-b	31-56	16-36	22-88	18-88	14-79	7-47	0-37	NP-13
RZ:												
Rubble land.												

Table 12.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>250 mm	75-250 mm	4	10	40	200		
	Cm				Pct	Pct					Pct	
SaD:												
Saunook, stony--	0-23	Loam	MH, ML, SM	A-4, A-5, A-7-5	0	0-5	91-100	81-100	63-98	43-74	24-58	3-18
	9-71	Loam, clay loam, sandy clay loam	CL, ML	A-6, A-7	0-2	0-5	91-100	83-100	68-99	50-77	29-49	12-24
	28-86	Cobbly sandy clay loam, gravelly loam, cobbly loam	SC, SM, ML, CL	A-4, A-6	0-10	24-50	77-100	76-100	62-99	46-77	19-40	3-17
	34-165	Cobbly sandy clay loam, gravelly loam, cobbly loam, cobbly sandy loam	SC, SM	A-2, A-4, A-6, A-2-4	0-10	15-49	75-90	74-90	51-78	24-45	19-40	3-17
SdC:												
Saunook, stony--	0-23	Loam	MH, ML, SM	A-4, A-5, A-7-5	0	0-5	91-100	81-100	63-98	43-74	24-58	3-18
	9-71	Loam, clay loam, sandy clay loam	CL, ML	A-6, A-7	0-2	0-5	91-100	83-100	68-99	50-77	29-49	12-24
	28-86	Cobbly sandy clay loam, gravelly loam, cobbly loam	SC, SM, ML, CL	A-4, A-6	0-10	24-50	77-100	76-100	62-99	46-77	19-40	3-17
	34-165	Cobbly sandy clay loam, gravelly loam, cobbly loam, cobbly sandy loam	SC, SM	A-2, A-4, A-6, A-2-4	0-10	15-49	75-90	74-90	51-78	24-45	19-40	3-17
Urban land.												
SI.												
Slide area												
SnF:												
Snowbird--------	0-15	Loam	ML, MH	A-7-5	0-6	0-17	86-100	86-100	68-99	38-64	29-58	3-18
	6-23	Sandy clay loam, clay loam	CL, ML, MH	A-7-6	0-4	0-14	89-100	89-100	79-100	49-75	35-68	13-27
	9-95	Clay loam, sandy clay loam, loam, sandy clay	CL, ML	A-6, A-7-6	0-2	0-12	88-100	87-100	67-98	37-65	28-54	12-28
	37-138	Very gravelly fine sandy loam, very gravelly loam, gravelly sandy loam, loam, sandy loam	SC, GC	A-2-4	0-8	8-31	66-90	66-90	57-90	25-45	18-33	3-13
	54-167	Weathered bedrock			---	---	---	---	---	---	---	---

Table 12.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >250 mm	Fragments: 75-250 mm	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	Cm				Pct	Pct					Pct	
SoD:												
Soco------------	0-15	Channery loam	ML, SM	A-4, A-5	1-10	5-13	83-97	60-81	50-76	35-56	20-46	3-12
	6-66	Loam, fine sandy loam, silt loam	SC, SM, SC-SM	A-4, A-6, A-2-4	0-1	0-5	91-100	80-100	68-98	29-49	17-31	2-12
	26-94	Channery loam, channery fine sandy loam, channery silt loam, loam	SC, SM, SC-SM	A-4, A-6, A-2-4	0-3	5-13	83-96	60-96	50-94	22-48	16-30	2-12
	37-158	Weathered bedrock			---	---	---	---	---	---	---	---
Stecoah---------	0-10	Channery loam	ML, SM	A-5, A-4	0-3	5-10	83-92	59-80	49-75	34-55	20-46	3-12
	4-71	Channery loam, channery fine sandy loam, loam	CL, ML, SC, SM, SC-SM	A-4, A-6	0-1	0-10	83-100	58-100	47-94	32-68	17-31	2-12
	28-127	Channery loam, channery fine sandy loam, loam	CL, ML, SC, SM, SC-SM	A-4	0-3	5-11	84-100	61-100	49-94	34-68	16-30	2-12
	50-157	Weathered bedrock			---	---	---	---	---	---	---	---
SoF:												
Soco------------	0-15	Channery loam	ML, SM	A-4, A-5	1-10	5-13	83-97	60-81	50-76	35-56	20-46	3-12
	6-66	Loam, fine sandy loam, silt loam	SC, SM, SC-SM	A-4, A-6, A-2-4	0-1	0-5	91-100	80-100	68-98	29-49	17-31	2-12
	26-94	Channery loam, channery fine sandy loam, channery silt loam, loam	SC, SM, SC-SM	A-4, A-6, A-2-4	0-3	5-13	83-96	60-96	50-94	22-48	16-30	2-12
	37-158	Weathered bedrock			---	---	---	---	---	---	---	---
Stecoah---------	0-10	Channery loam	ML, SM	A-4, A-5	0-3	5-10	83-92	59-80	49-75	34-55	20-46	3-12
	4-71	Channery loam, channery fine sandy loam, loam	CL, ML, SC, SM, SC-SM	A-4, A-6	0-1	0-10	83-100	58-100	47-94	32-68	17-31	2-12
	28-127	Channery loam, channery fine sandy loam, loam	CL, ML, SC, SM, SC-SM	A-4	0-3	5-11	84-100	61-100	49-94	34-68	16-30	2-12
	50-157	Weathered bedrock			---	---	---	---	---	---	---	---
SpD:												
Soco, windswept-	0-15	Channery loam	ML, SM	A-4, A-5	1-10	5-13	83-97	60-81	50-76	35-56	20-46	3-12
	6-66	Loam, fine sandy loam, silt loam	SC, SM, SC-SM	A-4, A-6, A-2-4	0-1	0-5	91-100	80-100	68-98	29-49	17-31	2-12
	26-94	Channery loam, channery fine sandy loam, channery silt loam, loam	SC, SM, SC-SM	A-4, A-6, A-2-4	0-3	5-13	83-96	60-96	50-94	22-48	16-30	2-12
	37-158	Weathered bedrock			---	---	---	---	---	---	---	---

Table 12.—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	>250 mm	75-250 mm	4	10	40	200		
	Cm				Pct	Pct					Pct	
SpD:												
Stecoah, windswept------	0-10	Channery loam	ML, SM	A-4, A-5	0-3	5-10	83-92	59-80	49-75	34-55	20-46	3-12
	4-71	Channery loam, channery fine sandy loam, loam	CL, ML, SC, SM, SC-SM	A-4, A-6	0-1	0-10	83-100	58-100	47-94	32-68	17-31	2-12
	28-127	Channery loam, channery fine sandy loam, loam	CL, ML, SC, SM, SC-SM	A-4	0-3	5-11	84-100	61-100	49-94	34-68	16-30	2-12
	50-157	Weathered bedrock			---	---	---	---	---	---	---	---
SpF:												
Soco, windswept-	0-15	Channery loam	ML, SM	A-4, A-5	1-10	5-13	83-97	60-81	50-76	35-56	20-46	3-12
	6-66	Loam, fine sandy loam, silt loam	SC, SM, SC-SM	A-4, A-6, A-2-4	0-1	0-5	91-100	80-100	68-98	29-49	17-31	2-12
	26-94	Channery loam, channery fine sandy loam, channery silt loam, loam	SC, SM, SC-SM	A-4, A-6, A-2-4	0-3	5-13	83-96	60-96	50-94	22-48	16-30	2-12
	37-158	Weathered bedrock			---	---	---	---	---	---	---	---
Stecoah, windswept------	0-10	Channery loam	ML, SM	A-4, A-5	0-3	5-10	83-92	59-80	49-75	34-55	20-46	3-12
	4-71	Channery loam, channery fine sandy loam, loam	CL, ML, SC, SM, SC-SM	A-4, A-6	0-1	0-10	83-100	58-100	47-94	32-68	17-31	2-12
	28-127	Channery loam, channery fine sandy loam, loam	CL, ML, SM, SC, SC-SM	A-4	0-3	5-11	84-100	61-100	49-94	34-68	16-30	2-12
	50-157	Weathered bedrock			---	---	---	---	---	---	---	---
SsB:												
Spivey----------	0-33	Cobbly loam, very bouldery sandy loam	ML, SM	A-4, A-5	26-60	18-28	100	100	71-88	36-53	0-52	NP-13
	13-114	Very bouldery fine sandy loam, very cobbly sandy loam, extremely bouldery sandy loam	SM, SC-SM	A-4	38-63	17-41	100	100	75-92	39-56	0-37	NP-13
	45-122	Very cobbly loam, very stony loam, extremely bouldery sandy loam	GM, SM, GC-GM	A-1, A-2, A-4, A-1-b	31-56	16-36	22-88	18-88	14-79	7-47	0-37	NP-13

Table 12.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>250 mm	75-250 mm	4	10	40	200		
	Cm				Pct	Pct					Pct	
SsB:												
Santeetlah------	0-43	Loam	MH, ML, SM	A-4, A-5	0-1	0-3	91-100	78-100	65-94	45-68	29-50	3-11
	17-99	Loam, fine sandy loam, silt loam	ML, SM, CL-ML	A-4, A-6	0-3	0-3	92-100	81-100	66-94	45-68	17-35	2-12
	39-124	Channery loam, channery fine sandy loam, channery silt loam, very channery fine sandy loam, loam	GM, ML, SM, SC-SM	A-4	0-11	5-15	72-96	34-96	28-90	19-66	16-30	2-12
	49-165	Very channery loam, flaggy loam, loam, very channery fine sandy loam	GM, ML, SM, SC-SM	A-2-4, A-4	0-12	13-21	71-96	37-96	30-90	20-66	16-30	2-12
Nowhere---------	0-41	Very cobbly fine sandy loam	SM, GM	A-4, A-2-4	0	56-64	52-100	50-100	41-97	20-54	0-58	NP-18
	16-71	Extremely cobbly fine sandy loam, very cobbly sandy loam, very cobbly loam	SM, SC-SM	A-2, A-2-4	30-45	28-46	49-100	47-100	37-97	16-52	0-35	NP-13
	28-158	Extremely cobbly fine sandy loam, very cobbly sandy loam, very cobbly loam	SM	A-2, A-2-4	31-48	29-54	67-100	66-100	52-96	24-54	0-33	NP-13
SsC:												
Spivey----------	0-33	Cobbly loam, very bouldery sandy loam	ML, SM	A-4, A-5	26-60	18-28	100	100	71-88	36-53	0-52	NP-13
	13-114	Very bouldery fine sandy loam, very cobbly sandy loam, extremely bouldery sandy loam	SM, SC-SM	A-4	38-63	17-41	100	100	75-92	39-56	0-37	NP-13
	45-122	Very cobbly loam, very stony loam, extremely bouldery sandy loam	GM, SM, GC-GM	A-1, A-2, A-4, A-1-b	31-56	16-36	22-88	18-88	14-79	7-47	0-37	NP-13
Santeetlah------	0-43	Loam	MH, ML, SM	A-4, A-5	0-1	0-3	91-100	78-100	65-94	45-68	29-50	3-11
	17-99	Loam, fine sandy loam, silt loam	ML, SM, CL-ML	A-4, A-6	0-3	0-3	92-100	81-100	66-94	45-68	17-35	2-12
	39-124	Channery loam, channery fine sandy loam, channery silt loam, very channery fine sandy loam, loam	GM, ML, SM, SC-SM	A-4	0-11	5-15	72-96	34-96	28-90	19-66	16-30	2-12
	49-165	Very channery loam, flaggy loam, loam, very channery fine sandy loam	GM, ML, SM, SC-SM	A-2-4, A-4	0-12	13-21	71-96	37-96	30-90	20-66	16-30	2-12

Table 12.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>250 mm	75-250 mm	4	10	40	200		
	Cm				Pct	Pct					Pct	
SsC:												
Nowhere----------	0-41	Very cobbly fine sandy loam	SM, GM	A-4, A-2-4	0	56-64	52-100	50-100	41-97	20-54	0-58	NP-18
	16-71	Extremely cobbly fine sandy loam, very cobbly sandy loam, very cobbly loam	SM, SC-SM	A-2, A-2-4	30-45	28-46	49-100	47-100	37-97	16-52	0-35	NP-13
	28-158	Extremely cobbly fine sandy loam, very cobbly sandy loam, very cobbly loam	SM	A-2, A-2-4	31-48	29-54	67-100	66-100	52-96	24-54	0-33	NP-13
SsD:												
Spivey-----------	0-33	Cobbly loam, very bouldery sandy loam	ML, SM	A-4, A-5	26-60	18-28	100	100	71-88	36-53	0-52	NP-13
	13-114	Very bouldery fine sandy loam, very cobbly sandy loam, extremely bouldery sandy loam	SM, SC-SM	A-4	38-63	17-41	100	100	75-92	39-56	0-37	NP-13
	45-122	Very cobbly loam, very stony loam, extremely bouldery sandy loam	GM, SM, GC-GM	A-1, A-2, A-4, A-1-b	31-56	16-36	22-88	18-88	14-79	7-47	0-37	NP-13
Santeetlah------	0-43	Loam	MH, ML, SM	A-4, A-5	0-1	0-3	91-100	78-100	65-94	45-68	29-50	3-11
	17-99	Loam, fine sandy loam, silt loam	ML, SM, CL-ML	A-4, A-6	0-3	0-3	92-100	81-100	66-94	45-68	17-35	2-12
	39-124	Channery loam, channery fine sandy loam, channery silt loam, very channery fine sandy loam, loam	GM, ML, SM, SC-SM	A-4	0-11	5-15	72-96	34-96	28-90	19-66	16-30	2-12
	49-165	Very channery loam, flaggy loam, loam, very channery fine sandy loam	GM, ML, SM, SC-SM	A-2-4, A-4	0-12	13-21	71-96	37-96	30-90	20-66	16-30	2-12
SsE:												
Spivey-----------	0-33	Cobbly loam, very bouldery sandy loam	ML, SM	A-4, A-5	26-60	18-28	100	100	71-88	36-53	0-52	NP-13
	13-114	Very bouldery fine sandy loam, very cobbly sandy loam, extremely bouldery sandy loam	SM, SC-SM	A-4	38-63	17-41	100	100	75-92	39-56	0-37	NP-13
	45-122	Very cobbly loam, very stony loam, extremely bouldery sandy loam	GM, SM, GC-GM	A-1, A-2, A-4, A-1-b	31-56	16-36	22-88	18-88	14-79	7-47	0-37	NP-13

Table 12.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>250 mm	75-250 mm	4	10	40	200		
	Cm				Pct	Pct					Pct	
SsE:												
Santeetlah------	0-43	Loam	MH, ML, SM	A-4, A-5	0-1	0-3	91-100	78-100	65-94	45-68	29-50	3-11
	17-99	Loam, fine sandy loam, silt loam	ML, SM, CL-ML	A-4, A-6	0-3	0-3	92-100	81-100	66-94	45-68	17-35	2-12
	39-124	Channery loam, channery fine sandy loam, channery silt loam, very channery fine sandy loam, loam	GM, ML, SM, SC-SM	A-4	0-11	5-15	72-96	34-96	28-90	19-66	16-30	2-12
	49-165	Very channery loam, flaggy loam, loam, very channery fine sandy loam	GM, ML, SM, SC-SM	A-2-4, A-4	0-12	13-21	71-96	37-96	30-90	20-66	16-30	2-12
StB:												
Statler---------	0-23	Loam	CL, CL-ML, ML	A-4, A-6	0	0	96-100	76-100	63-93	44-68	25-43	6-13
	9-76	Clay loam, silt loam, loam	ML, CL	A-6	0	0	96-100	77-100	63-99	48-79	28-49	12-24
	30-97	Loam, clay loam, sandy clay loam	CL	A-4, A-6, A-7	0	0-3	96-100	80-100	64-100	46-78	24-47	9-24
	38-157	Loam, fine sandy loam, clay loam	CL, SC, SC-SM	A-4, A-6	0	0-5	82-100	81-100	65-98	46-74	22-40	7-21
StC:												
Statler---------	0-23	Loam	CL-ML, ML, CL	A-4, A-6	0	0	96-100	76-100	63-93	44-68	25-43	6-13
	9-76	Clay loam, silt loam, loam	ML, CL	A-6	0	0	96-100	77-100	63-99	48-79	28-49	12-24
	30-97	Loam, clay loam, sandy clay loam	CL	A-4, A-6, A-7	0	0-3	96-100	80-100	64-100	46-78	24-47	9-24
	38-157	Loam, fine sandy loam, clay loam	CL, SC, SC-SM	A-4, A-6	0	0-5	82-100	81-100	65-98	46-74	22-40	7-21
TaC:												
Tanasee---------	0-5	Moderately decomposed plant material	PT	A-8	0-20	0-41	0	0	0	0	---	---
	2-20	Clay loam, cobbly clay loam	ML, MH	A-7-5	0-32	0-32	61-100	59-100	52-100	38-77	45-68	18-27
	8-46	Loam, sandy loam, cobbly sandy loam	ML, CL	A-4, A-6	0-25	0-25	69-100	68-100	51-95	37-74	19-43	3-18
	18-84	Clay loam, loam, sandy loam, sandy clay loam, cobbly sandy clay loam	CL	A-4, A-6	0-20	0-20	75-100	74-100	57-100	41-81	24-50	9-28
	33-142	Loam, sandy loam, cobbly sandy loam, very cobbly sandy loam	ML, CL	A-4, A-6	0-32	0-32	53-100	51-100	36-91	22-64	18-39	3-19
	56-200	Very cobbly sandy loam, cobbly sandy loam, cobbly loam	SM, SC-SM	A-2-4, A-1-b	0-32	16-32	52-88	50-87	38-82	17-44	0-33	NP-13

Table 12.—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	>250 mm	75-250 mm	4	10	40	200		
	Cm				Pct	Pct					Pct	
TaC:												
Balsam----------	0-5	Moderately decomposed plant material	PT	A-8	0	0	0	0	0	0	---	---
	2-33	Cobbly sandy loam, stony sandy loam, cobbly loam, very cobbly fine sandy loam	SM	A-1-b, A-2-5, A-5	0-34	28-51	39-83	37-83	27-79	15-53	33-79	1-17
	13-122	Very cobbly sandy loam, very stony sandy loam, very cobbly loam, extremely cobbly sandy loam	GM, SM	A-1-b, A-2-4	6-39	33-43	25-83	11-78	8-73	4-48	17-47	1-18
	48-165	Very cobbly loamy sand, very cobbly fine sandy loam, very stony loam, very stony fine sandy loam, extremely cobbly loamy sand	SM, GM, SP-SM	A-2-4, A-1-b	6-39	33-43	25-83	11-78	7-71	3-37	16-41	1-19
TaD:												
Tanasee---------	0-5	Moderately decomposed plant material	PT	A-8	0-20	0-41	0	0	0	0	---	---
	2-20	Clay loam, cobbly clay loam	ML, MH	A-7-5	0-32	0-32	61-100	59-100	52-100	38-77	45-68	18-27
	8-46	Loam, sandy loam, cobbly sandy loam	ML, CL	A-4, A-6	0-25	0-25	69-100	68-100	51-95	37-74	19-43	3-18
	18-84	Clay loam, loam, sandy loam, sandy clay loam, cobbly sandy clay loam	CL	A-4, A-6	0-20	0-20	75-100	74-100	57-100	41-81	24-50	9-28
	33-142	Loam, sandy loam, cobbly sandy loam, very cobbly sandy loam	ML, CL	A-4, A-6	0-32	0-32	53-100	51-100	36-91	22-64	18-39	3-19
	56-200	Very cobbly sandy loam, cobbly sandy loam, cobbly loam	SM, SC-SM	A-2-4, A-1-b	0-32	16-32	52-88	50-87	38-82	17-44	0-33	NP-13

Table 12.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>250 mm	75-250 mm	4	10	40	200		
	Cm				Pct	Pct					Pct	
TaD:												
Balsam----------	0-5	Moderately decomposed plant material	PT	A-8	0	0	0	0	0	0	---	---
	2-33	Cobbly sandy loam, stony sandy loam, cobbly loam, very cobbly fine sandy loam	SM	A-1-b, A-2-5, A-5	0-34	28-51	39-83	37-83	27-79	15-53	33-79	1-17
	13-122	Very cobbly sandy loam, very stony sandy loam, very cobbly loam, extremely cobbly sandy loam	GM, SM	A-1-b, A-2-4	6-39	33-43	25-83	11-78	8-73	4-48	17-47	1-18
	48-165	Very cobbly loamy sand, very cobbly fine sandy loam, very stony loam, very stony fine sandy loam, extremely cobbly loamy sand	SM, GM, SP-SM	A-2-4, A-1-b	6-39	33-43	25-83	11-78	7-71	3-37	16-41	1-19
ThB:												
Thurmont, stony-	0-36	Loam	ML, SM	A-4, A-5	0	0-3	93-100	79-100	66-100	45-77	22-53	3-18
	14-119	Sandy clay loam, loam, clay loam	SC	A-2, A-6	0	0-3	93-100	80-100	66-99	35-61	28-45	12-25
	47-135	Loamy sand, loamy fine sand, sandy loam	SM, SC-SM	A-2-4	0	0-3	92-100	80-100	51-81	13-33	0-32	NP-13
	53-203	Sandy clay loam, fine sandy loam, sandy loam	CL-ML, SC-SM, SC	A-2-4, A-4, A-6	0	0-3	93-100	80-100	58-100	27-61	18-44	4-25
Dillard, stony--	0-18	Loam	CL, ML	A-4, A-6	0	0-1	95-100	84-100	67-96	47-71	21-45	6-17
	7-127	Clay loam, sandy clay loam, loam	CL	A-6, A-7	0	0-1	95-100	82-100	68-99	51-79	28-45	12-25
	50-203	Sandy loam	SM, SC-SM	A-2-4, A-4	0	0	100	100	69-82	31-44	16-30	2-12
ThC:												
Thurmont, stony-	0-36	Loam	ML, SM	A-4, A-5	0	0-3	93-100	79-100	66-100	45-77	22-53	3-18
	14-119	Sandy clay loam, loam, clay loam	SC	A-2, A-6	0	0-3	93-100	80-100	66-99	35-61	28-45	12-25
	47-135	Loamy sand, loamy fine sand, sandy loam	SM, SC-SM	A-2-4	0	0-3	92-100	80-100	51-81	13-33	0-32	NP-13
	53-203	Sandy clay loam, fine sandy loam, sandy loam	CL-ML, SC-SM, SC	A-2-4, A-4, A-6	0	0-3	93-100	80-100	58-100	27-61	18-44	4-25

Table 12.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >250 mm	Fragments: 75-250 mm	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	Cm				Pct	Pct					Pct	
To:												
Toxaway	0-15	Silty clay loam	CL, MH, ML	A-7, A-7-5	0	0	97-100	89-100	82-100	78-100	45-68	18-27
	6-26	Silty clay loam	ML, CL, MH	A-7-5	0	8-16	94-100	79-100	73-100	70-100	45-68	18-27
	10-41	Loam, silty clay loam, silt loam	ML, CL, CH	A-6, A-7-6	0	0	100	100	80-100	76-100	39-58	18-28
	16-69	Silty clay loam, loam, silt loam	CL	A-6, A-7-6	0	0	100	100	81-100	77-100	37-54	18-28
	27-89	Silty clay loam, loam, silt loam	CL	A-6, A-7-6	0	0	100	100	83-100	79-100	37-54	18-28
	35-117	Silty clay loam, silt loam, loam	ML, CL	A-4, A-6	0	0	100	100	84-100	78-100	21-47	4-18
	46-147	Mucky silt loam	ML, OH	A-4, A-7-5, A-6	0	0	100	100	78-97	73-92	30-62	4-18
	58-179	Loamy coarse sand, loamy sand, sandy loam, loam, silt loam	SM	A-2-4	0	0	100	100	48-75	20-47	0-31	NP-10
TuC:												
Tuckasegee, stony	0-33	Fine sandy loam	SM	A-2, A-4, A-5, A-2-5	0-2	0-7	90-100	76-100	68-97	31-48	31-63	7-13
	13-66	Fine sandy loam, loam, sandy loam, gravelly loam	ML, SM, CL	A-4, A-6	0-2	0-16	88-100	64-100	53-95	38-71	27-43	9-18
	26-119	Gravelly sandy clay loam, gravelly fine sandy loam, sandy clay loam, cobbly sandy loam	SC	A-4, A-2-4, A-2-6	0-3	18-29	81-93	67-93	60-93	28-50	26-39	9-19
	47-165	Cobbly sandy loam, very cobbly sandy loam, loam	SC-SM, SC	A-1-b, A-2-4, A-6, A-4	0-4	25-62	81-100	62-100	48-92	23-52	20-36	6-17
Cullasaja, stony	0-46	Cobbly loam	GM, SM, OL	A-2-5, A-5	0	36-49	64-100	64-100	51-98	33-69	29-67	3-16
	18-122	Very cobbly fine sandy loam, very stony sandy loam, cobbly loam, very bouldery fine sandy loam, very stony loam	GM, SM, SC	A-1-b, A-2-4	12-17	30-45	70-95	46-95	39-95	16-49	18-41	3-17
	48-157	Extremely stony loamy sand, very cobbly sandy loam, extremely cobbly sandy loam, extremely stony sandy loam, extremely bouldery sandy loam	GM, SM, SP-SM, SC-SM	A-1-a, A-2-4	20-36	39-55	61-97	30-97	21-81	7-35	16-30	2-12

Table 12.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>250 mm	75-250 mm	4	10	40	200		
	Cm				Pct	Pct					Pct	
Ud:												
Udorthents------	0-152	Sandy clay loam, sandy loam	CL, CL-ML, SC, SC-SM	A-2, A-4, A-6, A-7	0	0-3	95-100	85-100	55-100	24-69	20-58	6-36
W.												
Water												
WaC:												
Wayah, windswept	0-38	Sandy loam	SM	A-2, A-4, A-5, A-2-5	0-2	0-5	92-100	76-100	55-85	26-48	34-61	2-11
	15-94	Gravelly sandy loam, sandy loam, gravelly loam	GM, ML, SC-SM, SM	A-2-4, A-4	0-3	3-9	78-98	55-98	45-92	31-67	17-33	2-12
	37-152	Gravelly loamy sand, gravelly sandy loam, gravelly fine sandy loam, very gravelly sandy loam, sandy loam	GM, SM, SC-SM	A-1-b, A-2-4	0-4	3-12	66-89	40-89	29-75	15-43	0-27	NP-10
WaD:												
Wayah, windswept	0-38	Sandy loam	SM	A-2, A-4, A-5, A-2-5	0-2	0-5	92-100	76-100	55-85	26-48	34-61	2-11
	15-94	Gravelly sandy loam, sandy loam, gravelly loam	GM, ML, SC-SM, SM	A-2-4, A-4	0-3	3-9	78-98	55-98	45-92	31-67	17-33	2-12
	37-152	Gravelly loamy sand, gravelly sandy loam, gravelly fine sandy loam, very gravelly sandy loam, sandy loam	GM, SM, SC-SM	A-1-b, A-2-4	0-4	3-12	66-89	40-89	29-75	15-43	0-27	NP-10
WaF:												
Wayah, windswept	0-38	Sandy loam	SM	A-2, A-4, A-5, A-2-5	0-2	0-5	92-100	76-100	55-85	26-48	34-61	2-11
	15-94	Gravelly sandy loam, sandy loam, gravelly loam	GM, ML, SC-SM, SM	A-2-4, A-4	0-3	3-9	78-98	55-98	45-92	31-67	17-33	2-12
	37-152	Gravelly loamy sand, gravelly sandy loam, gravelly fine sandy loam, very gravelly sandy loam, sandy loam	GM, SM, SC-SM	A-1-b, A-2-4	0-4	3-12	66-89	40-89	29-75	15-43	0-27	NP-10

Table 12.—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	>250 mm	75-250 mm	4	10	40	200		
	Cm				Pct	Pct					Pct	
WeD:												
Wayah-----------	0-38	Sandy loam	SM	A-2, A-4, A-5, A-2-5	0-2	0-5	92-100	76-100	55-85	26-48	34-61	2-11
	15-94	Gravelly sandy loam, sandy loam, gravelly loam	GM, ML, SC-SM, SM	A-2-4, A-4	0-3	3-9	78-98	55-98	45-92	31-67	17-33	2-12
	37-152	Gravelly loamy sand, gravelly sandy loam, gravelly fine sandy loam, very gravelly sandy loam, sandy loam	GM, SM, SC-SM	A-1-b, A-2-4	0-4	3-12	66-89	40-89	29-75	15-43	0-27	NP-10
WeF:												
Wayah-----------	0-38	Sandy loam	SM	A-2, A-4, A-5, A-2-5	0-2	0-5	92-100	76-100	55-85	26-48	34-61	2-11
	15-94	Gravelly sandy loam, sandy loam, gravelly loam	GM, ML, SC-SM, SM	A-2-4, A-4	0-3	3-9	78-98	55-98	45-92	31-67	17-33	2-12
	37-152	Gravelly loamy sand, gravelly sandy loam, gravelly fine sandy loam, very gravelly sandy loam, sandy loam	GM, SM, SC-SM	A-1-b, A-2-4	0-4	3-12	66-89	40-89	29-75	15-43	0-27	NP-10

Table 13.—Physical Soil Properties, Part I

(Sand and silt values (rv) are the representative value for that horizon; clay values are the range of low to high. Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Sand rv	Silt rv	Clay range	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter
	Cm	Pct	Pct	Pct	g/cc	Cm/hr	Cm/cm	Pct	Pct
AwB:									
Alarka	0-8	0	0	0-0	0.20-0.25	6-20	0.07-0.09	0.0-2.9	90-95
	8-18	0	0	0-0	0.25-0.30	6-20	0.08-0.10	0.0-2.9	90-95
	18-25	0	0	0-0	0.37-0.41	6-20	0.08-0.10	0.0-2.9	60-70
	25-33	35	40	18-35	1.06-1.28	2-6	0.34-0.36	0.0-2.9	5.0-10
	33-53	43	32	18-35	1.22-1.34	2-6	0.30-0.32	0.0-2.9	1.0-3.0
	53-91	55	31	5-20	1.46-1.62	6-20	0.18-0.20	0.0-2.9	0.5-2.0
	91-152	69	23	5-15	1.46-1.62	6-20	0.18-0.20	0.0-2.9	1.0-2.0
Wesser	0-8	0	0	0-0	0.20-0.22	6-20	0.33-0.35	0.0-2.9	70-80
	8-15	52	28	5-20	0.77-0.85	6-20	0.29-0.31	0.0-2.9	5.0-15
	15-33	77	17	0-15	0.53-0.58	6-20	0.62-0.64	0.0-2.9	5.0-15
	33-49	89	8	0-15	0.83-0.91	6-20	0.45-0.47	0.0-2.9	3.0-7.0
	49-158	94	5	0-15	1.14-1.26	6-20	0.18-0.20	0.0-2.9	1.0-3.0
AwC:									
Alarka	0-8	0	0	0-0	0.20-0.25	6-20	0.07-0.09	0.0-2.9	90-95
	8-18	0	0	0-0	0.25-0.30	6-20	0.08-0.10	0.0-2.9	90-95
	18-25	0	0	0-0	0.37-0.41	6-20	0.08-0.10	0.0-2.9	60-70
	25-33	35	40	18-35	1.06-1.28	2-6	0.34-0.36	0.0-2.9	5.0-10
	33-53	43	32	18-35	1.22-1.34	2-6	0.30-0.32	0.0-2.9	1.0-3.0
	53-91	55	31	5-20	1.46-1.62	6-20	0.18-0.20	0.0-2.9	0.5-2.0
	91-152	69	23	5-15	1.46-1.62	6-20	0.18-0.20	0.0-2.9	1.0-2.0
Whiteside	0-36	62	26	5-18	1.30-1.50	2-6	0.15-0.22	0.0-2.9	2.0-8.0
	36-119	60	18	18-35	1.35-1.55	0.6-2	0.14-0.20	0.0-2.9	0.5-1.0
	119-135	84	4	3-20	1.40-1.60	2-6	0.04-0.11	0.0-2.9	0.0-0.5
	135-178	60	18	8-35	1.35-1.60	0.6-6	0.10-0.16	0.0-2.9	0.0-0.5
AxB:									
Allegheny	0-20	32	42	12-27	1.31-1.45	0.6-2	0.12-0.22	0.0-2.9	2.0-4.0
	20-132	26	38	12-40	1.53-1.69	0.6-2	0.13-0.18	0.0-2.9	0.5-1.0
	132-183	14	36	6-60	1.36-1.50	0.6-2	0.08-0.17	0.0-2.9	0.3-0.5
BaE:									
Balsam	0-5	0	0	0-0	---	6-20	0.16-0.22	0.0-2.9	50-95
	5-33	66	27	4-27	0.50-1.00	4-11	0.20-0.25	0.0-2.9	8.0-20
	33-122	68	26	4-27	1.00-1.50	4-11	0.06-0.10	0.0-2.9	1.0-5.0
	122-165	80	15	4-27	1.00-1.50	4-11	0.06-0.10	0.0-2.9	0.5-2.0
Tanasee	0-5	0	0	0-0	0.29-0.31	6-20	0.16-0.22	0.0-2.9	50-95
	5-20	40	33	27-40	0.55-0.71	4-11	0.28-0.30	0.0-2.9	5.0-10
	20-46	36	43	7-27	0.92-1.02	4-11	0.37-0.39	0.0-2.9	0.5-3.0
	46-84	36	36	15-40	1.24-1.38	4-11	0.19-0.21	0.0-2.9	0.0-1.0
	84-142	42	32	7-27	1.26-1.40	4-11	0.15-0.17	0.0-2.9	0.0-1.0
	142-200	69	22	3-20	1.23-1.37	4-11	0.15-0.17	0.0-2.9	0.0-1.0
Bm:									
Biltmore	0-25	94	1	0-9	1.20-1.65	6-20	0.07-0.11	0.0-2.9	0.5-3.0
	25-203	85	9	0-12	1.20-1.70	6-20	0.06-0.10	0.0-2.9	0.0-0.5
BpC:									
Breakneck	0-30	50	32	7-40	0.91-1.01	2-6	0.12-0.17	0.0-2.9	3.0-5.0
	30-71	63	30	3-20	1.52-1.68	2-6	0.10-0.18	0.0-2.9	0.5-1.0
	71-200			---	---	---	---	---	---

Table 13.—Physical Soil Properties, Part I—Continued

Map symbol and soil name	Depth	Sand rv	Silt rv	Clay range	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter
	Cm	Pct	Pct	Pct	g/cc	Cm/hr	Cm/cm	Pct	Pct
BpC:									
Pullback------------	0-3	0	0	0-0	0.29-0.31	6-20	0.16-0.22	0.0-2.9	80-95
	3-20	64	29	3-35	0.99-1.09	2-6	0.12-0.17	0.0-2.9	5.0-15
	20-41	66	30	3-27	1.35-1.49	2-6	0.10-0.18	0.0-2.9	1.0-5.0
	41-200			---	---	---	---	---	---
BpD:									
Breakneck-----------	0-30	50	32	7-40	0.91-1.01	2-6	0.12-0.17	0.0-2.9	3.0-5.0
	30-71	63	30	3-20	1.52-1.68	2-6	0.10-0.18	0.0-2.9	0.5-1.0
	71-200			---	---	---	---	---	---
Pullback------------	0-3	0	0	0-0	0.29-0.31	6-20	0.16-0.22	0.0-2.9	80-95
	3-20	64	29	3-35	0.99-1.09	2-6	0.12-0.17	0.0-2.9	5.0-15
	20-41	66	30	3-27	1.35-1.49	2-6	0.10-0.18	0.0-2.9	1.0-5.0
	41-200			---	---	---	---	---	---
BpF:									
Breakneck-----------	0-30	50	32	7-40	0.91-1.01	2-6	0.12-0.17	0.0-2.9	3.0-5.0
	30-71	63	30	3-20	1.52-1.68	2-6	0.10-0.18	0.0-2.9	0.5-1.0
	71-200			---	---	---	---	---	---
Pullback------------	0-3	0	0	0-0	0.29-0.31	6-20	0.16-0.22	0.0-2.9	80-95
	3-20	64	29	3-35	0.99-1.09	2-6	0.12-0.17	0.0-2.9	5.0-15
	20-41	66	30	3-27	1.35-1.49	2-6	0.10-0.18	0.0-2.9	1.0-5.0
	41-200			---	---	---	---	---	---
BrE:									
Breakneck-----------	0-30	50	32	7-40	0.91-1.01	2-6	0.12-0.17	0.0-2.9	3.0-5.0
	30-71	63	30	3-20	1.52-1.68	2-6	0.10-0.18	0.0-2.9	0.5-1.0
	71-200			---	---	---	---	---	---
Luftee--------------	0-28	42	40	8-35	0.37-0.41	6-20	0.43-0.45	0.0-2.9	10-15
	28-51	41	42	8-27	1.50-1.66	6-20	0.02-0.04	0.0-2.9	5.0-10
	51-86	54	38	3-25	1.52-1.68	6-20	0.02-0.04	0.0-2.9	1.0-3.0
	86-200			---	---	---	---	---	---
Clingman------------	0-38			---	0.15-0.40	6-20	0.45-0.65	0.0-2.9	20-90
	38-48	84	4	5-20	1.50-1.80	6-20	0.09-0.20	0.0-2.9	5.0-15
	48-200			---	---	---	---	---	---
Pinnacle------------	0-48			---	0.22-0.24	6-20	0.32-0.34	0.0-2.9	90-100
	48-66			---	0.22-0.24	6-20	0.29-0.31	0.0-2.9	90-100
	66-92			---	0.39-0.43	6-20	0.45-0.47	0.0-2.9	75-100
	92-200			---	---	---	---	---	---
BrF:									
Breakneck-----------	0-30	50	32	7-40	0.91-1.01	2-6	0.12-0.17	0.0-2.9	3.0-5.0
	30-71	63	30	3-20	1.52-1.68	2-6	0.10-0.18	0.0-2.9	0.5-1.0
	71-200			---	---	---	---	---	---
Luftee--------------	0-28	42	40	8-35	0.37-0.41	6-20	0.43-0.45	0.0-2.9	10-15
	28-51	41	42	8-27	1.50-1.66	6-20	0.02-0.04	0.0-2.9	5.0-10
	51-86	54	38	3-25	1.52-1.68	6-20	0.02-0.04	0.0-2.9	1.0-3.0
	86-200			---	---	---	---	---	---
Clingman------------	0-38			---	0.15-0.40	6-20	0.45-0.65	0.0-2.9	20-90
	38-48	84	4	5-20	1.50-1.80	6-20	0.09-0.20	0.0-2.9	5.0-15
	48-200			---	---	---	---	---	---

Table 13.—Physical Soil Properties, Part I—Continued

Map symbol and soil name	Depth	Sand rv	Silt rv	Clay range	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter
	Cm	Pct	Pct	Pct	g/cc	Cm/hr	Cm/cm	Pct	Pct
BrF:									
Pinnacle------------	0-48			---	0.22-0.24	6-20	0.32-0.34	0.0-2.9	90-100
	48-66			---	0.22-0.24	6-20	0.29-0.31	0.0-2.9	90-100
	66-92			---	0.39-0.43	6-20	0.45-0.47	0.0-2.9	75-100
	92-200			---	---	---	---	---	---
BuF:									
Burton--------------	0-46	65	23	5-18	1.10-1.30	2-6	0.16-0.23	0.0-2.9	8.0-15
	46-91	65	23	5-18	1.45-1.65	2-6	0.07-0.12	0.0-2.9	0.0-0.5
	91-200			---	---	---	---	---	---
Craggey-------------	0-10	0	0	0-0	0.15-0.40	2-6	0.45-0.65	0.0-2.9	20-90
	10-28	43	41	7-25	1.10-1.30	2-6	0.12-0.17	0.0-2.9	8.0-20
	28-200			---	---	---	---	---	---
Rock outcrop.									
CaB:									
Cades---------------	0-10	21	53	12-27	1.02-1.12	2-6	0.28-0.30	0.0-2.9	2.0-5.0
	10-26	18	50	12-40	1.16-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0
	26-69	16	48	18-40	1.32-1.46	0.6-2	0.15-0.17	0.0-2.9	0.5-1.0
	69-182	53	26	20-40	1.52-1.68	2-6	0.14-0.16	0.0-2.9	0.0-1.0
CcF:									
Cataska-------------	0-13	29	54	12-22	1.30-1.40	2-20	0.10-0.14	0.0-2.9	1.0-3.0
	13-46	29	54	12-22	1.30-1.45	0.01-0.06	0.04-0.09	0.0-2.9	0.5-2.0
	46-86			---	---	---	---	---	---
	86-200			---	---	---	---	---	---
Sylco---------------	0-13	26	54	15-25	1.00-1.20	0.6-2	0.11-0.16	0.0-2.9	1.0-5.0
	13-61	20	54	15-35	1.30-1.50	0.6-2	0.10-0.15	0.0-2.9	0.5-1.0
	61-84	20	54	15-35	1.20-1.50	0.6-2	0.05-0.10	0.0-2.9	0.5-1.0
	84-200			---	---	---	---	---	---
ChF:									
Cheoah--------------	0-33	51	28	7-27	1.15-1.27	2-6	0.13-0.15	0.0-2.9	2.0-7.0
	33-114	53	25	3-27	1.33-1.47	2-6	0.08-0.10	0.0-2.9	1.0-5.0
	114-142	56	24	3-27	1.36-1.50	2-6	0.07-0.09	0.0-2.9	0.0-2.0
	142-162			---	---	---	---	---	---
CkF:									
Chestnut------------	0-41	67	20	5-20	1.35-1.60	2-6	0.10-0.15	0.0-2.9	1.0-8.0
	41-81	44	41	5-25	1.35-1.60	2-6	0.08-0.12	0.0-2.9	0.0-2.0
	81-102			---	---	---	---	---	---
Cleveland-----------	0-38	67	20	6-20	1.20-1.50	2-6	0.05-0.10	0.0-2.9	0.5-8.0
	38-200			---	---	---	---	---	---
Rock outcrop.									
CmC:									
Chiltoskie----------	0-5	0	0	0-0	0.29-0.31	6-20	0.16-0.22	0.0-2.9	60-90
	5-20	45	35	7-27	1.15-1.27	6-20	0.10-0.12	0.0-2.9	10-15
	20-36	48	38	7-27	1.22-1.34	4-11	0.18-0.20	0.0-2.9	1.0-3.0
	36-66	48	39	7-27	1.44-1.60	4-11	0.19-0.21	0.0-2.9	0.5-3.0
	66-104	44	41	7-27	1.44-1.60	4-11	0.19-0.21	0.0-2.9	0.5-2.0
	104-155	66	26	3-27	1.52-1.68	6-20	0.14-0.16	0.0-2.9	0.0-1.0

Table 13.—Physical Soil Properties, Part I—Continued

Map symbol and soil name	Depth	Sand rv	Silt rv	Clay range	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter
	Cm	Pct	Pct	Pct	g/cc	Cm/hr	Cm/cm	Pct	Pct
CmC:									
Heintooga-----------	0-3	0	0	0-0	0.29-0.31	6-20	0.16-0.22	0.0-2.9	30-50
	3-10	48	33	7-27	0.95-1.05	6-20	0.10-0.16	0.0-2.9	10-30
	10-31	46	37	7-27	1.14-1.26	6-20	0.07-0.11	0.0-2.9	2.0-10
	31-64	61	33	3-20	1.24-1.36	4-11	0.07-0.11	0.0-2.9	1.0-5.0
	64-155	72	22	0-20	1.43-1.57	6-20	0.07-0.11	0.0-2.9	0.0-2.0
Horsetrough---------	0-18	57	30	0-20	1.05-1.15	6-20	0.01-0.03	0.0-2.9	2.0-10
	18-33	83	14	0-15	1.14-1.26	6-20	0.15-0.17	0.0-2.9	1.0-3.0
	33-71	84	13	0-15	1.24-1.36	6-20	0.22-0.24	0.0-2.9	1.0-2.0
	71-84	74	23	0-15	1.33-1.47	6-20	0.13-0.15	0.0-2.9	0.5-2.0
	84-102	70	25	0-20	1.43-1.57	6-20	0.16-0.18	0.0-2.9	0.0-1.0
	102-117	74	22	0-15	1.43-1.57	6-20	0.18-0.20	0.0-2.9	0.0-1.0
	117-158			---	---	---	---	---	---
CmD:									
Chiltoskie----------	0-5	0	0	0-0	0.29-0.31	6-20	0.16-0.22	0.0-2.9	60-90
	5-20	45	35	7-27	1.15-1.27	6-20	0.10-0.12	0.0-2.9	10-15
	20-36	48	38	7-27	1.22-1.34	4-11	0.18-0.20	0.0-2.9	1.0-3.0
	36-66	48	39	7-27	1.44-1.60	4-11	0.19-0.21	0.0-2.9	0.5-3.0
	66-104	44	41	7-27	1.44-1.60	4-11	0.19-0.21	0.0-2.9	0.5-2.0
	104-155	66	26	3-27	1.52-1.68	6-20	0.14-0.16	0.0-2.9	0.0-1.0
Heintooga-----------	0-3	0	0	0-0	0.29-0.31	6-20	0.16-0.22	0.0-2.9	30-50
	3-10	48	33	7-27	0.95-1.05	6-20	0.10-0.16	0.0-2.9	10-30
	10-31	46	37	7-27	1.14-1.26	6-20	0.07-0.11	0.0-2.9	2.0-10
	31-64	61	33	3-20	1.24-1.36	4-11	0.07-0.11	0.0-2.9	1.0-5.0
	64-155	72	22	0-20	1.43-1.57	6-20	0.07-0.11	0.0-2.9	0.0-2.0
CnF:									
Clifton-------------	0-20	34	32	27-40	1.25-1.35	2-6	0.15-0.20	0.0-2.9	0.5-4.0
	20-102	26	29	30-55	1.20-1.60	0.6-2	0.15-0.20	0.0-2.9	0.0-0.5
	102-201	64	20	5-27	1.20-1.35	2-6	0.11-0.15	0.0-2.9	0.0-0.5
CoB:									
Cotaco--------------	0-20	9	60	27-40	0.51-0.57	1-4	0.16-0.18	0.0-2.9	2.0-7.0
	20-80	11	64	8-40	1.36-1.50	0.6-2	0.20-0.22	0.0-2.9	0.5-2.0
	80-132	37	46	8-40	1.41-1.55	0.6-2	0.25-0.27	0.0-2.9	0.0-1.0
	132-172	40	53	3-40	1.51-1.67	2-6	0.20-0.22	0.0-2.9	0.0-1.0
CuD:									
Cullasaja, very stony--------------	0-46	46	38	7-25	0.50-1.20	2-6	0.10-0.16	0.0-2.9	5.0-15
	46-122	66	18	7-25	1.00-1.60	2-6	0.07-0.10	0.0-2.9	0.0-3.0
	122-157	78	10	5-18	1.00-1.60	2-6	0.03-0.06	0.0-2.9	0.0-0.5
Tuckasegee, very stony--------------	0-33	64	20	12-20	0.85-1.20	2-6	0.14-0.22	0.0-2.9	4.0-15
	33-66	42	37	15-27	1.00-1.40	2-6	0.15-0.21	0.0-2.9	1.0-3.0
	66-119	61	18	15-27	1.20-1.50	2-6	0.11-0.16	0.0-2.9	0.5-1.0
	119-165	63	19	10-25	1.20-1.50	2-6	0.07-0.12	0.0-2.9	0.0-0.5
CuE:									
Cullasaja, very stony--------------	0-46	46	38	7-25	0.50-1.20	2-6	0.10-0.16	0.0-2.9	5.0-15
	46-122	66	18	7-25	1.00-1.60	2-6	0.07-0.10	0.0-2.9	0.0-3.0
	122-157	78	10	5-18	1.00-1.60	2-6	0.03-0.06	0.0-2.9	0.0-0.5

Table 13.—Physical Soil Properties, Part I—Continued

Map symbol and soil name	Depth	Sand rv	Silt rv	Clay range	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter
	Cm	Pct	Pct	Pct	g/cc	Cm/hr	Cm/cm	Pct	Pct
CuE:									
Tuckasegee, very stony	0-33	64	20	12-20	0.85-1.20	2-6	0.14-0.22	0.0-2.9	4.0-15
	33-66	42	37	15-27	1.00-1.40	2-6	0.15-0.21	0.0-2.9	1.0-3.0
	66-119	61	18	15-27	1.20-1.50	2-6	0.11-0.16	0.0-2.9	0.5-1.0
	119-165	63	19	10-25	1.20-1.50	2-6	0.07-0.12	0.0-2.9	0.0-0.5
CuF:									
Cullasaja, extremely stony	0-46	46	38	7-25	0.50-1.20	2-6	0.10-0.16	0.0-2.9	5.0-15
	46-122	66	18	7-25	1.00-1.60	2-6	0.07-0.10	0.0-2.9	0.0-3.0
	122-157	78	10	5-18	1.00-1.60	2-6	0.03-0.06	0.0-2.9	0.0-0.5
Rubble land.									
Cw:									
Cullowhee	0-25	65	23	5-18	1.30-1.50	2-6	0.12-0.18	0.0-2.9	3.0-10
	25-79	82	9	5-12	1.35-1.55	6-20	0.05-0.10	0.0-2.9	0.0-1.0
	79-152	96	2	1-5	1.40-1.60	6-20	0.02-0.05	0.0-2.9	0.0-0.5
Ela	0-41	41	48	3-20	1.09-1.21	2-6	0.27-0.29	0.0-2.9	3.0-10
	41-81	61	31	3-20	1.40-1.54	2-6	0.25-0.27	0.0-2.9	1.0-3.0
	81-155	72	23	0-15	1.43-1.57	6-20	0.14-0.16	0.0-2.9	0.5-2.0
Dd:									
Dellwood	0-20	46	44	7-15	1.30-1.50	2-6	0.08-0.12	0.0-2.9	3.0-8.0
	20-36	94	1	1-8	1.40-1.60	6-20	0.02-0.05	0.0-2.9	0.5-2.0
	36-152	96	2	1-4	1.40-1.60	6-20	0.02-0.05	0.0-2.9	0.0-1.0
Smokemont	0-28	70	22	4-19	1.30-1.50	2-6	0.08-0.12	0.0-2.9	5.0-7.3
	28-69	62	29	4-19	1.40-1.60	6-20	0.02-0.05	0.0-2.9	1.8-3.4
	69-158	75	21	0-15	1.40-1.60	6-20	0.02-0.05	0.0-2.9	0.5-3.0
Urban land.									
Dg:									
Dellwood	0-20	46	44	7-15	1.30-1.50	2-6	0.08-0.12	0.0-2.9	3.0-8.0
	20-36	94	1	1-8	1.40-1.60	6-20	0.02-0.05	0.0-2.9	0.5-2.0
	36-152	96	2	1-4	1.40-1.60	6-20	0.02-0.05	0.0-2.9	0.0-1.0
Smokemont	0-28	70	22	4-19	1.30-1.50	2-6	0.08-0.12	0.0-2.9	5.0-7.3
	28-69	62	29	4-19	1.40-1.60	6-20	0.02-0.05	0.0-2.9	1.8-3.4
	69-158	75	21	0-15	1.40-1.60	6-20	0.02-0.05	0.0-2.9	0.5-3.0
DhB:									
Dellwood	0-20	46	44	7-15	1.30-1.50	2-6	0.08-0.12	0.0-2.9	3.0-8.0
	20-36	94	1	1-8	1.40-1.60	6-20	0.02-0.05	0.0-2.9	0.5-2.0
	36-152	96	2	1-4	1.40-1.60	6-20	0.02-0.05	0.0-2.9	0.0-1.0
Wesser	0-8	0	0	0-0	0.20-0.22	6-20	0.33-0.35	0.0-2.9	70-80
	8-15	52	28	5-20	0.77-0.85	6-20	0.29-0.31	0.0-2.9	5.0-15
	15-33	77	17	0-15	0.53-0.58	6-20	0.62-0.64	0.0-2.9	5.0-15
	33-49	89	8	0-15	0.83-0.91	6-20	0.45-0.47	0.0-2.9	3.0-7.0
	49-158	94	5	0-15	1.14-1.26	6-20	0.18-0.20	0.0-2.9	1.0-3.0

Table 13.—Physical Soil Properties, Part I—Continued

Map symbol and soil name	Depth	Sand rv	Silt rv	Clay range	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter
	Cm	Pct	Pct	Pct	g/cc	Cm/hr	Cm/cm	Pct	Pct
DtD:									
Ditney	0-10	52	34	7-20	0.98-1.08	2-6	0.18-0.20	0.0-2.9	3.0-10
	10-25	47	38	3-20	1.11-1.23	2-6	0.22-0.24	0.0-2.9	2.0-5.0
	25-52	48	38	7-20	1.50-1.66	2-6	0.14-0.16	0.0-2.9	0.5-2.0
	52-82	47	39	7-20	1.59-1.75	2-6	0.13-0.15	0.0-2.9	0.0-1.0
	82-91			---	---	---	---	---	---
	91-200			---	---	---	---	---	---
Unicoi	0-10	42	44	5-20	0.92-1.02	2-6	0.14-0.16	0.0-2.9	3.0-10
	10-38	43	45	5-20	1.25-1.39	2-6	0.21-0.22	0.0-2.9	0.5-2.0
	38-200			---	---	---	---	---	---
DtF:									
Ditney	0-10	52	34	7-20	0.98-1.08	2-6	0.18-0.20	0.0-2.9	3.0-10
	10-25	47	38	3-20	1.11-1.23	2-6	0.22-0.24	0.0-2.9	2.0-5.0
	25-52	48	38	7-20	1.50-1.66	2-6	0.14-0.16	0.0-2.9	0.5-2.0
	52-82	47	39	7-20	1.59-1.75	2-6	0.13-0.15	0.0-2.9	0.0-1.0
	82-91			---	---	---	---	---	---
	91-200			---	---	---	---	---	---
Unicoi	0-10	42	44	5-20	0.92-1.02	2-6	0.14-0.16	0.0-2.9	3.0-10
	10-38	43	45	5-20	1.25-1.39	2-6	0.20-0.22	0.0-2.9	0.5-2.0
	38-200			---	---	---	---	---	---
EpD:									
Evard, windswept	0-13	67	20	5-20	1.30-1.60	2-6	0.10-0.14	0.0-2.9	1.0-5.0
	13-89	56	18	20-35	1.30-1.50	0.6-2	0.12-0.16	0.0-2.9	0.0-0.5
	89-114	64	15	12-30	1.20-1.40	0.6-2	0.10-0.25	0.0-2.9	0.0-0.5
	114-155	68	20	5-20	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	0.0-0.5
	155-168			---	---	---	---	---	---
Cowee, windswept	0-25	67	19	8-20	1.25-1.60	2-6	0.12-0.20	0.0-2.9	1.0-5.0
	25-97	56	18	18-35	1.30-1.60	0.6-2	0.12-0.18	0.0-2.9	0.5-1.0
	97-114			---	---	---	---	---	---
EpE:									
Evard, windswept	0-13	67	20	5-20	1.30-1.60	2-6	0.10-0.14	0.0-2.9	1.0-5.0
	13-89	56	18	20-35	1.30-1.50	0.6-2	0.12-0.16	0.0-2.9	0.0-0.5
	89-114	64	15	12-30	1.20-1.40	0.6-2	0.10-0.25	0.0-2.9	0.0-0.5
	114-155	68	20	5-20	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	0.0-0.5
	155-168			---	---	---	---	---	---
Cowee, windswept	0-25	67	19	8-20	1.25-1.60	2-6	0.12-0.20	0.0-2.9	1.0-5.0
	25-97	56	18	18-35	1.30-1.60	0.6-2	0.12-0.18	0.0-2.9	0.5-1.0
	97-114			---	---	---	---	---	---
EvD:									
Evard	0-13	67	20	5-20	1.30-1.60	2-6	0.10-0.14	0.0-2.9	1.0-5.0
	13-89	56	18	20-35	1.30-1.50	0.6-2	0.12-0.16	0.0-2.9	0.0-0.5
	89-114	64	15	12-30	1.20-1.40	0.6-2	0.10-0.25	0.0-2.9	0.0-0.5
	114-155	68	20	5-20	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	0.0-0.5
	155-168			---	---	---	---	---	---
Cowee	0-25	67	19	8-20	1.25-1.60	2-6	0.12-0.20	0.0-2.9	1.0-5.0
	25-97	56	18	18-35	1.30-1.60	0.6-2	0.12-0.18	0.0-2.9	0.5-1.0
	97-114			---	---	---	---	---	---

Table 13.—Physical Soil Properties, Part I—Continued

Map symbol and soil name	Depth	Sand rv	Silt rv	Clay range	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter
	Cm	Pct	Pct	Pct	g/cc	Cm/hr	Cm/cm	Pct	Pct
EvE:									
Evard---------------	0-13	67	20	5-20	1.30-1.60	2-6	0.10-0.14	0.0-2.9	1.0-5.0
	13-89	56	18	20-35	1.30-1.50	0.6-2	0.12-0.16	0.0-2.9	0.0-0.5
	89-114	64	15	12-30	1.20-1.40	0.6-2	0.10-0.25	0.0-2.9	0.0-0.5
	114-155	68	20	5-20	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	0.0-0.5
	155-168			---	---	---	---	---	---
Cowee---------------	0-25	67	19	8-20	1.25-1.60	2-6	0.12-0.20	0.0-2.9	1.0-5.0
	25-97	56	18	18-35	1.30-1.60	0.6-2	0.12-0.18	0.0-2.9	0.5-1.0
	97-114			---	---	---	---	---	---
EvF:									
Evard---------------	0-13	67	20	5-20	1.30-1.60	2-6	0.10-0.14	0.0-2.9	1.0-5.0
	13-89	56	18	20-35	1.30-1.50	0.6-2	0.12-0.16	0.0-2.9	0.0-0.5
	89-114	64	15	12-30	1.20-1.40	0.6-2	0.10-0.25	0.0-2.9	0.0-0.5
	114-155	68	20	5-20	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	0.0-0.5
	155-168			---	---	---	---	---	---
Cowee---------------	0-25	67	19	8-20	1.25-1.60	2-6	0.12-0.20	0.0-2.9	1.0-5.0
	25-97	56	18	18-35	1.30-1.60	0.6-2	0.12-0.18	0.0-2.9	0.5-1.0
	97-114			---	---	---	---	---	---
HcE:									
Heintooga-----------	0-3	0	0	0-0	0.29-0.31	6-20	0.16-0.22	0.0-2.9	30-50
	3-10	48	33	7-27	0.95-1.05	6-20	0.10-0.16	0.0-2.9	10-30
	10-31	46	37	7-27	1.14-1.26	6-20	0.07-0.11	0.0-2.9	2.0-10
	31-64	61	33	3-20	1.24-1.36	4-11	0.07-0.11	0.0-2.9	1.0-5.0
	64-155	72	22	0-20	1.43-1.57	6-20	0.07-0.11	0.0-2.9	0.0-2.0
Chiltoskie----------	0-5	0	0	0-0	0.29-0.31	6-20	0.16-0.22	0.0-2.9	60-90
	5-20	45	35	7-27	1.15-1.27	6-20	0.10-0.12	0.0-2.9	10-15
	20-36	48	38	7-27	1.22-1.34	4-11	0.18-0.20	0.0-2.9	1.0-3.0
	36-66	48	39	7-27	1.44-1.60	4-11	0.19-0.21	0.0-2.9	0.5-3.0
	66-104	44	41	7-27	1.44-1.60	4-11	0.19-0.21	0.0-2.9	0.5-2.0
	104-155	66	26	3-27	1.52-1.68	6-20	0.14-0.16	0.0-2.9	0.0-1.0
HrF:									
Heintooga-----------	0-3	0	0	0-0	0.29-0.31	6-20	0.16-0.22	0.0-2.9	30-50
	3-10	48	33	7-27	0.95-1.05	6-20	0.10-0.16	0.0-2.9	10-30
	10-31	46	37	7-27	1.14-1.26	6-20	0.07-0.11	0.0-2.9	2.0-10
	31-64	61	33	3-20	1.24-1.36	4-11	0.07-0.11	0.0-2.9	1.0-5.0
	64-155	72	22	0-20	1.43-1.57	6-20	0.07-0.11	0.0-2.9	0.0-2.0
Rubble land.									
JbD:									
Junaluska-----------	0-28	45	43	7-18	1.35-1.60	2-6	0.12-0.20	0.0-2.9	1.0-5.0
	28-53	56	18	18-35	1.30-1.65	0.6-2	0.12-0.18	0.0-2.9	0.5-1.0
	53-66	63	19	15-35	1.35-1.65	2-6	0.10-0.15	0.0-2.9	0.0-0.5
	66-79			---	---	---	---	---	---
Brasstown-----------	0-15	45	43	7-18	1.00-1.40	2-6	0.12-0.18	0.0-2.9	1.0-5.0
	15-74	56	18	18-35	1.35-1.60	0.6-2	0.12-0.18	0.0-2.9	0.0-0.5
	74-117	70	16	8-20	1.40-1.65	0.6-2	0.10-0.15	0.0-2.9	0.0-0.5
	117-152			---	---	---	---	---	---

Table 13.—Physical Soil Properties, Part I—Continued

Map symbol and soil name	Depth	Sand rv	Silt rv	Clay range	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter
	Cm	Pct	Pct	Pct	g/cc	Cm/hr	Cm/cm	Pct	Pct
JbE:									
Junaluska-----------	0-28	45	43	7-18	1.35-1.60	2-6	0.12-0.20	0.0-2.9	1.0-5.0
	28-53	56	18	18-35	1.30-1.65	0.6-2	0.12-0.18	0.0-2.9	0.5-1.0
	53-66	63	19	15-35	1.35-1.65	2-6	0.10-0.15	0.0-2.9	0.0-0.5
	66-79			---	---	---	---	---	---
Brasstown-----------	0-15	45	43	7-18	1.00-1.40	2-6	0.12-0.18	0.0-2.9	1.0-5.0
	15-74	56	18	18-35	1.35-1.60	0.6-2	0.12-0.18	0.0-2.9	0.0-0.5
	74-117	70	16	8-20	1.40-1.65	0.6-2	0.10-0.15	0.0-2.9	0.0-0.5
	117-152			---	---	---	---	---	---
JtC:									
Junaluska-----------	0-28	45	43	7-18	1.35-1.60	2-6	0.10-0.15	0.0-2.9	1.0-5.0
	28-53	56	18	18-35	1.30-1.65	0.6-2	0.12-0.18	0.0-2.9	0.5-1.0
	53-66	63	19	15-35	1.35-1.65	2-6	0.10-0.15	0.0-2.9	0.0-0.5
	66-79			---	---	---	---	---	---
Tsali---------------	0-20	46	42	5-20	1.35-1.60	2-6	0.10-0.15	0.0-2.9	1.0-5.0
	20-46	35	38	18-35	1.30-1.50	0.6-2	0.12-0.18	0.0-2.9	0.0-0.5
	46-152			---	---	---	---	---	---
JtD:									
Junaluska-----------	0-28	45	43	7-18	1.35-1.60	2-6	0.10-0.15	0.0-2.9	1.0-5.0
	28-53	56	18	18-35	1.30-1.65	0.6-2	0.12-0.18	0.0-2.9	0.5-1.0
	53-66	63	19	15-35	1.35-1.65	2-6	0.10-0.15	0.0-2.9	0.0-0.5
	66-79			---	---	---	---	---	---
Tsali---------------	0-20	46	42	5-20	1.35-1.60	2-6	0.10-0.15	0.0-2.9	1.0-5.0
	20-46	35	38	18-35	1.30-1.50	0.6-2	0.12-0.18	0.0-2.9	0.0-0.5
	46-152			---	---	---	---	---	---
JtF:									
Junaluska-----------	0-28	45	43	7-18	1.35-1.60	2-6	0.10-0.15	0.0-2.9	1.0-5.0
	28-53	56	18	18-35	1.30-1.65	0.6-2	0.12-0.18	0.0-2.9	0.5-1.0
	53-66	63	19	15-35	1.35-1.65	2-6	0.10-0.15	0.0-2.9	0.0-0.5
	66-79			---	---	---	---	---	---
Tsali---------------	0-20	46	42	5-20	1.35-1.60	2-6	0.10-0.15	0.0-2.9	1.0-5.0
	20-46	35	38	18-35	1.30-1.50	0.6-2	0.12-0.18	0.0-2.9	0.0-0.5
	46-152			---	---	---	---	---	---
LeD:									
Lauada--------------	0-3	0	0	0-0	0.29-0.31	4-11	0.16-0.22	0.0-2.9	70-90
	3-20	63	24	3-20	1.09-1.21	2-6	0.20-0.22	0.0-2.9	2.0-7.0
	20-64	55	22	20-35	1.30-1.44	0.6-2	0.15-0.17	0.0-2.9	0.0-2.0
	64-86	60	22	8-20	1.27-1.41	0.6-2	0.11-0.13	0.0-2.9	0.0-1.0
	86-158			---	---	---	---	---	---
Fannin--------------	0-3	0	0	0-0	0.29-0.31	4-11	0.16-0.22	0.0-2.9	70-90
	3-18	73	18	3-20	1.36-1.50	2-6	0.15-0.17	0.0-2.9	1.0-3.0
	18-75	61	16	8-35	1.27-1.41	0.6-2	0.11-0.13	0.0-2.9	0.0-1.0
	75-145	63	19	8-35	1.41-1.55	0.6-2	0.10-0.12	0.0-2.9	0.0-0.5
	145-190	65	15	3-40	1.15-1.27	0.6-2	0.22-0.24	0.0-2.9	0.0-0.5
	190-200			---	---	---	---	---	---

Table 13.—Physical Soil Properties, Part I—Continued

Map symbol and soil name	Depth	Sand rv	Silt rv	Clay range	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter
	Cm	Pct	Pct	Pct	g/cc	Cm/hr	Cm/cm	Pct	Pct
LeE:									
Lauada--------------	0-3	0	0	0-0	0.29-0.31	4-11	0.16-0.22	0.0-2.9	70-90
	3-20	63	24	3-20	1.09-1.21	2-6	0.20-0.22	0.0-2.9	2.0-7.0
	20-64	55	22	20-35	1.30-1.44	0.6-2	0.15-0.17	0.0-2.9	0.0-2.0
	64-86	60	22	8-20	1.27-1.41	0.6-2	0.11-0.13	0.0-2.9	0.0-1.0
	86-158			---	---	---	---	---	---
Fannin--------------	0-3	0	0	0-0	0.29-0.31	4-11	0.16-0.22	0.0-2.9	70-90
	3-18	73	18	3-20	1.36-1.50	2-6	0.15-0.17	0.0-2.9	1.0-3.0
	18-75	61	16	8-35	1.27-1.41	0.6-2	0.11-0.13	0.0-2.9	0.0-1.0
	75-145	63	19	8-35	1.41-1.55	0.6-2	0.10-0.12	0.0-2.9	0.0-0.5
	145-190	65	15	3-40	1.15-1.27	0.6-2	0.22-0.24	0.0-2.9	0.0-0.5
	190-200			---	---	---	---	---	---
LeF:									
Lauada--------------	0-3	0	0	0-0	0.29-0.31	4-11	0.16-0.22	0.0-2.9	70-90
	3-20	63	24	3-20	1.09-1.21	2-6	0.20-0.22	0.0-2.9	2.0-7.0
	20-64	55	22	20-35	1.30-1.44	0.6-2	0.15-0.17	0.0-2.9	0.0-2.0
	64-86	60	22	8-20	1.27-1.41	0.6-2	0.11-0.13	0.0-2.9	0.0-1.0
	86-158			---	---	---	---	---	---
Fannin--------------	0-3	0	0	0-0	0.29-0.31	4-11	0.16-0.22	0.0-2.9	70-90
	3-18	73	18	3-20	1.36-1.50	2-6	0.15-0.17	0.0-2.9	1.0-3.0
	18-75	61	16	8-35	1.27-1.41	0.6-2	0.11-0.13	0.0-2.9	0.0-1.0
	75-145	63	19	8-35	1.41-1.55	0.6-2	0.10-0.12	0.0-2.9	0.0-0.5
	145-190	65	15	3-40	1.15-1.27	0.6-2	0.22-0.24	0.0-2.9	0.0-0.5
	190-200			---	---	---	---	---	---
LfD:									
Leatherwood, stony--	0-18	26	31	40-60	0.87-0.95	4-11	0.19-0.21	0.0-2.9	5.0-15
	18-39	26	30	27-60	1.06-1.18	4-11	0.16-0.18	0.0-2.9	3.0-10
	39-98	27	28	35-60	1.09-1.21	2-6	0.17-0.19	0.0-2.9	1.0-3.0
	98-139	36	24	27-60	1.31-1.45	2-6	0.13-0.15	0.0-2.9	0.0-1.0
	139-200	47	24	20-40	1.38-1.52	2-6	0.12-0.14	0.0-2.9	0.0-1.0
LfE:									
Leatherwood, stony--	0-18	26	31	40-60	0.87-0.95	4-11	0.19-0.21	0.0-2.9	5.0-15
	18-39	26	30	27-60	1.06-1.18	4-11	0.16-0.18	0.0-2.9	3.0-10
	39-98	27	28	35-60	1.09-1.21	2-6	0.17-0.19	0.0-2.9	1.0-3.0
	98-139	36	24	27-60	1.31-1.45	2-6	0.13-0.15	0.0-2.9	0.0-1.0
	139-200	47	24	20-40	1.38-1.52	2-6	0.12-0.14	0.0-2.9	0.0-1.0
LfF:									
Leatherwood, stony--	0-18	26	31	40-60	0.87-0.95	4-11	0.19-0.21	0.0-2.9	5.0-15
	18-39	26	30	27-60	1.06-1.18	4-11	0.16-0.18	0.0-2.9	3.0-10
	39-98	27	28	35-60	1.09-1.21	2-6	0.17-0.19	0.0-2.9	1.0-3.0
	98-139	36	24	27-60	1.31-1.45	2-6	0.13-0.15	0.0-2.9	0.0-1.0
	139-200	47	24	20-40	1.38-1.52	2-6	0.12-0.14	0.0-2.9	0.0-1.0
LoB:									
Lonon---------------	0-21	15	48	27-40	0.94-1.04	2-6	0.14-0.20	0.0-2.9	0.5-2.0
	21-152	23	30	8-50	1.24-1.36	0.6-2	0.12-0.20	0.0-2.9	0.0-0.5
	152-170	42	27	8-40	1.29-1.43	0.6-2	0.09-0.15	0.0-2.9	0.0-0.5
LoC:									
Lonon---------------	0-21	15	48	27-40	0.94-1.04	2-6	0.14-0.20	0.0-2.9	0.5-2.0
	21-152	23	30	8-50	1.24-1.36	0.6-2	0.12-0.20	0.0-2.9	0.0-0.5
	152-170	42	27	8-40	1.29-1.43	0.6-2	0.09-0.15	0.0-2.9	0.0-0.5

Table 13.—Physical Soil Properties, Part I—Continued

Map symbol and soil name	Depth	Sand rv	Silt rv	Clay range	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter
	Cm	Pct	Pct	Pct	g/cc	Cm/hr	Cm/cm	Pct	Pct
LoD:									
Lonon---------------	0-21	15	48	27-40	0.94-1.04	2-6	0.14-0.20	0.0-2.9	0.5-2.0
	21-152	23	30	8-50	1.24-1.36	0.6-2	0.12-0.20	0.0-2.9	0.0-0.5
	152-170	42	27	8-40	1.29-1.43	0.6-2	0.09-0.15	0.0-2.9	0.0-0.5
LoE:									
Lonon---------------	0-21	15	48	27-40	0.94-1.04	2-6	0.14-0.20	0.0-2.9	0.5-2.0
	21-152	23	30	8-50	1.24-1.36	0.6-2	0.12-0.20	0.0-2.9	0.0-0.5
	152-170	42	27	8-40	1.29-1.43	0.6-2	0.09-0.15	0.0-2.9	0.0-0.5
Rock outcrop.									
LrD:									
Luftee--------------	0-28	42	40	7-27	0.37-0.41	6-20	0.43-0.45	0.0-2.9	10-15
	28-51	41	42	8-27	1.50-1.66	6-20	0.02-0.04	0.0-2.9	5.0-10
	51-86	54	38	3-25	1.52-1.68	6-20	0.02-0.04	0.0-2.9	1.0-3.0
	86-200			---	---	---	---	---	---
Anakeesta-----------	0-10	42	39	7-27	0.95-1.05	6-20	0.17-0.19	0.0-2.9	10-15
	10-20	49	34	7-27	1.11-1.23	6-20	0.23-0.25	0.0-2.9	3.0-10
	20-36	48	36	7-27	1.14-1.26	6-20	0.21-0.23	0.0-2.9	1.0-5.0
	36-75	50	36	5-27	1.14-1.26	6-20	0.21-0.23	0.0-2.9	1.0-3.0
	75-114	57	31	3-20	1.41-1.55	6-20	0.11-0.13	0.0-2.9	0.5-2.0
	114-200			---	---	---	---	---	---
LrF:									
Luftee--------------	0-28	42	40	7-27	0.37-0.41	6-20	0.43-0.45	0.0-2.9	10-15
	28-51	41	42	8-27	1.50-1.66	6-20	0.02-0.04	0.0-2.9	5.0-10
	51-86	54	38	3-25	1.52-1.68	6-20	0.02-0.04	0.0-2.9	1.0-3.0
	86-200			---	---	---	---	---	---
Anakeesta-----------	0-10	42	39	7-27	0.95-1.05	6-20	0.17-0.19	0.0-2.9	10-15
	10-20	49	34	8-27	1.11-1.23	6-20	0.23-0.25	0.0-2.9	3.0-10
	20-36	48	36	7-27	1.14-1.26	6-20	0.21-0.23	0.0-2.9	1.0-5.0
	36-75	50	36	5-27	1.14-1.26	6-20	0.21-0.23	0.0-2.9	1.0-3.0
	75-114	57	31	3-20	1.41-1.55	6-20	0.11-0.13	0.0-2.9	0.5-2.0
	114-200			---	---	---	---	---	---
NtC:									
Northcove-----------	0-7	66	23	5-18	1.30-1.50	2-6	0.06-0.11	0.0-2.9	0.5-2.0
	7-152	45	43	5-18	1.40-1.60	2-6	0.06-0.11	0.0-2.9	0.0-1.0
	152-203	67	23	0-18	1.40-1.60	2-6	0.03-0.05	0.0-2.9	0.0-0.5
Maymead-------------	0-13	45	42	7-18	1.40-1.55	2-6	0.13-0.18	0.0-2.9	1.0-3.0
	13-168	45	42	5-18	1.40-1.55	2-6	0.13-0.18	0.0-2.9	0.5-1.0
Nowhere-------------	0-41	63	25	3-18	1.03-1.13	2-6	0.22-0.24	0.0-2.9	2.0-10
	41-71	71	20	3-20	1.58-1.76	2-6	0.10-0.12	0.0-2.9	0.0-2.0
	71-158	73	22	3-20	1.52-1.68	2-6	0.03-0.05	0.0-2.9	0.0-1.0
NtD:									
Northcove-----------	0-7	66	23	5-18	1.30-1.50	2-6	0.06-0.11	0.0-2.9	0.5-2.0
	7-152	45	43	5-18	1.40-1.60	2-6	0.06-0.11	0.0-2.9	0.0-1.0
	152-203	67	23	0-18	1.40-1.60	2-6	0.03-0.05	0.0-2.9	0.0-0.5
Maymead-------------	0-13	45	42	7-18	1.40-1.55	2-6	0.13-0.18	0.0-2.9	1.0-3.0
	13-168	45	42	5-18	1.40-1.55	2-6	0.13-0.18	0.0-2.9	0.5-1.0

Table 13.—Physical Soil Properties, Part I—Continued

Map symbol and soil name	Depth	Sand rv	Silt rv	Clay range	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter
	Cm	Pct	Pct	Pct	g/cc	Cm/hr	Cm/cm	Pct	Pct
NtE:									
Northcove----------	0-7	66	23	5-18	1.30-1.50	2-6	0.06-0.11	0.0-2.9	0.5-2.0
	7-152	45	43	5-18	1.40-1.60	2-6	0.06-0.11	0.0-2.9	0.0-1.0
	152-203	67	23	0-18	1.40-1.60	2-6	0.03-0.05	0.0-2.9	0.0-0.5
Maymead------------	0-13	45	42	7-18	1.40-1.55	2-6	0.13-0.18	0.0-2.9	1.0-3.0
	13-168	45	42	5-18	1.40-1.55	2-6	0.13-0.18	0.0-2.9	0.5-1.0
OcD:									
Oconaluftee---------	0-31	45	43	7-27	1.00-1.30	6-20	0.13-0.18	0.0-2.9	8.0-15
	31-125	45	43	5-27	1.20-1.50	4-11	0.11-0.17	0.0-2.9	0.5-2.0
	125-185	45	43	5-20	1.35-1.60	4-11	0.11-0.17	0.0-2.9	0.0-0.5
	185-200			---	---	---	---	---	---
Guyot---------------	0-28	30	40	27-35	0.54-0.99	6-20	0.26-0.28	0.0-2.9	11-24
	28-72	52	32	7-27	1.50-1.55	4-11	0.17-0.19	0.0-2.9	0.3-2.8
	72-150	67	26	5-15	1.40-1.51	4-11	0.17-0.19	0.0-2.9	0.1-0.2
	150-183			---	---	---	---	---	---
Heintooga-----------	0-3	0	0	0-0	0.29-0.31	6-20	0.16-0.22	0.0-2.9	30-50
	3-10	48	33	7-27	0.95-1.05	6-20	0.10-0.16	0.0-2.9	10-30
	10-31	46	37	7-27	1.14-1.26	6-20	0.07-0.11	0.0-2.9	2.0-10
	31-64	61	33	3-20	1.24-1.36	4-11	0.07-0.11	0.0-2.9	1.0-5.0
	64-155	72	22	0-20	1.43-1.57	6-20	0.07-0.11	0.0-2.9	0.0-2.0
OcF:									
Oconaluftee---------	0-31	45	43	7-27	1.00-1.30	6-20	0.13-0.18	0.0-2.9	8.0-15
	31-125	45	43	5-27	1.20-1.50	4-11	0.11-0.17	0.0-2.9	0.5-2.0
	125-185	45	43	5-20	1.35-1.60	4-11	0.11-0.17	0.0-2.9	0.0-0.5
	185-200			---	---	---	---	---	---
Heintooga-----------	0-3	0	0	0-0	0.29-0.31	6-20	0.16-0.22	0.0-2.9	30-50
	3-10	48	33	7-27	0.95-1.05	6-20	0.10-0.16	0.0-2.9	10-30
	10-31	46	37	7-27	1.14-1.26	6-20	0.07-0.11	0.0-2.9	2.0-10
	31-64	61	33	3-20	1.24-1.36	4-11	0.07-0.11	0.0-2.9	1.0-5.0
	64-155	72	22	0-20	1.43-1.57	6-20	0.07-0.11	0.0-2.9	0.0-2.0
Rubble land.									
OwC:									
Oconaluftee, windswept----------	0-30	45	43	7-27	1.00-1.30	6-20	0.13-0.18	0.0-2.9	8.0-15
	30-112	45	43	5-27	1.20-1.50	4-11	0.11-0.17	0.0-2.9	0.5-2.0
	112-152	45	43	5-20	1.35-1.60	4-11	0.11-0.17	0.0-2.9	0.0-0.5
Guyot, windswept----	0-28	30	40	27-35	0.54-0.99	6-20	0.26-0.28	0.0-2.9	11-24
	28-72	52	32	7-27	1.50-1.55	4-11	0.17-0.19	0.0-2.9	0.3-2.8
	72-150	67	26	5-15	1.40-1.51	4-11	0.17-0.19	0.0-2.9	0.1-0.2
	150-183			---	---	---	---	---	---
Cataloochee, windswept----------	0-23	32	40	18-40	1.01-1.11	6-20	0.19-0.21	0.0-2.9	14-31
	23-48	39	41	15-27	1.31-1.45	4-11	0.17-0.19	0.0-2.9	2.3-4.3
	48-64	69	24	3-20	1.46-1.62	4-11	0.07-0.10	0.0-2.9	0.0-1.0
	64-79	65	26	3-20	1.46-1.62	4-11	0.10-0.11	0.0-2.9	0.0-1.0
	79-153			---	---	---	---	---	---

Table 13.—Physical Soil Properties, Part I—Continued

Map symbol and soil name	Depth	Sand rv	Silt rv	Clay range	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter
	Cm	Pct	Pct	Pct	g/cc	Cm/hr	Cm/cm	Pct	Pct
OwD:									
Oconaluftee, windswept----------	0-30	45	43	7-27	1.00-1.30	6-20	0.13-0.18	0.0-2.9	8.0-15
	30-112	45	43	5-27	1.20-1.50	4-11	0.11-0.17	0.0-2.9	0.5-2.0
	112-152	45	43	5-20	1.35-1.60	4-11	0.11-0.17	0.0-2.9	0.0-0.5
Guyot, windswept----	0-28	30	40	27-35	0.54-0.99	6-20	0.26-0.28	0.0-2.9	11-24
	28-72	52	32	7-27	1.50-1.55	4-11	0.17-0.19	0.0-2.9	0.3-2.8
	72-150	67	26	5-15	1.40-1.51	4-11	0.17-0.19	0.0-2.9	0.1-0.2
	150-183			---	---	---	---	---	---
Cataloochee, windswept----------	0-23	32	40	18-40	1.01-1.11	6-20	0.19-0.21	0.0-2.9	14-31
	23-48	39	41	15-27	1.31-1.45	4-11	0.17-0.19	0.0-2.9	2.3-4.3
	48-64	69	24	3-20	1.46-1.62	4-11	0.07-0.10	0.0-2.9	0.0-1.0
	64-79	65	26	3-20	1.46-1.62	4-11	0.10-0.11	0.0-2.9	0.0-1.0
	79-153			---	---	---	---	---	---
OwE:									
Oconaluftee, windswept----------	0-30	45	43	7-18	1.00-1.30	6-20	0.13-0.18	0.0-2.9	8.0-15
	30-112	45	43	5-18	1.20-1.50	4-11	0.11-0.17	0.0-2.9	0.5-2.0
	112-152	45	43	5-18	1.35-1.60	4-11	0.11-0.17	0.0-2.9	0.0-0.5
Guyot, windswept----	0-28	30	40	27-35	0.54-0.99	6-20	0.26-0.28	0.0-2.9	11-24
	28-72	52	32	7-27	1.50-1.55	4-11	0.17-0.19	0.0-2.9	0.3-2.8
	72-150	67	26	5-15	1.40-1.51	4-11	0.17-0.19	0.0-2.9	0.1-0.2
	150-183			---	---	---	---	---	---
Cataloochee, windswept----------	0-23	32	40	18-40	1.01-1.11	6-20	0.19-0.21	0.0-2.9	14-31
	23-48	39	41	15-27	1.31-1.45	4-11	0.17-0.19	0.0-2.9	2.3-4.3
	48-64	69	24	3-20	1.46-1.62	4-11	0.07-0.10	0.0-2.9	0.0-1.0
	64-79	65	26	3-20	1.46-1.62	4-11	0.10-0.11	0.0-2.9	0.0-1.0
	79-153			---	---	---	---	---	---
OwF:									
Oconaluftee, windswept----------	0-30	45	43	7-18	1.00-1.30	6-20	0.13-0.18	0.0-2.9	8.0-15
	30-112	45	43	5-18	1.20-1.50	4-11	0.11-0.17	0.0-2.9	0.5-2.0
	112-152	45	43	5-18	1.35-1.60	4-11	0.11-0.17	0.0-2.9	0.0-0.5
Guyot, windswept----	0-28	30	40	27-35	0.54-0.99	6-20	0.26-0.28	0.0-2.9	11-24
	28-72	52	32	7-27	1.50-1.55	4-11	0.17-0.19	0.0-2.9	0.3-2.8
	72-150	67	26	5-15	1.40-1.51	4-11	0.17-0.19	0.0-2.9	0.1-0.2
	150-183			---	---	---	---	---	---
Cataloochee, windswept----------	0-23	32	40	18-40	1.01-1.11	6-20	0.19-0.21	0.0-2.9	14-31
	23-48	39	41	15-27	1.31-1.45	4-11	0.17-0.19	0.0-2.9	2.3-4.3
	48-64	69	24	3-20	1.46-1.62	4-11	0.07-0.10	0.0-2.9	0.0-1.0
	64-79	65	26	3-20	1.46-1.62	4-11	0.10-0.11	0.0-2.9	0.0-1.0
	79-153			---	---	---	---	---	---
Po:									
Potomac-------------	0-5	84	9	4-10	1.30-1.60	6-20	0.04-0.08	0.0-2.9	0.0-2.0
	5-152	85	9	1-10	1.30-1.60	6-20	0.03-0.06	0.0-2.9	0.0-0.5

Table 13.—Physical Soil Properties, Part I—Continued

Map symbol and soil name	Depth	Sand rv	Silt rv	Clay range	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter
	Cm	Pct	Pct	Pct	g/cc	Cm/hr	Cm/cm	Pct	Pct
Rd:									
Reddies-------------	0-36	62	26	5-18	1.30-1.50	2-6	0.10-0.18	0.0-2.9	3.0-8.0
	36-66	62	26	5-18	1.35-1.55	2-6	0.08-0.15	0.0-2.9	0.5-1.0
	66-152	96	2	1-10	1.40-1.60	6-20	0.02-0.05	0.0-2.9	0.0-0.5
Dellwood------------	0-20	46	44	7-15	1.30-1.50	2-6	0.08-0.12	0.0-2.9	3.0-8.0
	20-36	94	1	1-8	1.40-1.60	6-20	0.02-0.05	0.0-2.9	0.5-2.0
	36-152	96	2	1-4	1.40-1.60	6-20	0.02-0.05	0.0-2.9	0.0-1.0
RpF:									
Rock outcrop.									
Pullback------------	0-3	0	0	0-0	0.29-0.31	6-20	0.16-0.22	0.0-2.9	80-95
	3-20	64	29	3-35	0.99-1.09	2-6	0.12-0.17	0.0-2.9	5.0-15
	20-41	66	30	3-27	1.35-1.49	2-6	0.10-0.18	0.0-2.9	1.0-5.0
	41-200			---	---	---	---	---	---
RtF:									
Rock outcrop.									
Luftee--------------	0-28	42	40	7-27	0.37-0.41	6-20	0.43-0.45	0.0-2.9	10-15
	28-51	41	42	8-27	1.50-1.66	6-20	0.02-0.04	0.0-2.9	5.0-10
	51-86	54	38	3-25	1.52-1.68	6-20	0.02-0.04	0.0-2.9	1.0-3.0
	86-200			---	---	---	---	---	---
RuF:									
Rock outcrop.									
Unicoi--------------	0-10	42	44	5-20	0.92-1.02	2-6	0.14-0.16	0.0-2.9	3.0-10
	10-38	43	45	5-20	1.25-1.39	2-6	0.19-0.21	0.0-2.9	0.5-2.0
	38-200			---	---	---	---	---	---
Rv:									
Rosman--------------	0-30	19	58	8-27	1.05-1.15	6-20	0.30-0.32	0.0-2.9	2.0-10
	30-54	39	46	8-27	1.22-1.34	4-11	0.28-0.30	0.0-2.9	1.0-3.0
	54-107	68	24	3-20	1.34-1.48	4-11	0.18-0.20	0.0-2.9	0.0-1.0
	107-175	74	19	3-20	1.36-1.50	6-20	0.18-0.20	0.0-2.9	0.0-1.0
Reddies-------------	0-36	62	26	5-18	1.30-1.50	2-6	0.10-0.18	0.0-2.9	3.0-8.0
	36-66	62	26	5-18	1.35-1.55	2-6	0.08-0.15	0.0-2.9	0.5-1.0
	66-152	96	2	1-10	1.40-1.60	6-20	0.02-0.05	0.0-2.9	0.0-0.5
Rw:									
Rosman--------------	0-30	19	58	8-27	1.05-1.15	6-20	0.30-0.32	0.0-2.9	2.0-10
	30-54	39	46	8-27	1.22-1.34	4-11	0.28-0.30	0.0-2.9	1.0-3.0
	54-107	68	24	3-20	1.34-1.48	4-11	0.18-0.20	0.0-2.9	0.0-1.0
	107-175	74	19	3-20	1.36-1.50	6-20	0.18-0.20	0.0-2.9	0.0-1.0
Rw:									
Reddies-------------	0-36	62	26	5-18	1.30-1.50	2-6	0.10-0.18	0.0-2.9	3.0-8.0
	36-66	62	26	5-18	1.35-1.55	2-6	0.08-0.15	0.0-2.9	0.5-1.0
	66-152	96	2	1-10	1.40-1.60	6-20	0.02-0.05	0.0-2.9	0.0-0.5
Urban land.									

Table 13.—Physical Soil Properties, Part I—Continued

Map symbol and soil name	Depth	Sand rv	Silt rv	Clay range	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter
	Cm	Pct	Pct	Pct	g/cc	Cm/hr	Cm/cm	Pct	Pct
RxF:									
Rubble land.									
Spivey	0-33	60	27	3-20	1.24-1.36	6-20	0.06-0.11	0.0-2.9	5.0-10
	33-114	60	29	3-20	1.33-1.47	6-20	0.06-0.11	0.0-2.9	1.0-3.0
	114-122	64	27	3-20	1.38-1.52	6-20	0.03-0.05	0.0-2.9	0.5-3.0
RZ.									
Rubble land									
SaD:									
Saunook, stony	0-23	43	40	7-27	1.10-1.60	2-6	0.14-0.20	0.0-2.9	3.0-10
	23-71	38	36	18-35	1.30-1.50	0.6-2	0.12-0.20	0.0-2.9	1.0-3.0
	71-86	38	36	18-35	1.35-1.60	0.6-2	0.12-0.20	0.0-2.9	0.5-2.5
	86-165	65	19	7-25	1.35-1.60	0.6-2	0.07-0.12	0.0-2.9	0.5-2.5
SdC:									
Saunook, stony	0-23	43	40	7-27	1.10-1.60	2-6	0.14-0.20	0.0-2.9	3.0-10
	23-71	38	36	18-35	1.30-1.50	0.6-2	0.12-0.20	0.0-2.9	1.0-3.0
	71-86	38	36	18-35	1.35-1.60	0.6-2	0.12-0.20	0.0-2.9	0.5-2.5
	86-165	65	19	7-25	1.35-1.60	0.6-2	0.07-0.12	0.0-2.9	0.5-2.5
Urban land.									
SI.									
Slide area									
SnF:									
Snowbird	0-15	51	28	7-27	0.89-1.06	2-6	0.19-0.21	0.0-2.9	5.0-10
	15-23	50	26	20-40	0.96-1.21	2-6	0.19-0.21	0.0-2.9	3.0-10
	23-95	50	16	18-40	1.28-1.47	0.6-2	0.15-0.17	0.0-2.9	0.5-3.0
	95-138	72	16	7-20	1.30-1.57	0.6-2	0.15-0.17	0.0-2.9	0.0-1.0
	138-167			---	---	---	---	---	---
SoD:									
Soco	0-15	45	43	7-18	1.35-1.60	2-6	0.11-0.17	0.0-2.9	1.0-8.0
	15-66	68	21	5-18	1.35-1.60	2-6	0.12-0.20	0.0-2.9	0.5-1.0
	66-94	68	21	5-18	1.40-1.65	2-6	0.09-0.15	0.0-2.9	0.0-0.5
	94-158			---	---	---	---	---	---
SoD:									
Stecoah	0-10	45	43	7-18	1.35-1.60	2-6	0.11-0.17	0.0-2.9	1.0-8.0
	10-71	45	43	5-18	1.35-1.60	2-6	0.10-0.17	0.0-2.9	0.5-1.0
	71-127	45	43	5-18	1.40-1.65	2-6	0.10-0.15	0.0-2.9	0.0-0.5
	127-157			---	---	---	---	---	---
SoF:									
Soco	0-15	45	43	7-18	1.35-1.60	2-6	0.11-0.17	0.0-2.9	1.0-8.0
	15-66	68	21	5-18	1.35-1.60	2-6	0.12-0.20	0.0-2.9	0.5-1.0
	66-94	68	21	5-18	1.40-1.65	2-6	0.09-0.15	0.0-2.9	0.0-0.5
	94-158			---	---	---	---	---	---
Stecoah	0-10	45	43	7-18	1.35-1.60	2-6	0.11-0.17	0.0-2.9	1.0-8.0
	10-71	45	43	5-18	1.35-1.60	2-6	0.10-0.17	0.0-2.9	0.5-1.0
	71-127	45	43	5-18	1.40-1.65	2-6	0.10-0.15	0.0-2.9	0.0-0.5
	127-157			---	---	---	---	---	---

Table 13.—Physical Soil Properties, Part I—Continued

Map symbol and soil name	Depth	Sand rv	Silt rv	Clay range	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter
	Cm	Pct	Pct	Pct	g/cc	Cm/hr	Cm/cm	Pct	Pct
SpD:									
Soco, windswept	0-15	45	43	7-18	1.35-1.60	2-6	0.11-0.17	0.0-2.9	1.0-8.0
	15-66	68	21	5-18	1.35-1.60	2-6	0.12-0.20	0.0-2.9	0.5-1.0
	66-94	68	21	5-18	1.40-1.65	2-6	0.09-0.15	0.0-2.9	0.0-0.5
	94-158			---	---	---	---	---	---
Stecoah, windswept	0-10	45	43	7-18	1.35-1.60	2-6	0.11-0.17	0.0-2.9	1.0-8.0
	10-71	45	43	5-18	1.35-1.60	2-6	0.10-0.17	0.0-2.9	0.5-1.0
	71-127	45	43	5-18	1.40-1.65	2-6	0.10-0.15	0.0-2.9	0.0-0.5
	127-157			---	---	---	---	---	---
SpF:									
Soco, windswept	0-15	45	43	7-18	1.35-1.60	2-6	0.11-0.17	0.0-2.9	1.0-8.0
	15-66	68	21	5-18	1.35-1.60	2-6	0.12-0.20	0.0-2.9	0.5-1.0
	66-94	68	21	5-18	1.40-1.65	2-6	0.09-0.15	0.0-2.9	0.0-0.5
	94-158			---	---	---	---	---	---
Stecoah, windswept	0-10	45	43	7-18	1.35-1.60	2-6	0.11-0.17	0.0-2.9	1.0-8.0
	10-71	45	43	5-18	1.35-1.60	2-6	0.10-0.17	0.0-2.9	0.5-1.0
	71-127	45	43	5-18	1.40-1.65	2-6	0.10-0.15	0.0-2.9	0.0-0.5
	127-157			---	---	---	---	---	---
SsB:									
Spivey	0-33	60	27	3-20	1.24-1.36	6-20	0.06-0.11	0.0-2.9	5.0-10
	33-114	60	29	3-20	1.33-1.47	6-20	0.06-0.11	0.0-2.9	1.0-3.0
	114-122	64	27	3-20	1.38-1.52	6-20	0.03-0.05	0.0-2.9	0.5-3.0
Santeetlah	0-43	45	43	7-18	1.20-1.40	6-20	0.15-0.24	0.0-2.9	5.0-10
	43-99	45	43	5-18	1.30-1.50	4-11	0.14-0.22	0.0-2.9	0.5-3.0
	99-124	45	43	5-18	1.35-1.55	4-11	0.11-0.17	0.0-2.9	0.0-0.5
	124-165	45	43	5-18	1.35-1.55	6-20	0.08-0.13	0.0-2.9	0.0-0.5
SsB:									
Nowhere	0-41	63	25	3-18	1.03-1.13	2-6	0.22-0.24	0.0-2.9	2.0-10
	41-71	71	20	3-20	1.58-1.76	2-6	0.10-0.12	0.0-2.9	0.0-2.0
	71-158	73	22	3-20	1.52-1.68	2-6	0.03-0.05	0.0-2.9	0.0-1.0
SsC:									
Spivey	0-33	60	27	3-20	1.24-1.36	6-20	0.06-0.11	0.0-2.9	5.0-10
	33-114	60	29	3-20	1.33-1.47	6-20	0.06-0.11	0.0-2.9	1.0-3.0
	114-122	64	27	3-20	1.38-1.52	6-20	0.03-0.05	0.0-2.9	0.5-3.0
Santeetlah	0-43	45	43	7-18	1.20-1.40	6-20	0.15-0.24	0.0-2.9	5.0-10
	43-99	45	43	5-18	1.30-1.50	4-11	0.14-0.22	0.0-2.9	0.5-3.0
	99-124	45	43	5-18	1.35-1.55	4-11	0.11-0.17	0.0-2.9	0.0-0.5
	124-165	45	43	5-18	1.35-1.55	6-20	0.08-0.13	0.0-2.9	0.0-0.5
Nowhere	0-41	63	25	3-18	1.03-1.13	2-6	0.22-0.24	0.0-2.9	2.0-10
	41-71	71	20	3-20	1.58-1.76	2-6	0.10-0.12	0.0-2.9	0.0-2.0
	71-158	73	22	3-20	1.52-1.68	2-6	0.03-0.05	0.0-2.9	0.0-1.0
SsD:									
Spivey	0-33	60	27	3-20	1.24-1.36	6-20	0.06-0.11	0.0-2.9	5.0-10
	33-114	60	29	3-20	1.33-1.47	6-20	0.06-0.11	0.0-2.9	1.0-3.0
	114-122	64	27	3-20	1.38-1.52	6-20	0.03-0.05	0.0-2.9	0.5-3.0
Santeetlah	0-43	45	43	7-18	1.20-1.40	6-20	0.15-0.24	0.0-2.9	5.0-10
	43-99	45	43	5-18	1.30-1.50	4-11	0.14-0.22	0.0-2.9	0.5-3.0
	99-124	45	43	5-18	1.35-1.55	4-11	0.11-0.17	0.0-2.9	0.0-0.5
	124-165	45	43	5-18	1.35-1.55	6-20	0.08-0.13	0.0-2.9	0.0-0.5

Table 13.—Physical Soil Properties, Part I—Continued

Map symbol and soil name	Depth	Sand rv	Silt rv	Clay range	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter
	Cm	Pct	Pct	Pct	g/cc	Cm/hr	Cm/cm	Pct	Pct
SsE:									
Spivey	0-33	60	27	3-20	1.24-1.36	6-20	0.06-0.11	0.0-2.9	5.0-10
	33-114	60	29	3-20	1.33-1.47	6-20	0.06-0.11	0.0-2.9	1.0-3.0
	114-122	64	27	3-20	1.38-1.52	6-20	0.03-0.05	0.0-2.9	0.5-3.0
Santeetlah	0-43	45	43	7-18	1.20-1.40	6-20	0.15-0.24	0.0-2.9	5.0-10
	43-99	45	43	5-18	1.30-1.50	4-11	0.14-0.22	0.0-2.9	0.5-3.0
	99-124	45	43	5-18	1.35-1.55	4-11	0.11-0.17	0.0-2.9	0.0-0.5
	124-165	45	43	5-18	1.35-1.55	6-20	0.08-0.13	0.0-2.9	0.0-0.5
StB:									
Statler	0-23	44	41	10-20	1.35-1.45	4-11	0.18-0.22	0.0-2.9	2.0-6.0
	23-76	35	38	18-35	1.35-1.50	2-6	0.17-0.20	0.0-2.9	0.5-3.0
	76-97	38	36	15-35	1.35-1.50	2-6	0.17-0.20	0.0-2.9	0.0-2.0
	97-157	42	37	12-30	1.35-1.50	2-6	0.14-0.18	0.0-2.9	0.0-0.5
StC:									
Statler	0-23	44	41	10-20	1.35-1.45	4-11	0.18-0.22	0.0-2.9	2.0-6.0
	23-76	35	38	18-35	1.35-1.50	2-6	0.17-0.20	0.0-2.9	0.5-3.0
	76-97	38	36	15-35	1.35-1.50	2-6	0.17-0.20	0.0-2.9	0.0-2.0
	97-157	42	37	12-30	1.35-1.50	2-6	0.14-0.18	0.0-2.9	0.0-0.5
TaC:									
Tanasee	0-5	0	0	0-0	0.29-0.31	6-20	0.16-0.22	0.0-2.9	50-95
	5-20	40	33	27-40	0.55-0.71	4-11	0.28-0.30	0.0-2.9	5.0-10
	20-46	36	43	7-27	0.92-1.02	4-11	0.37-0.39	0.0-2.9	0.5-3.0
	46-84	36	36	15-40	1.24-1.38	4-11	0.19-0.21	0.0-2.9	0.0-1.0
	84-142	42	32	7-27	1.26-1.40	4-11	0.15-0.17	0.0-2.9	0.0-1.0
	142-200	69	22	3-20	1.23-1.37	4-11	0.15-0.17	0.0-2.9	0.0-1.0
Balsam	0-5	0	0	0-0	0.29-0.31	6-20	0.16-0.22	0.0-2.9	50-95
	5-33	66	27	4-27	0.50-1.00	4-11	0.20-0.25	0.0-2.9	8.0-20
	33-122	68	26	4-27	1.00-1.50	4-11	0.06-0.10	0.0-2.9	1.0-5.0
	122-165	80	15	4-27	1.00-1.50	4-11	0.06-0.10	0.0-2.9	0.5-2.0
TaD:									
Tanasee	0-5	0	0	0-0	0.29-0.31	6-20	0.16-0.22	0.0-2.9	50-95
	5-20	40	33	27-40	0.55-0.71	4-11	0.28-0.30	0.0-2.9	5.0-10
	20-46	36	43	7-27	0.92-1.02	4-11	0.37-0.39	0.0-2.9	0.5-3.0
	46-84	36	36	15-40	1.24-1.38	4-11	0.19-0.21	0.0-2.9	0.0-1.0
	84-142	42	32	7-27	1.26-1.40	4-11	0.15-0.17	0.0-2.9	0.0-1.0
	142-200	69	22	3-20	1.23-1.37	4-11	0.15-0.17	0.0-2.9	0.0-1.0
Balsam	0-5	0	0	0-0	0.29-0.31	6-20	0.16-0.22	0.0-2.9	50-95
	5-33	66	27	4-27	0.50-1.00	4-11	0.20-0.25	0.0-2.9	8.0-20
	33-122	68	26	4-27	1.00-1.50	4-11	0.06-0.10	0.0-2.9	1.0-5.0
	122-165	80	15	4-27	1.00-1.50	4-11	0.06-0.10	0.0-2.9	0.5-2.0
ThB:									
Thurmont, stony	0-36	45	43	7-27	1.30-1.50	2-6	0.15-0.22	0.0-2.9	2.0-8.0
	36-119	60	18	18-35	1.35-1.55	0.6-2	0.14-0.20	0.0-2.9	0.5-1.0
	119-135	84	4	3-20	1.40-1.60	2-6	0.04-0.11	0.0-2.9	0.0-0.5
	135-203	60	18	8-35	1.35-1.60	0.6-6	0.10-0.16	0.0-2.9	0.0-0.5
Dillard, stony	0-18	43	40	10-25	1.20-1.50	0.6-2	0.15-0.20	0.0-2.9	0.5-5.0
	18-127	35	38	18-35	1.40-1.60	0.6-2	0.12-0.16	0.0-2.9	0.5-1.0
	127-203	68	20	5-18	1.35-1.55	2-6	0.08-0.15	0.0-2.9	0.0-0.5

Table 13.—Physical Soil Properties, Part I—Continued

Map symbol and soil name	Depth	Sand rv	Silt rv	Clay range	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter
	Cm	Pct	Pct	Pct	g/cc	Cm/hr	Cm/cm	Pct	Pct
ThC:									
Thurmont, stony-----	0-36	45	43	7-27	1.30-1.50	2-6	0.15-0.22	0.0-2.9	2.0-8.0
	36-119	60	18	18-35	1.35-1.55	0.6-2	0.14-0.20	0.0-2.9	0.5-1.0
	119-135	84	4	3-20	1.40-1.60	2-6	0.04-0.11	0.0-2.9	0.0-0.5
	135-203	60	18	8-35	1.35-1.60	0.6-6	0.10-0.16	0.0-2.9	0.0-0.5
To:									
Toxaway-------------	0-15	7	59	27-40	0.88-0.98	0.6-2	0.27-0.29	0.0-2.9	5.0-10
	15-26	7	59	27-40	0.87-0.97	0.6-2	0.31-0.33	0.0-2.9	5.0-10
	26-41	7	59	15-40	0.89-0.99	2-20	0.34-0.36	0.0-2.9	2.0-5.0
	41-69	8	60	15-40	1.00-1.10	2-20	0.36-0.38	0.0-2.9	1.0-3.0
	69-89	9	62	15-40	1.07-1.19	2-20	0.33-0.35	0.0-2.9	1.0-3.0
	89-117	12	65	8-40	1.06-1.16	6-20	0.37-0.39	0.0-2.9	1.0-5.0
	117-147	12	62	8-27	0.65-0.71	6-20	0.45-0.47	0.0-2.9	5.0-12
	147-179	80	17	0-27	1.14-1.26	6-20	0.07-0.11	0.0-2.9	0.0-2.0
TuC:									
Tuckasegee, stony---	0-33	64	20	12-20	0.85-1.20	2-6	0.14-0.22	0.0-2.9	4.0-15
	33-66	42	37	15-27	1.00-1.40	2-6	0.15-0.21	0.0-2.9	1.0-3.0
	66-119	61	18	15-27	1.20-1.50	2-6	0.11-0.16	0.0-2.9	0.5-1.0
	119-165	63	19	10-25	1.20-1.50	2-6	0.07-0.12	0.0-2.9	0.0-0.5
Cullasaja, stony----	0-46	46	38	7-25	0.50-1.20	2-6	0.10-0.16	0.0-2.9	5.0-15
	46-122	66	18	7-25	1.00-1.60	2-6	0.07-0.10	0.0-2.9	0.0-3.0
	122-157	78	10	5-18	1.00-1.60	2-6	0.03-0.06	0.0-2.9	0.0-0.5
Ud:									
Udorthents----------	0-152	57	13	10-50	1.30-1.65	0.00-2	0.10-0.17	0.0-2.9	0.0-1.0
W.									
Water									
WaC:									
Wayah, windswept----	0-38	65	23	5-18	1.00-1.20	6-20	0.16-0.22	0.0-2.9	8.0-15
	38-94	45	43	5-18	1.20-1.60	4-11	0.09-0.13	0.0-2.9	0.5-2.0
	94-152	64	27	3-15	1.40-1.65	4-11	0.05-0.09	0.0-2.9	0.0-0.5
WaD:									
Wayah, windswept----	0-38	65	23	5-18	1.00-1.20	6-20	0.16-0.22	0.0-2.9	8.0-15
	38-94	45	43	5-18	1.20-1.60	4-11	0.09-0.13	0.0-2.9	0.5-2.0
	94-152	64	27	3-15	1.40-1.65	4-11	0.05-0.09	0.0-2.9	0.0-0.5
WaF:									
Wayah, windswept----	0-38	65	23	5-18	1.00-1.20	6-20	0.16-0.22	0.0-2.9	8.0-15
	38-94	45	43	5-18	1.20-1.60	4-11	0.09-0.13	0.0-2.9	0.5-2.0
	94-152	64	27	3-15	1.40-1.65	4-11	0.05-0.09	0.0-2.9	0.0-0.5
WeD:									
Wayah---------------	0-38	65	23	5-18	1.00-1.20	6-20	0.16-0.22	0.0-2.9	8.0-15
	38-94	45	43	5-18	1.20-1.60	4-11	0.09-0.13	0.0-2.9	0.5-2.0
	94-152	64	27	3-15	1.40-1.65	4-11	0.05-0.09	0.0-2.9	0.0-0.5
WeF:									
Wayah---------------	0-38	65	23	5-18	1.00-1.20	6-20	0.16-0.22	0.0-2.9	8.0-15
	38-94	45	43	5-18	1.20-1.60	4-11	0.09-0.13	0.0-2.9	0.5-2.0
	94-152	64	27	3-15	1.40-1.65	4-11	0.05-0.09	0.0-2.9	0.0-0.5

Table 13.—Physical Soil Properties, Part II

(Entries under "Erosion factors" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer)

Map symbol and soil name	Depth in centimeters	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
		Kw	Kf	T		
AwB:						
Alarka	0-8	---	---	5	8	0
	8-18	---	---			
	18-25	---	---			
	25-33	.28	.28			
	33-53	.24	.24			
	53-91	.32	.32			
	91-152	.05	.24			
Wesser	0-8	---	---	5	2	134
	8-15	.15	.15			
	15-33	.20	.20			
	33-49	.10	.10			
	49-158	.02	.10			
AwC:						
Alarka	0-8	---	---	5	8	0
	8-18	---	---			
	18-25	---	---			
	25-33	.28	.28			
	33-53	.24	.24			
	53-91	.32	.32			
	91-152	.05	.24			
Whiteside	0-36	.24	.24	5	3	86
	36-119	.24	.24			
	119-135	.10	.10			
	135-178	.24	.24			
AxB:						
Allegheny	0-20	.24	.24	4	6	48
	20-132	.28	.28			
	132-183	.20	.20			
BaE:						
Balsam	0-5	---	---	5	5	56
	5-33	.10	.20			
	33-122	.05	.24			
	122-165	.05	.17			
Tanasee	0-5	---	---	5	6	48
	5-20	.15	.15			
	20-46	.32	.32			
	46-84	.24	.24			
	84-142	.24	.24			
	142-200	.15	.28			
Bm:						
Biltmore	0-25	.02	.02	5	1	220
	25-203	.28	.28			
BpC:						
Breakneck	0-30	.10	.17	2	6	48
	30-71	.15	.32			
	71-200	---	---			

Table 13.—Physical Soil Properties, Part II—Continued

Map symbol and soil name	Depth in centimeters	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
BpC:						
Pullback	0-3	---	---	1	8	0
	3-20	.20	.20			
	20-41	.32	.32			
	41-200	---	---			
BpD:						
Breakneck	0-30	.10	.17	2	6	48
	30-71	.15	.32			
	71-200	---	---			
Pullback	0-3	---	---	1	8	0
	3-20	.20	.20			
	20-41	.32	.32			
	41-200	---	---			
BpF:						
Breakneck	0-30	.10	.17	2	6	48
	30-71	.15	.32			
	71-200	---	---			
Pullback	0-3	---	---	1	8	0
	3-20	.20	.20			
	20-41	.32	.32			
	41-200	---	---			
BrE:						
Breakneck	0-30	.10	.17	2	6	48
	30-71	.15	.32			
	71-200	---	---			
Luftee	0-28	.10	.17	2	7	38
	28-51	.05	.24			
	51-86	.05	.32			
	86-200	---	---			
Clingman	0-38	---	---	1	8	0
	38-48	.05	.05			
	48-200	---	---			
Pinnacle	0-48	---	---	3	8	0
	48-66	---	---			
	66-92	---	---			
	92-200	---	---			
BrF:						
Breakneck	0-30	.10	.17	2	6	48
	30-71	.15	.32			
	71-200	---	---			
Luftee	0-28	.10	.17	2	7	38
	28-51	.05	.24			
	51-86	.05	.32			
	86-200	---	---			
Clingman	0-38	---	---	1	8	0
	38-48	.05	.05			
	48-200	---	---			
Pinnacle	0-48	---	---	3	8	0
	48-66	---	---			
	66-92	---	---			
	92-200	---	---			

Table 13.—Physical Soil Properties, Part II—Continued

Map symbol and soil name	Depth in centimeters	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
BuF:						
Burton	0-46	.10	.17	2	5	56
	46-91	.10	.28			
	91-200	---	---			
Craggey	0-10	---	---	1	2	134
	10-28	.17	.24			
	28-200	---	---			
Rock outcrop.						
CaB:						
Cades	0-10	.28	.28	5	6	48
	10-26	.32	.32			
	26-69	.32	.32			
	69-182	.02	.24			
CcF:						
Cataska	0-13	.28	.49	2	6	48
	13-46	.15	.55			
	46-86	---	---			
	86-200	---	---			
Sylco	0-13	.20	.32	2	7	38
	13-61	.17	.43			
	61-84	.15	.43			
	84-200	---	---			
ChF:						
Cheoah	0-33	.10	.17	4	7	38
	33-114	.15	.24			
	114-142	.15	.28			
	142-162	---	---			
CkF:						
Chestnut	0-41	.17	.17	3	3	86
	41-81	.37	.37			
	81-102	---	---			
Cleveland	0-38	.10	.17	1	5	56
	38-200	---	---			
Rock outcrop.						
CmC:						
Chiltoskie	0-5	---	---	5	8	0
	5-20	.20	.20			
	20-36	.20	.32			
	36-66	.37	.37			
	66-104	.37	.37			
	104-155	.10	.32			
Heintooga	0-3	---	---	4	8	0
	3-10	---	---			
	10-31	.10	.24			
	31-64	.05	.28			
	64-155	.05	.24			

Table 13.—Physical Soil Properties, Part II—Continued

Map symbol and soil name	Depth in centimeters	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
CmC:						
Horsetrough	0-18	.10	.20	5	5	56
	18-33	.02	.20			
	33-71	.02	.20			
	71-84	.20	.28			
	84-102	.37	.37			
	102-117	.28	.28			
	117-158	---	---			
CmD:						
Chiltoskie	0-5	---	---	5	8	0
	5-20	.20	.20			
	20-36	.20	.32			
	36-66	.37	.37			
	66-104	.37	.37			
	104-155	.10	.32			
Heintooga	0-3	---	---	4	8	0
	3-10	---	---			
	10-31	.10	.24			
	31-64	.05	.28			
	64-155	.05	.24			
CnF:						
Clifton	0-20	.20	.20	3	6	48
	20-102	.20	.20			
	102-201	.28	.28			
CoB:						
Cotaco	0-20	.28	.28	3	6	48
	20-80	.43	.43			
	80-132	.43	.43			
	132-172	.55	.55			
CuD:						
Cullasaja, very stony	0-46	.10	.24	5	6	48
	46-122	.05	.24			
	122-157	.05	.20			
Tuckasegee, very stony	0-33	.17	.17	5	3	86
	33-66	.32	.32			
	66-119	.10	.20			
	119-165	.10	.24			
CuE:						
Cullasaja, very stony	0-46	.10	.24	5	6	48
	46-122	.05	.24			
	122-157	.05	.20			
Tuckasegee, very stony	0-33	.17	.17	5	3	86
	33-66	.32	.32			
	66-119	.10	.20			
	119-165	.10	.24			
CuF:						
Cullasaja, extremely stony	0-46	.10	.24	5	6	48
	46-122	.05	.24			
	122-157	.05	.20			
Rubble land.						

Table 13.—Physical Soil Properties, Part II—Continued

Map symbol and soil name	Depth in centimeters	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
Cw:						
Cullowhee	0-25	.17	.17	3	3	86
	25-79	.15	.15			
	79-152	.02	.05			
Ela	0-41	.32	.32	4	8	0
	41-81	.32	.32			
	81-155	.02	.24			
Dd:						
Dellwood	0-20	.15	.28	3	6	48
	20-36	.02	.05			
	36-152	.02	.05			
Smokemont	0-28	.05	.15	3	5	56
	28-69	.05	.24			
	69-158	.02	.20			
Urban land.						
Dg:						
Dellwood	0-20	.15	.28	3	6	48
	20-36	.02	.05			
	36-152	.02	.05			
Smokemont	0-28	.05	.15	3	5	56
	28-69	.05	.24			
	69-158	.02	.20			
DhB:						
Dellwood	0-20	.15	.28	3	6	48
	20-36	.02	.05			
	36-152	.02	.05			
Wesser	0-8	---	---	5	2	134
	8-15	.15	.15			
	15-33	.20	.20			
	33-49	.10	.10			
	49-158	.02	.10			
DtD:						
Ditney	0-10	.20	.20	2	5	56
	10-25	.24	.24			
	25-52	.20	.32			
	52-82	.20	.32			
	82-91	---	---			
	91-200	---	---			
Unicoi	0-10	.28	.28	1	5	56
	10-38	.17	.43			
	38-200	---	---			
DtF:						
Ditney	0-10	.20	.20	2	5	56
	10-25	.24	.24			
	25-52	.20	.32			
	52-82	.20	.32			
	82-91	---	---			
	91-200	---	---			

Table 13.—Physical Soil Properties, Part II—Continued

Map symbol and soil name	Depth in centimeters	Erosion factors: Kw	Erosion factors: Kf	Erosion factors: T	Wind erodi-bility group	Wind erodi-bility index
DtF:						
Unicoi	0-10	.28	.28	1	5	56
	10-38	.17	.43			
	38-200	---	---			
EpD:						
Evard, windswept	0-13	.24	.24	5	3	86
	13-89	.20	.20			
	89-114	.24	.24			
	114-155	.28	.28			
	155-168	---	---			
Cowee, windswept	0-25	.17	.17	3	3	86
	25-97	.20	.20			
	97-114	---	---			
EpE:						
Evard, windswept	0-13	.24	.24	5	3	86
	13-89	.20	.20			
	89-114	.24	.24			
	114-155	.28	.28			
	155-168	---	---			
Cowee, windswept	0-25	.17	.17	3	3	86
	25-97	.20	.20			
	97-114	---	---			
EvD:						
Evard	0-13	.24	.24	5	3	86
	13-89	.20	.20			
	89-114	.24	.24			
	114-155	.28	.28			
	155-168	---	---			
Cowee	0-25	.17	.17	3	3	86
	25-97	.20	.20			
	97-114	---	---			
EvE:						
Evard	0-13	.24	.24	5	3	86
	13-89	.20	.20			
	89-114	.24	.24			
	114-155	.28	.28			
	155-168	---	---			
Cowee	0-25	.17	.17	3	3	86
	25-97	.20	.20			
	97-114	---	---			
EvF:						
Evard	0-13	.24	.24	5	3	86
	13-89	.20	.20			
	89-114	.24	.24			
	114-155	.28	.28			
	155-168	---	---			
Cowee	0-25	.17	.17	3	3	86
	25-97	.20	.20			
	97-114	---	---			

Table 13.—Physical Soil Properties, Part II—Continued

Map symbol and soil name	Depth in centimeters	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
HcE:						
Heintooga	0-3	---	---	4	8	0
	3-10	---	---			
	10-31	.10	.24			
	31-64	.05	.28			
	64-155	.05	.24			
Chiltoskie	0-5	---	---	5	8	0
	5-20	.20	.20			
	20-36	.20	.32			
	36-66	.37	.37			
	66-104	.37	.37			
	104-155	.10	.32			
HrF:						
Heintooga	0-3	---	---	4	8	0
	3-10	---	---			
	10-31	.10	.24			
	31-64	.05	.28			
	64-155	.05	.24			
Rubble land.						
JbD:						
Junaluska	0-28	.32	.32	3	5	56
	28-53	.20	.20			
	53-66	.24	.24			
	66-79	---	---			
Brasstown	0-15	.17	.32	4	6	48
	15-74	.15	.20			
	74-117	.15	.28			
	117-152	---	---			
JbE:						
Junaluska	0-28	.32	.32	3	5	56
	28-53	.20	.20			
	53-66	.24	.24			
	66-79	---	---			
Brasstown	0-15	.17	.32	4	6	48
	15-74	.15	.20			
	74-117	.15	.28			
	117-152	---	---			
JtC:						
Junaluska	0-28	.32	.32	3	5	56
	28-53	.20	.20			
	53-66	.24	.24			
	66-79	---	---			
Tsali	0-20	.17	.32	1	6	48
	20-46	.17	.32			
	46-152	---	---			
JtD:						
Junaluska	0-28	.32	.32	3	5	56
	28-53	.20	.20			
	53-66	.24	.24			
	66-79	---	---			

Table 13.—Physical Soil Properties, Part II—Continued

Map symbol and soil name	Depth in centimeters	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
JtD:						
Tsali	0-20	.17	.32	1	6	48
	20-46	.17	.32			
	46-152	---	---			
JtF:						
Junaluska	0-28	.32	.32	3	5	56
	28-53	.20	.20			
	53-66	.24	.24			
	66-79	---	---			
Tsali	0-20	.17	.32	1	6	48
	20-46	.17	.32			
	46-152	---	---			
LeD:						
Lauada	0-3	---	---	4	3	86
	3-20	.17	.17			
	20-64	.24	.24			
	64-86	.28	.28			
	86-158	---	---			
Fannin	0-3	---	---	4	3	86
	3-18	.20	.20			
	18-75	.15	.20			
	75-145	.24	.24			
	145-190	.20	.20			
	190-200	---	---			
LeE:						
Lauada	0-3	---	---	4	3	86
	3-20	.17	.17			
	20-64	.24	.24			
	64-86	.28	.28			
	86-158	---	---			
Fannin	0-3	---	---	4	3	86
	3-18	.20	.20			
	18-75	.15	.20			
	75-145	.24	.24			
	145-190	.20	.20			
	190-200	---	---			
LeF:						
Lauada	0-3	---	---	4	3	86
	3-20	.17	.17			
	20-64	.24	.24			
	64-86	.28	.28			
	86-158	---	---			
Fannin	0-3	---	---	4	3	86
	3-18	.20	.20			
	18-75	.15	.20			
	75-145	.24	.24			
	145-190	.20	.20			
	190-200	---	---			

Table 13.—Physical Soil Properties, Part II—Continued

Map symbol and soil name	Depth in centimeters	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
LfD:						
Leatherwood, stony	0-18	.10	.10	5	5	56
	18-39	.15	.15			
	39-98	.15	.15			
	98-139	.17	.17			
	139-200	.10	.20			
LfE:						
Leatherwood, stony	0-18	.10	.10	5	5	56
	18-39	.15	.15			
	39-98	.15	.15			
	98-139	.17	.17			
	139-200	.10	.20			
LfF:						
Leatherwood, stony	0-18	.10	.10	5	5	56
	18-39	.15	.15			
	39-98	.15	.15			
	98-139	.17	.17			
	139-200	.10	.20			
LoB:						
Lonon	0-21	.24	.24	5	4	86
	21-152	.20	.20			
	152-170	.24	.24			
LoC:						
Lonon	0-21	.24	.24	5	4	86
	21-152	.20	.20			
	152-170	.24	.24			
LoD:						
Lonon	0-21	.24	.24	5	4	86
	21-152	.20	.20			
	152-170	.24	.24			
LoE:						
Lonon	0-21	.24	.24	5	4	86
	21-152	.20	.20			
	152-170	.24	.24			
Rock outcrop.						
LrD:						
Luftee	0-28	.10	.17	2	7	38
	28-51	.05	.24			
	51-86	.05	.32			
	86-200	---	---			
Anakeesta	0-10	.10	.20	3	6	48
	10-20	.10	.20			
	20-36	.05	.24			
	36-75	.05	.28			
	75-114	.02	.24			
	114-200	---	---			
LrF:						
Luftee	0-28	.10	.17	2	7	38
	28-51	.05	.24			
	51-86	.05	.32			
	86-200	---	---			

Table 13.—Physical Soil Properties, Part II—Continued

Map symbol and soil name	Depth in centimeters	Erosion factors: Kw	Erosion factors: Kf	Erosion factors: T	Wind erodi-bility group	Wind erodi-bility index
LrF:						
Anakeesta	0-10	.10	.20	3	6	48
	10-20	.10	.20			
	20-36	.05	.24			
	36-75	.05	.28			
	75-114	.02	.24			
	114-200	---	---			
NtC:						
Northcove	0-7	.05	.20	5	6	48
	7-152	.10	.43			
	152-203	.05	.28			
Maymead	0-13	.32	.32	5	5	56
	13-168	.20	.43			
Nowhere	0-41	.05	.20	3	6	48
	41-71	.05	.32			
	71-158	.05	.37			
NtD:						
Northcove	0-7	.05	.20	5	6	48
	7-152	.10	.43			
	152-203	.05	.28			
Maymead	0-13	.32	.32	5	5	56
	13-168	.20	.43			
NtE:						
Northcove	0-7	.05	.20	5	6	48
	7-152	.10	.43			
	152-203	.05	.28			
Maymead	0-13	.32	.32	5	5	56
	13-168	.20	.43			
OcD:						
Oconaluftee	0-31	.15	.24	5	6	48
	31-125	.20	.37			
	125-185	.43	.43			
	185-200	---	---			
Guyot	0-28	.17	.17	4	6	48
	28-72	.32	.32			
	72-150	.37	.37			
	150-183	---	---			
Heintooga	0-3	---	---	4	8	0
	3-10	---	---			
	10-31	.10	.24			
	31-64	.05	.28			
	64-155	.05	.24			
OcF:						
Oconaluftee	0-31	.15	.24	5	6	48
	31-125	.20	.37			
	125-185	.43	.43			
	185-200	---	---			

Table 13.—Physical Soil Properties, Part II—Continued

Map symbol and soil name	Depth in centimeters	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
OcF:						
Heintooga	0-3	---	---	4	8	0
	3-10	---	---			
	10-31	.10	.24			
	31-64	.05	.28			
	64-155	.05	.24			
Rubble land.						
OwC:						
Oconaluftee, windswept	0-30	.15	.24	5	6	48
	30-112	.20	.37			
	112-152	.43	.43			
Guyot, windswept	0-28	.17	.17	4	6	48
	28-72	.32	.32			
	72-150	.37	.37			
	150-183	---	---			
Cataloochee, windswept	0-23	.17	.17	3	6	48
	23-48	.17	.24			
	48-64	.15	.32			
	64-79	.17	.32			
	79-153	---	---			
OwD:						
Oconaluftee, windswept	0-30	.15	.24	5	6	48
	30-112	.20	.37			
	112-152	.43	.43			
Guyot, windswept	0-28	.17	.17	4	6	48
	28-72	.32	.32			
	72-150	.37	.37			
	150-183	---	---			
Cataloochee, windswept	0-23	.17	.17	3	6	48
	23-48	.17	.24			
	48-64	.15	.32			
	64-79	.17	.32			
	79-153	---	---			
OwE:						
Oconaluftee, windswept	0-30	.15	.24	5	6	48
	30-112	.20	.37			
	112-152	.43	.43			
Guyot, windswept	0-28	.17	.17	4	6	48
	28-72	.32	.32			
	72-150	.37	.37			
	150-183	---	---			
Cataloochee, windswept	0-23	.17	.17	3	6	48
	23-48	.17	.24			
	48-64	.15	.32			
	64-79	.17	.32			
	79-153	---	---			
OwF:						
Oconaluftee, windswept	0-30	.15	.24	5	6	48
	30-112	.20	.37			
	112-152	.43	.43			

Table 13.—Physical Soil Properties, Part II—Continued

Map symbol and soil name	Depth in centimeters	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
		Kw	Kf	T		
OwF:						
Guyot, windswept	0-28	.17	.17	4	6	48
	28-72	.32	.32			
	72-150	.37	.37			
	150-183	---	---			
Cataloochee, windswept	0-23	.17	.17	3	6	48
	23-48	.17	.24			
	48-64	.15	.32			
	64-79	.17	.32			
	79-153	---	---			
Po:						
Potomac	0-5	.05	.10	5	3	86
	5-152	.05	.20			
Rd:						
Reddies	0-36	.20	.20	4	3	86
	36-66	.32	.32			
	66-152	.02	.05			
Dellwood	0-20	.15	.28	3	6	48
	20-36	.02	.05			
	36-152	.02	.05			
RpF:						
Rock outcrop.						
Pullback	0-3	---	---	1	8	0
	3-20	.20	.20			
	20-41	.32	.32			
	41-200	---	---			
RtF:						
Rock outcrop.						
Luftee	0-28	.10	.17	2	7	38
	28-51	.05	.24			
	51-86	.05	.32			
	86-200	---	---			
RuF:						
Rock outcrop.						
Unicoi	0-10	.28	.28	1	5	56
	10-38	.17	.43			
	38-200	---	---			
Rv:						
Rosman	0-30	.28	.28	5	6	48
	30-54	.37	.37			
	54-107	.28	.28			
	107-175	.20	.20			
Reddies	0-36	.20	.20	4	3	86
	36-66	.32	.32			
	66-152	.02	.05			

Table 13.—Physical Soil Properties, Part II—Continued

Map symbol and soil name	Depth in centimeters	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
Rw:						
Rosman	0-30	.28	.28	5	6	48
	30-54	.37	.37			
	54-107	.28	.28			
	107-175	.20	.20			
Reddies	0-36	.20	.20	4	3	86
	36-66	.32	.32			
	66-152	.02	.05			
Urban land.						
RxF:						
Rubble land.						
Spivey	0-33	.05	.15	5	6	48
	33-114	.05	.28			
	114-122	.05	.28			
RZ:						
Rubble land.						
SaD:						
Saunook, stony	0-23	.28	.28	5	5	56
	23-71	.32	.32			
	71-86	.15	.32			
	86-165	.10	.24			
SdC:						
Saunook, stony	0-23	.28	.28	5	5	56
	23-71	.32	.32			
	71-86	.15	.32			
	86-165	.10	.24			
Urban land.						
SI.						
Slide area						
SnF:						
Snowbird	0-15	.20	.20	5	6	48
	15-23	.20	.20			
	23-95	.20	.20			
	95-138	.15	.37			
	138-167	---	---			
SoD:						
Soco	0-15	.17	.28	3	6	48
	15-66	.28	.28			
	66-94	.17	.32			
	94-158	---	---			
Stecoah	0-10	.15	.28	4	6	48
	10-71	.20	.43			
	71-127	.20	.43			
	127-157	---	---			
SoF:						
Soco	0-15	.17	.28	3	6	48
	15-66	.28	.28			
	66-94	.17	.32			
	94-158	---	---			

Table 13.—Physical Soil Properties, Part II—Continued

Map symbol and soil name	Depth in centimeters	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
SoF:						
Stecoah	0-10	.15	.28	4	6	48
	10-71	.20	.43			
	71-127	.20	.43			
	127-157	---	---			
SpD:						
Soco, windswept	0-15	.17	.28	3	6	48
	15-66	.28	.28			
	66-94	.17	.32			
	94-158	---	---			
Stecoah, windswept	0-10	.15	.28	4	6	48
	10-71	.20	.43			
	71-127	.20	.43			
	127-157	---	---			
SpF:						
Soco, windswept	0-15	.17	.28	3	6	48
	15-66	.28	.28			
	66-94	.17	.32			
	94-158	---	---			
Stecoah, windswept	0-10	.15	.28	4	6	48
	10-71	.20	.43			
	71-127	.20	.43			
	127-157	---	---			
SsB:						
Spivey	0-33	.05	.15	5	6	48
	33-114	.05	.28			
	114-122	.05	.28			
Santeetlah	0-43	.24	.24	5	5	56
	43-99	.37	.37			
	99-124	.24	.43			
	124-165	.15	.43			
Nowhere	0-41	.05	.20	3	6	48
	41-71	.05	.32			
	71-158	.05	.37			
SsC:						
Spivey	0-33	.05	.15	5	6	48
	33-114	.05	.28			
	114-122	.05	.28			
Santeetlah	0-43	.24	.24	5	5	56
	43-99	.37	.37			
	99-124	.24	.43			
	124-165	.15	.43			
Nowhere	0-41	.05	.20	3	6	48
	41-71	.05	.32			
	71-158	.05	.37			
SsD:						
Spivey	0-33	.05	.15	5	6	48
	33-114	.05	.28			
	114-122	.05	.28			

Table 13.—Physical Soil Properties, Part II—Continued

Map symbol and soil name	Depth in centimeters	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
		Kw	Kf	T		
SsD:						
Santeetlah	0-43	.24	.24	5	5	56
	43-99	.37	.37			
	99-124	.24	.43			
	124-165	.15	.43			
SsE:						
Spivey	0-33	.05	.15	5	6	48
	33-114	.05	.28			
	114-122	.05	.28			
Santeetlah	0-43	.24	.24	5	5	56
	43-99	.37	.37			
	99-124	.24	.43			
	124-165	.15	.43			
StB:						
Statler	0-23	.24	.24	5	5	56
	23-76	.28	.28			
	76-97	.32	.32			
	97-157	.37	.37			
StC:						
Statler	0-23	.24	.24	5	5	56
	23-76	.28	.28			
	76-97	.32	.32			
	97-157	.37	.37			
TaC:						
Tanasee	0-5	---	---	5	6	48
	5-20	.15	.15			
	20-46	.32	.32			
	46-84	.24	.24			
	84-142	.24	.24			
	142-200	.15	.28			
Balsam	0-5	---	---	5	5	56
	5-33	.10	.20			
	33-122	.05	.24			
	122-165	.05	.17			
TaD:						
Tanasee	0-5	---	---	5	6	48
	5-20	.15	.15			
	20-46	.32	.32			
	46-84	.24	.24			
	84-142	.24	.24			
	142-200	.15	.28			
Balsam	0-5	---	---	5	5	56
	5-33	.10	.20			
	33-122	.05	.24			
	122-165	.05	.17			
ThB:						
Thurmont, stony	0-36	.32	.32	5	5	56
	36-119	.24	.24			
	119-135	.15	.15			
	135-203	.24	.24			

Table 13.—Physical Soil Properties, Part II—Continued

Map symbol and soil name	Depth in centimeters	Erosion factors			Wind erodibility group	Wind erodibility index
		Kw	Kf	T		
ThB:						
Dillard, stony	0-18	.28	.28	5	5	56
	18-127	.32	.32			
	127-203	.24	.24			
ThC:						
Thurmont, stony	0-36	.32	.32	5	5	56
	36-119	.24	.24			
	119-135	.15	.15			
	135-203	.24	.24			
To:						
Toxaway	0-15	.24	.24	5	6	48
	15-26	.28	.28			
	26-41	.24	.24			
	41-69	.28	.28			
	69-89	.32	.32			
	89-117	.32	.32			
	117-147	.28	.28			
	147-179	.17	.17			
TuC:						
Tuckasegee, stony	0-33	.17	.17	5	3	86
	33-66	.32	.32			
	66-119	.10	.24			
	119-165	.10	.24			
Cullasaja, stony	0-46	.10	.24	5	6	48
	46-122	.05	.24			
	122-157	.05	.20			
Ud:						
Udorthents	0-152	.15	.15	5	5	56
W.						
Water						
WaC:						
Wayah, windswept	0-38	.15	.15	3	3	86
	38-94	.17	.37			
	94-152	.15	.28			
WaD:						
Wayah, windswept	0-38	.15	.15	3	3	86
	38-94	.17	.37			
	94-152	.15	.28			
WaF:						
Wayah, windswept	0-38	.15	.15	3	3	86
	38-94	.17	.37			
	94-152	.15	.28			
WeD:						
Wayah	0-38	.15	.15	3	3	86
	38-94	.17	.37			
	94-152	.15	.28			
WeF:						
Wayah	0-38	.15	.15	3	3	86
	38-94	.17	.37			
	94-152	.15	.28			

Table 14.—Chemical Soil Properties

(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
	Cm	meq/100 g	meq/100 g	pH
AwB:				
Alarka	0-8	---	5.0-9.0	2.5-3.5
	8-18	---	4.0-8.0	2.5-3.5
	18-25	---	4.0-7.0	3.0-3.5
	25-33	---	4.0-9.4	3.5-4.4
	33-53	---	4.6-11	3.5-5.0
	53-91	---	1.1-6.4	4.5-5.5
	91-152	---	1.1-4.3	4.5-5.5
Wesser	0-8	---	4.0-9.0	3.0-4.5
	8-15	---	1.5-16	3.0-5.5
	15-33	---	1.1-12	3.0-5.5
	33-49	---	0.5-9.5	3.0-5.5
	49-158	---	0.4-7.5	3.0-5.5
AwC:				
Alarka	0-8	---	5.0-9.0	2.5-3.5
	8-18	---	4.0-8.0	2.5-3.5
	18-25	---	4.0-7.0	3.0-3.5
	25-33	---	4.0-9.4	3.5-4.4
	33-53	---	4.6-11	3.5-5.0
	53-91	---	1.1-6.4	4.5-5.5
	91-152	---	1.1-4.3	4.5-5.5
Whiteside	0-36	2.8-10.0	---	4.5-6.0
	36-119	---	5.3-9.1	4.5-6.0
	119-135	---	0.7-9.5	4.5-6.0
	135-178	---	2.2-18	4.5-6.0
AxB:				
Allegheny	0-20	---	2.0-4.9	3.6-5.5
	20-132	---	2.2-8.0	3.6-5.5
	132-183	---	1.1-13	3.6-5.5
BaE:				
Balsam	0-5	---	8.0-12	3.0-4.0
	5-33	---	8.0-12	3.5-6.0
	33-122	---	6.0-8.0	3.5-6.0
	122-165	---	3.0-4.0	3.5-6.0
Tanasee	0-5	---	7.0-10	3.0-4.0
	5-20	---	7.0-10	4.0-6.0
	20-46	---	3.0-6.0	4.0-6.0
	46-84	---	4.0-7.0	4.0-6.0
	84-142	---	4.0-7.0	4.0-6.0
	142-200	---	2.0-3.0	4.0-6.0
Bm:				
Biltmore	0-25	1.0-7.7	---	4.5-6.5
	25-203	1.0-8.6	---	4.5-6.5
BpC:				
Breakneck	0-30	---	9.0-14	3.0-4.5
	30-71	---	2.0-5.0	4.0-5.5
	71-200	---	---	---

Table 14.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Cm	meq/100 g	meq/100 g	pH
BpC:				
Pullback	0-3	---	5.0-9.0	3.0-4.0
	3-20	---	4.0-8.0	3.0-5.5
	20-41	---	2.0-5.0	3.0-5.5
	41-200	---	---	---
BpD:				
Breakneck	0-30	---	9.0-14	3.0-4.5
	30-71	---	2.0-5.0	3.0-5.5
	71-200	---	---	---
Pullback	0-3	---	5.0-9.0	3.0-4.0
	3-20	---	4.0-8.0	3.0-5.5
	20-41	---	2.0-5.0	3.0-5.5
	41-200	---	---	---
BpF:				
Breakneck	0-30	---	9.0-14	3.0-4.5
	30-71	---	2.0-5.0	3.0-5.5
	71-200	---	---	---
Pullback	0-3	---	5.0-9.0	3.0-4.0
	3-20	---	4.0-8.0	3.0-5.5
	20-41	---	2.0-5.0	3.0-5.5
	41-200	---	---	---
BrE:				
Breakneck	0-30	---	9.0-14	3.0-4.5
	30-71	---	2.0-5.0	3.0-5.5
	71-200	---	---	---
Luftee	0-28	---	4.0-8.0	3.0-5.5
	28-51	---	2.0-6.0	3.0-5.5
	51-86	---	1.0-2.0	3.0-5.5
	86-200	---	---	---
Clingman	0-38	---	1.8-8.1	2.0-3.5
	38-48	---	6.2-26	2.0-4.0
	48-200	---	---	---
Pinnacle	0-48	---	5.2-7.1	2.0-3.5
	48-66	---	5.2-7.1	2.0-3.5
	66-92	---	4.6-7.7	2.0-4.0
	92-200	---	---	---
BrF:				
Breakneck	0-30	---	9.0-14	3.0-4.5
	30-71	---	2.0-5.0	3.0-5.5
	71-200	---	---	---
Luftee	0-28	---	4.0-8.0	3.0-5.5
	28-51	---	2.0-6.0	3.0-5.5
	51-86	---	1.0-2.0	3.0-5.5
	86-200	---	---	---
Clingman	0-38	---	1.8-8.1	2.0-3.5
	38-48	---	6.2-26	2.0-4.0
	48-200	---	---	---

Table 14.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Cm	meq/100 g	meq/100 g	pH
BrF:				
Pinnacle	0-48	---	5.2-7.1	2.0-3.5
	48-66	---	5.2-7.1	2.0-3.5
	66-92	---	4.6-7.7	2.0-4.0
	92-200	---	---	---
BuF:				
Burton	0-46	---	4.3-8.4	3.5-6.0
	46-91	---	1.9-5.9	3.5-6.0
	91-200	---	---	---
Craggey	0-10	---	2.0-10	3.5-5.0
	10-28	---	2.0-10	3.5-6.0
	28-200	---	---	---
Rock outcrop.				
CaB:				
Cades	0-10	---	1.7-7.8	4.5-6.0
	10-26	11-17	---	4.5-6.0
	26-69	---	2.1-14	4.5-6.0
	69-182	---	0.7-18	4.5-6.0
CcF:				
Cataska	0-13	---	2.0-4.1	3.6-5.5
	13-46	---	2.1-4.3	3.6-5.5
	46-86	---	---	---
	86-200	---	---	---
Sylco	0-13	---	3.5-7.7	3.6-5.5
	13-61	---	2.8-12	3.6-5.5
	61-84	---	3.0-12	3.6-5.5
	84-200	---	---	---
ChF:				
Cheoah	0-33	11-18	---	5.0-6.0
	33-114	---	2.0-4.0	5.0-6.0
	114-142	5.0-9.0	---	5.0-6.0
	142-162	---	---	---
CkF:				
Chestnut	0-41	---	1.0-5.9	3.5-6.0
	41-81	---	1.1-12	3.5-6.0
	81-102	---	---	---
Cleveland	0-38	---	1.2-6.4	4.5-6.0
	38-200	---	---	---
Rock outcrop.				
CmC:				
Chiltoskie	0-5	---	4.0-7.0	3.0-4.5
	5-20	---	8.0-12	3.0-5.5
	20-36	---	4.0-6.0	3.0-5.5
	36-66	---	2.0-4.0	3.0-5.5
	66-104	---	2.0-4.0	3.0-5.5
	104-155	---	1.0-2.0	3.0-5.5

Table 14.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Cm	meq/100 g	meq/100 g	pH
CmC:				
Heintooga	0-3	---	3.0-5.0	3.0-4.5
	3-10	---	8.0-12	3.0-5.5
	10-31	---	4.0-8.0	3.0-5.5
	31-64	---	3.0-5.0	3.0-5.5
	64-155	---	1.0-2.0	3.0-5.5
Horsetrough	0-18	---	3.0-8.0	3.0-4.5
	18-33	---	1.0-3.0	3.0-5.5
	33-71	---	1.0-2.0	3.0-5.5
	71-84	---	0.5-2.0	3.0-5.5
	84-102	---	1.0-2.0	3.0-5.5
	102-117	---	2.0-4.0	3.0-5.5
	117-158	---	---	---
CmD:				
Chiltoskie	0-5	---	4.0-7.0	3.0-4.5
	5-20	---	8.0-12	3.0-5.5
	20-36	---	4.0-6.0	3.0-5.5
	36-66	---	2.0-4.0	3.0-5.5
	66-104	---	2.0-4.0	3.0-5.5
	104-155	---	1.0-2.0	3.0-5.5
Heintooga	0-3	---	3.0-5.0	3.0-4.5
	3-10	---	8.0-12	3.0-5.5
	10-31	---	4.0-8.0	3.0-5.5
	31-64	---	3.0-5.0	3.0-5.5
	64-155	---	1.0-2.0	3.0-5.5
CnF:				
Clifton	0-20	9.6-15	---	4.5-6.5
	20-102	12-19	---	4.5-6.5
	102-201	1.7-9.6	---	4.5-6.5
CoB:				
Cotaco	0-20	---	5.0-9.0	4.5-6.0
	20-80	---	3.0-6.0	4.5-6.0
	80-132	---	3.0-6.0	4.5-6.0
	132-172	---	0.5-4.7	4.5-6.0
CuD:				
Cullasaja, very stony	0-46	---	12-18	4.5-6.0
	46-122	---	5.0-7.0	4.5-6.0
	122-157	---	2.0-3.0	4.5-6.0
Tuckasegee, very stony	0-33	11-18	---	4.5-6.5
	33-66	---	8.3-15	4.5-6.0
	66-119	---	8.1-14	4.5-6.0
	119-165	---	5.0-13	4.5-6.0
CuE:				
Cullasaja, very stony	0-46	---	12-18	4.5-6.0
	46-122	---	5.0-7.0	4.5-6.0
	122-157	---	2.0-3.0	4.5-6.0

Table 14.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Cm	meq/100 g	meq/100 g	pH
CuE:				
Tuckasegee, very stony	0-33	11-18	---	4.5-6.5
	33-66	---	8.3-15	4.5-6.0
	66-119	---	8.1-14	4.5-6.0
	119-165	---	5.0-13	4.5-6.0
CuF:				
Cullasaja, extremely stony	0-46	---	12-18	4.5-6.0
	46-122	---	5.0-7.0	4.5-6.0
	122-157	---	2.0-3.0	4.5-6.0
Rubble land.				
Cw:				
Cullowhee	0-25	5.0-17	---	4.5-6.5
	25-79	4.1-10	---	4.5-6.5
	79-152	1.0-4.6	---	4.5-6.5
Ela	0-41	---	2.0-12	4.0-5.5
	41-81	---	1.9-11	4.5-5.5
	81-155	---	0.1-8.5	4.5-5.5
Dd:				
Dellwood	0-20	4.9-13	---	4.5-6.0
	20-36	1.1-6.8	---	4.5-6.0
	36-152	0.7-3.6	---	4.5-6.0
Smokemont	0-28	---	4.1-8.3	4.5-6.0
	28-69	---	3.3-7.2	4.5-6.0
	69-158	---	0.2-8.9	4.5-6.0
Urban land.				
Dg:				
Dellwood	0-20	4.9-13	---	4.5-6.0
	20-36	1.1-6.8	---	4.5-6.0
	36-152	0.7-3.6	---	4.5-6.0
Smokemont	0-28	---	4.1-8.3	4.5-6.0
	28-69	---	3.3-7.2	4.5-6.0
	69-158	---	0.2-8.9	4.5-6.0
DhB:				
Dellwood	0-20	4.9-13	---	4.5-7.3
	20-36	1.1-6.8	---	4.5-6.0
	36-152	0.7-3.6	---	4.5-6.0
Wesser	0-8	---	4.0-9.0	3.0-4.5
	8-15	---	1.5-16	3.0-5.5
	15-33	---	1.1-12	3.0-5.5
	33-49	---	0.5-9.5	3.0-5.5
	49-158	---	0.4-7.5	3.0-5.5

Table 14.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Cm	meq/100 g	meq/100 g	pH
DtD:				
Ditney	0-10	---	0.4-5.8	3.5-5.5
	10-25	---	0.5-3.6	4.5-5.5
	25-52	---	0.5-3.9	4.5-5.5
	52-82	---	0.5-4.7	4.5-5.5
	82-91	---	---	---
	91-200	---	---	---
Unicoi	0-10	---	0.8-5.3	3.6-5.5
	10-38	---	0.8-3.9	3.6-5.5
	38-200	---	---	---
DtF:				
Ditney	0-10	---	0.4-5.8	3.5-5.5
	10-25	---	0.5-3.6	4.5-5.5
	25-52	---	0.5-3.9	4.5-5.5
	52-82	---	0.5-4.7	4.5-5.5
	82-91	---	---	---
	91-200	---	---	---
Unicoi	0-10	---	0.8-5.3	3.6-5.5
	10-38	---	0.8-3.9	3.6-5.5
	38-200	---	---	---
EpD:				
Evard, windswept	0-13	---	0.7-3.8	4.5-6.0
	13-89	---	1.4-5.0	4.5-6.0
	89-114	---	1.0-4.3	4.5-6.0
	114-155	---	0.5-3.0	4.5-6.0
	155-168	---	---	---
Cowee, windswept	0-25	---	1.1-3.8	4.5-6.0
	25-97	---	2.1-5.4	4.5-6.0
	97-114	---	---	---
EpE:				
Evard, windswept	0-13	---	0.7-3.8	4.5-6.0
	13-89	---	1.4-5.0	4.5-6.0
	89-114	---	1.0-4.3	4.5-6.0
	114-155	---	0.5-3.0	4.5-6.0
	155-168	---	---	---
Cowee, windswept	0-25	---	1.1-3.8	4.5-6.0
	25-97	---	2.1-5.4	4.5-6.0
	97-114	---	---	---
EvD:				
Evard	0-13	---	0.7-3.8	4.5-6.0
	13-89	---	1.4-5.0	4.5-6.0
	89-114	---	1.0-4.3	4.5-6.0
	114-155	---	0.5-3.0	4.5-6.0
	155-168	---	---	---
Cowee	0-25	---	1.1-3.8	4.5-6.0
	25-97	---	2.1-5.4	4.5-6.0
	97-114	---	---	---

Table 14.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Cm	meq/100 g	meq/100 g	pH
EvE:				
Evard----------------	0-13	---	0.7-3.8	4.5-6.0
	13-89	---	1.4-5.0	4.5-6.0
	89-114	---	1.0-4.3	4.5-6.0
	114-155	---	0.5-3.0	4.5-6.0
	155-168	---	---	---
Cowee----------------	0-25	---	1.1-3.8	4.5-6.0
	25-97	---	2.1-5.4	4.5-6.0
	97-114	---	---	---
EvF:				
Evard----------------	0-13	---	0.7-3.8	4.5-6.0
	13-89	---	1.4-5.0	4.5-6.0
	89-114	---	1.0-4.3	4.5-6.0
	114-155	---	0.5-3.0	4.5-6.0
	155-168	---	---	---
Cowee----------------	0-25	---	1.1-3.8	4.5-6.0
	25-97	---	2.1-5.4	4.5-6.0
	97-114	---	---	---
HcE:				
Heintooga------------	0-3	---	3.0-5.0	3.0-4.5
	3-10	---	8.0-12	3.0-5.5
	10-31	---	4.0-8.0	3.0-5.5
	31-64	---	3.0-5.0	3.0-5.5
	64-155	---	1.0-2.0	3.0-5.5
Chiltoskie-----------	0-5	---	4.0-7.0	3.0-4.5
	5-20	---	8.0-12	3.0-5.5
	20-36	---	4.0-6.0	3.0-5.5
	36-66	---	2.0-4.0	3.0-5.5
	66-104	---	2.0-4.0	3.0-5.5
	104-155	---	1.0-2.0	3.0-5.5
HrF:				
Heintooga------------	0-3	---	3.0-5.0	3.0-4.5
	3-10	---	8.0-12	3.0-5.5
	10-31	---	4.0-8.0	3.0-5.5
	31-64	---	3.0-5.0	3.0-5.5
	64-155	---	1.0-2.0	3.0-5.5
Rubble land.				
JbD:				
Junaluska------------	0-28	---	1.0-3.0	3.5-6.0
	28-53	---	1.0-4.0	3.5-6.0
	53-66	---	1.0-4.0	3.5-6.0
	66-79	---	---	---
Brasstown------------	0-15	---	1.0-3.0	3.5-6.0
	15-74	---	1.0-4.0	3.5-6.0
	74-117	---	1.0-3.0	3.5-6.0
	117-152	---	---	---

Table 14.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Cm	meq/100 g	meq/100 g	pH
JbE:				
Junaluska------------	0-28	---	1.0-3.0	3.5-6.0
	28-53	---	1.0-4.0	3.5-6.0
	53-66	---	1.0-4.0	3.5-6.0
	66-79	---	---	---
Brasstown------------	0-15	---	1.0-3.0	3.5-6.0
	15-74	---	1.0-4.0	3.5-6.0
	74-117	---	1.0-3.0	3.5-6.0
	117-152	---	---	---
JtC:				
Junaluska------------	0-28	---	1.0-3.0	3.5-6.0
	28-53	---	1.0-4.0	3.5-6.0
	53-66	---	1.0-3.0	3.5-6.0
	66-79	---	---	---
Tsali----------------	0-20	---	1.0-3.0	3.5-6.0
	20-46	---	2.0-5.0	3.5-6.0
	46-152	---	---	---
JtD:				
Junaluska------------	0-28	---	1.0-3.0	3.5-6.0
	28-53	---	1.0-4.0	3.5-6.0
	53-66	---	1.0-4.0	3.5-6.0
	66-79	---	---	---
Tsali----------------	0-20	---	1.0-3.0	3.5-6.0
	20-46	---	2.0-5.0	3.5-6.0
	46-152	---	---	---
JtF:				
Junaluska------------	0-28	---	1.0-3.0	3.5-6.0
	28-53	---	1.0-4.0	3.5-6.0
	53-66	---	1.0-4.0	3.5-6.0
	66-79	---	---	---
Tsali----------------	0-20	---	1.0-3.0	3.5-6.0
	20-46	---	2.0-5.0	3.5-6.0
	46-152	---	---	---
LeD:				
Lauada---------------	0-3	---	5.0-9.0	3.0-4.0
	3-20	---	3.0-6.0	3.5-5.5
	20-64	---	1.0-4.0	3.5-5.5
	64-86	---	1.0-4.0	3.5-5.5
	86-158	---	---	---
Fannin---------------	0-3	---	4.0-8.0	3.0-4.5
	3-18	---	1.0-4.0	3.5-5.5
	18-75	---	2.0-4.0	3.5-5.5
	75-145	4.0-7.0	---	3.5-6.0
	145-190	5.0-8.0	---	3.5-6.0
	190-200	---	---	---

Table 14.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Cm	meq/100 g	meq/100 g	pH
LeE:				
Lauada	0-3	---	5.0-9.0	3.0-4.0
	3-20	---	3.0-6.0	3.5-5.5
	20-64	---	1.0-4.0	3.5-5.5
	64-86	---	1.0-4.0	3.5-5.5
	86-158	---	---	---
Fannin	0-3	---	4.0-8.0	3.0-4.0
	3-18	---	1.0-4.0	3.5-5.5
	18-75	---	2.0-4.0	3.5-5.5
	75-145	4.0-7.0	---	3.5-6.0
	145-190	5.0-8.0	---	3.5-6.0
	190-200	---	---	---
LeF:				
Lauada	0-3	---	5.0-9.0	3.0-4.0
	3-20	---	3.0-6.0	3.5-5.5
	20-64	---	1.0-4.0	3.5-5.5
	64-86	---	1.0-4.0	3.5-5.5
	86-158	---	---	---
Fannin	0-3	---	4.0-8.0	3.0-4.0
	3-18	---	1.0-4.0	3.5-5.5
	18-75	---	2.0-4.0	3.5-5.5
	75-145	4.0-7.0	---	3.5-6.0
	145-190	5.0-8.0	---	3.5-6.0
	190-200	---	---	---
LfD:				
Leatherwood, stony	0-18	---	4.0-11	3.5-4.5
	18-39	---	4.1-11	3.5-4.5
	39-98	---	4.4-12	3.5-5.5
	98-139	---	3.0-15	4.0-5.5
	139-200	---	2.4-9.7	4.0-5.5
LfE:				
Leatherwood, stony	0-18	---	4.0-11	3.5-4.5
	18-39	---	4.1-11	3.5-4.5
	39-98	---	4.4-12	3.5-5.5
	98-139	---	3.0-15	4.0-5.5
	139-200	---	2.4-9.7	4.0-5.5
LfF:				
Leatherwood, stony	0-18	---	4.0-11	3.5-4.5
	18-39	---	4.1-11	3.5-4.5
	39-98	---	4.4-12	3.5-5.5
	98-139	---	3.0-15	4.0-5.5
	139-200	---	2.4-9.7	4.0-5.5
LoB:				
Lonon	0-21	2.9-14	---	3.5-6.0
	21-152	---	1.5-12	3.5-6.0
	152-170	---	1.5-9.7	3.5-6.0
LoC:				
Lonon	0-21	2.9-14	---	3.5-6.0
	21-152	---	1.5-12	3.5-6.0
	152-170	---	1.5-9.7	3.5-6.0

Table 14.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Cm	meq/100 g	meq/100 g	pH
LoD:				
Lonon	0-21	2.9-14	---	3.5-6.0
	21-152	---	1.5-12	3.5-6.0
	152-170	---	1.5-9.7	3.5-6.0
LoE:				
Lonon	0-21	2.9-14	---	3.5-6.0
	21-152	---	1.5-12	3.5-6.0
	152-170	---	1.5-9.7	3.5-6.0
Rock outcrop.				
LrD:				
Luftee	0-28	---	4.0-8.0	3.0-5.5
	28-51	---	2.0-6.0	3.0-5.5
	51-86	---	1.0-2.0	3.0-5.5
	86-200	---	---	---
Anakeesta	0-10	---	9.0-13	3.0-4.5
	10-20	---	4.0-7.0	3.0-5.5
	20-36	---	2.0-5.0	3.0-5.5
	36-75	---	1.0-4.0	3.0-5.5
	75-114	---	0.5-1.5	3.0-5.5
	114-200	---	---	---
LrF:				
Luftee	0-28	---	4.0-8.0	3.0-5.5
	28-51	---	2.0-6.0	3.0-5.5
	51-86	---	1.0-2.0	3.0-5.5
	86-200	---	---	---
Anakeesta	0-10	---	9.0-13	3.0-4.5
	10-20	---	4.0-7.0	3.0-5.5
	20-36	---	2.0-5.0	3.0-5.5
	36-75	---	1.0-4.0	3.0-5.5
	75-114	---	0.5-1.5	3.0-5.5
	114-200	---	---	---
NtC:				
Northcove	0-7	---	0.8-3.5	3.5-6.0
	7-152	---	0.9-4.2	3.5-6.0
	152-203	---	0.2-4.2	3.5-6.0
Maymead	0-13	---	1.3-3.3	4.5-5.5
	13-168	---	1.4-3.5	4.5-5.5
Nowhere	0-41	---	2.0-5.0	3.5-5.5
	41-71	---	1.0-3.0	3.5-5.5
	71-158	---	1.0-3.0	3.5-5.5
NtD:				
Northcove	0-7	---	0.8-3.5	3.5-6.0
	7-152	---	0.9-4.2	3.5-6.0
	152-203	---	0.2-4.2	3.5-6.0
Maymead	0-13	---	1.3-3.3	4.5-5.5
	13-168	---	1.4-3.5	4.5-5.5

Table 14.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Cm	meq/100 g	meq/100 g	pH
NtE:				
Northcove	0-7	---	0.8-3.5	3.5-6.0
	7-152	---	0.9-4.2	3.5-6.0
	152-203	---	0.2-4.2	3.5-6.0
Maymead	0-13	---	1.3-3.3	4.5-5.5
	13-168	---	1.4-3.5	4.5-5.5
OcD:				
Oconaluftee	0-31	---	13-19	3.5-5.5
	31-125	---	5.0-9.0	3.5-6.0
	125-185	---	4.0-7.0	3.5-6.0
	185-200	---	---	---
Guyot	0-28	---	1.6-2.8	3.6-3.8
	28-72	---	3.6-12	4.3-4.8
	72-150	---	2.4-4.6	4.9-5.0
	150-183	---	---	---
Heintooga	0-3	---	3.0-5.0	3.0-4.5
	3-10	---	8.0-12	3.0-5.5
	10-31	---	4.0-8.0	3.0-5.5
	31-64	---	3.0-5.0	3.0-5.5
	64-155	---	1.0-2.0	3.0-5.5
OcF:				
Oconaluftee	0-31	---	13-19	3.5-5.5
	31-125	---	5.0-9.0	3.5-6.0
	125-185	---	4.0-7.0	3.5-6.0
	185-200	---	---	---
Heintooga	0-3	---	3.0-5.0	3.0-4.5
	3-10	---	8.0-12	3.0-5.5
	10-31	---	4.0-8.0	3.0-5.5
	31-64	---	3.0-5.0	3.0-5.5
	64-155	---	1.0-2.0	3.0-5.5
Rubble land.				
OwC:				
Oconaluftee, windswept	0-30	---	13-19	3.5-5.5
	30-112	---	5.0-9.0	3.5-6.0
	112-152	---	4.0-7.0	3.5-6.0
Guyot, windswept	0-28	---	1.6-2.8	3.6-3.8
	28-72	---	3.6-12	4.3-4.8
	72-150	---	2.4-4.6	4.9-5.0
	150-183	---	---	---
Cataloochee, windswept	0-23	---	1.7-3.3	3.0-4.0
	23-48	---	9.0-13	3.5-5.5
	48-64	---	3.0-5.0	3.5-5.5
	64-79	---	3.0-6.0	3.5-5.5
	79-153	---	---	---

Table 14.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Cm	meq/100 g	meq/100 g	pH
OwD:				
Oconaluftee, windswept	0-30	---	13-19	3.5-5.5
	30-112	---	5.0-9.0	3.5-6.0
	112-152	---	4.0-7.0	3.5-6.0
Guyot, windswept	0-28	---	1.6-2.8	3.6-3.8
	28-72	---	3.6-12	4.3-4.8
	72-150	---	2.4-4.6	4.9-5.0
	150-183	---	---	---
Cataloochee, windswept	0-23	---	1.7-3.3	3.0-4.0
	23-48	---	9.0-13	3.5-5.5
	48-64	---	3.0-5.0	3.5-5.5
	64-79	---	3.0-6.0	3.5-5.5
	79-153	---	---	---
OwE:				
Oconaluftee, windswept	0-30	---	13-19	3.5-5.5
	30-112	---	5.0-9.0	3.5-6.0
	112-152	---	4.0-7.0	3.5-6.0
Guyot, windswept	0-28	---	1.6-2.8	3.6-3.8
	28-72	---	3.6-12	4.3-4.8
	72-150	---	2.4-4.6	4.9-5.0
	150-183	---	---	---
Cataloochee, windswept	0-23	---	1.7-3.3	3.0-4.0
	23-48	---	9.0-13	3.5-5.5
	48-64	---	3.0-5.0	3.5-5.5
	64-79	---	3.0-6.0	3.5-5.5
	79-153	---	---	---
OwF:				
Oconaluftee, windswept	0-30	---	13-19	3.5-5.5
	30-112	---	5.0-9.0	3.5-6.0
	112-152	---	4.0-7.0	3.5-6.0
Guyot, windswept	0-28	---	1.6-2.8	3.6-3.8
	28-72	---	3.6-12	4.3-4.8
	72-150	---	2.4-4.6	4.9-5.0
	150-183	---	---	---
Cataloochee, windswept	0-23	---	1.7-3.3	3.0-4.0
	23-48	---	9.0-13	3.5-5.5
	48-64	---	3.0-5.0	3.5-5.5
	64-79	---	3.0-6.0	3.5-5.5
	79-153	---	---	---
Po:				
Potomac	0-5	2.5-8.2	---	5.1-7.8
	5-152	0.8-7.4	---	5.1-7.8

Table 14.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Cm	meq/100 g	meq/100 g	pH
Rd:				
Reddies	0-36	5.0-16	---	4.5-7.3
	36-66	4.6-15	---	4.5-7.3
	66-152	1.0-4.6	---	4.5-7.3
Dellwood	0-20	4.9-13	---	4.5-7.3
	20-36	1.1-6.8	---	4.5-7.3
	36-152	0.7-3.6	---	4.5-7.3
RpF:				
Rock outcrop.				
Pullback	0-3	---	5.0-9.0	3.0-4.0
	3-20	---	4.0-8.0	3.0-5.5
	20-41	---	2.0-5.0	3.0-5.5
	41-200	---	---	---
RtF:				
Rock outcrop.				
Luftee	0-28	---	4.0-8.0	3.0-5.5
	28-51	---	2.0-6.0	3.0-5.5
	51-86	---	1.0-2.0	3.0-5.5
	86-200	---	---	---
RuF:				
Rock outcrop.				
Unicoi	0-10	---	0.8-5.3	3.6-5.5
	10-38	---	0.8-3.9	3.6-5.5
	38-200	---	---	---
Rv:				
Rosman	0-30	---	5.0-9.0	4.5-5.5
	30-54	8.0-12	---	4.5-5.5
	54-107	---	1.7-11	4.5-5.5
	107-175	---	1.7-11	4.5-5.5
Reddies	0-36	5.0-16	---	4.5-7.3
	36-66	4.6-15	---	4.5-7.3
	66-152	1.0-4.6	---	4.5-7.3
Rw:				
Rosman	0-30	---	5.0-9.0	4.5-5.5
	30-54	8.0-12	---	4.5-5.5
	54-107	---	1.7-11	4.5-5.5
	107-175	---	1.7-11	4.5-5.5
Reddies	0-36	5.0-16	---	4.5-7.3
	36-66	4.6-15	---	4.5-7.3
	66-152	1.0-4.6	---	4.5-7.3
Urban land.				
RxF:				
Rubble land.				
Spivey	0-33	---	2.0-12	3.5-5.5
	33-114	---	1.9-11	3.5-5.5
	114-122	---	1.9-11	3.5-5.5

Table 14.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Cm	meq/100 g	meq/100 g	pH
RZ.				
Rubble land				
SaD:				
Saunook, stony	0-23	---	4.3-15	3.5-6.0
	23-71	15-29	---	4.5-6.5
	71-86	6.3-21	---	4.5-6.5
	86-165	6.3-21	---	4.5-6.5
SdC:				
Saunook, stony	0-23	---	4.3-15	3.5-6.0
	23-71	15-29	---	4.5-6.5
	71-86	6.3-21	---	4.5-6.5
	86-165	6.3-21	---	4.5-6.5
Urban land.				
SI.				
Slide area				
SnF:				
Snowbird	0-15	---	2.3-10	4.5-6.5
	15-23	---	1.0-6.0	4.5-6.5
	23-95	---	2.0-5.0	4.5-5.5
	95-138	---	1.0-6.0	4.5-5.5
	138-167	---	---	---
SoD:				
Soco	0-15	---	1.0-5.3	3.5-5.5
	15-66	---	1.2-5.7	3.5-5.5
	66-94	---	1.3-8.4	3.5-5.5
	94-158	---	---	---
Stecoah	0-10	---	1.0-5.3	3.5-5.5
	10-71	---	1.2-5.7	3.5-5.5
	71-127	---	1.3-8.4	3.5-5.5
	127-157	---	---	---
SoF:				
Soco	0-15	---	1.0-5.3	3.5-5.5
	15-66	---	1.2-5.7	3.5-5.5
	66-94	---	1.3-8.4	3.5-5.5
	94-158	---	---	---
Stecoah	0-10	---	1.0-5.3	3.5-5.5
	10-71	---	1.2-5.7	3.5-5.5
	71-127	---	1.3-8.4	3.5-5.5
	127-157	---	---	---
SpD:				
Soco, windswept	0-15	---	1.0-5.3	3.5-5.5
	15-66	---	1.2-5.7	3.5-5.5
	66-94	---	1.3-8.4	3.5-5.5
	94-158	---	---	---
Stecoah, windswept	0-10	---	1.0-5.3	3.5-5.5
	10-71	---	1.2-5.7	3.5-5.5
	71-127	---	1.3-8.4	3.5-5.5
	127-157	---	---	---

Table 14.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Cm	meq/100 g	meq/100 g	pH
SpF:				
Soco, windswept	0-15	---	1.0-5.3	3.5-5.5
	15-66	---	1.2-5.7	3.5-5.5
	66-94	---	1.3-8.4	3.5-5.5
	94-158	---	---	---
Stecoah, windswept	0-10	---	1.0-5.3	3.5-5.5
	10-71	---	1.2-5.7	3.5-5.5
	71-127	---	1.3-8.4	3.5-5.5
	127-157	---	---	---
SsB:				
Spivey	0-33	---	2.0-12	3.5-5.5
	33-114	---	1.9-11	3.5-5.5
	114-122	---	1.9-11	3.5-5.5
Santeetlah	0-43	---	3.2-11	3.5-6.0
	43-99	---	3.0-10	3.5-6.0
	99-124	---	2.6-9.5	3.5-6.0
	124-165	---	2.6-9.5	3.5-6.0
Nowhere	0-41	---	2.0-5.0	3.5-5.5
	41-71	---	1.0-3.0	3.5-5.5
	71-158	---	1.0-3.0	3.5-5.5
SsC:				
Spivey	0-33	---	2.0-12	3.5-5.5
	33-114	---	1.9-11	3.5-5.5
	114-122	---	1.9-11	3.5-5.5
Santeetlah	0-43	---	3.2-11	3.5-6.0
	43-99	---	3.0-10	3.5-6.0
	99-124	---	2.6-9.5	3.5-6.0
	124-165	---	2.6-9.5	3.5-6.0
Nowhere	0-41	---	2.0-5.0	3.5-5.5
	41-71	---	1.0-3.0	3.5-5.5
	71-158	---	1.0-3.0	3.5-5.5
SsD:				
Spivey	0-33	---	2.0-12	3.5-5.5
	33-114	---	1.9-11	3.5-5.5
	114-122	---	1.9-11	3.5-5.5
Santeetlah	0-43	---	3.2-11	3.5-6.0
	43-99	---	3.0-10	3.5-6.0
	99-124	---	2.6-9.5	3.5-6.0
	124-165	---	2.6-9.5	3.5-6.0
SsE:				
Spivey	0-33	---	2.0-12	3.5-5.5
	33-114	---	1.9-11	3.5-5.5
	114-122	---	1.9-11	3.5-5.5
Santeetlah	0-43	---	3.2-11	3.5-6.0
	43-99	---	3.0-10	3.5-6.0
	99-124	---	2.6-9.5	3.5-6.0
	124-165	---	2.6-9.5	3.5-6.0

Table 14.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Cm	meq/100 g	meq/100 g	pH
StB:				
Statler	0-23	5.5-11	---	5.1-7.3
	23-76	9.6-19	---	5.1-6.5
	76-97	7.6-19	---	5.1-6.0
	97-157	6.1-16	---	5.1-6.0
StC:				
Statler	0-23	5.5-11	---	5.1-7.3
	23-76	9.6-19	---	5.1-6.5
	76-97	7.6-19	---	5.1-6.0
	97-157	6.1-16	---	5.1-6.0
TaC:				
Tanasee	0-5	---	7.0-10	3.0-4.0
	5-20	---	7.0-10	4.0-6.0
	20-46	---	3.0-6.0	4.0-6.0
	46-84	---	4.0-7.0	4.0-6.0
	84-142	---	4.0-7.0	4.0-6.0
	142-200	---	2.0-3.0	4.0-6.0
Balsam	0-5	---	8.0-12	3.0-4.0
	5-33	---	8.0-12	3.5-6.0
	33-122	---	6.0-8.0	3.5-6.0
	122-165	---	3.0-4.0	3.5-6.0
TaD:				
Tanasee	0-5	---	7.0-10	3.0-4.0
	5-20	---	7.0-10	4.0-6.0
	20-46	---	3.0-6.0	4.0-6.0
	46-84	---	4.0-7.0	4.0-6.0
	84-142	---	4.0-7.0	4.0-6.0
	142-200	---	2.0-3.0	4.0-6.0
Balsam	0-5	---	8.0-12	3.0-4.0
	5-33	---	8.0-12	3.5-6.0
	33-122	---	6.0-8.0	3.5-6.0
	122-165	---	3.0-4.0	3.5-6.0
ThB:				
Thurmont, stony	0-36	2.8-10.0	---	4.5-7.3
	36-119	---	5.3-9.1	4.5-6.0
	119-135	---	0.7-9.5	4.5-6.0
	135-203	---	2.2-18	4.5-6.0
Dillard, stony	0-18	5.4-14	---	5.1-6.0
	18-127	---	5.3-12	4.5-5.5
	127-203	---	1.3-8.4	4.5-5.5
ThC:				
Thurmont, stony	0-36	2.8-10.0	---	4.5-7.3
	36-119	---	5.3-9.1	4.5-6.0
	119-135	---	0.7-9.5	4.5-6.0
	135-203	---	2.2-18	4.5-6.0

Table 14.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Cm	meq/100 g	meq/100 g	pH
To:				
Toxaway	0-15	---	4.9-19	4.5-5.5
	15-26	---	4.9-19	4.5-5.5
	26-41	---	4.8-19	4.5-5.5
	41-69	---	4.7-19	4.5-5.5
	69-89	---	4.7-19	4.5-5.5
	89-117	---	4.7-19	4.5-5.5
	117-147	---	4.9-15	4.0-5.5
	147-179	---	0.1-14	4.0-5.5
TuC:				
Tuckasegee, stony	0-33	11-18	---	4.5-6.5
	33-66	---	8.3-15	4.5-6.0
	66-119	---	8.1-14	4.5-6.0
	119-165	---	5.0-13	4.5-6.0
Cullasaja, stony	0-46	---	12-18	4.5-6.0
	46-122	---	5.0-8.0	4.5-6.0
	122-157	---	2.0-3.0	4.5-6.0
Ud:				
Udorthents	0-152	5.7-32	---	4.5-7.8
W.				
Water				
WaC:				
Wayah, windswept	0-38	---	10-15	3.5-5.5
	38-94	---	5.0-9.0	4.5-6.0
	94-152	---	3.0-5.0	4.5-6.0
WaD:				
Wayah, windswept	0-38	---	10-15	3.5-5.5
	38-94	---	5.0-9.0	4.5-6.0
	94-152	---	3.0-5.0	4.5-6.0
WaF:				
Wayah, windswept	0-38	---	10-15	3.5-5.5
	38-94	---	5.0-9.0	4.5-6.0
	94-152	---	3.0-5.0	4.5-6.0
WeD:				
Wayah	0-38	---	10-15	3.5-5.5
	38-94	---	5.0-9.0	4.5-6.0
	94-152	---	3.0-5.0	4.5-6.0
WeF:				
Wayah	0-38	---	10-15	3.5-5.5
	38-94	---	5.0-9.0	4.5-6.0
	94-152	---	3.0-5.0	4.5-6.0

Table 15.—Water Features

(Depths of layers are in centimeters. See text for definitions of terms used in this table. Estimates of the frequency of ponding and 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	Hydrologic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Cm	Cm	Cm				
AwB:									
Alarka	A/D								
		January	0-15	>200	---	---	None	Brief	Occasional
		February	0-15	>200	---	---	None	Brief	Occasional
		March	0-15	>200	---	---	None	Brief	Occasional
		April	0-15	>200	---	---	None	Brief	Occasional
		May	0-91	>200	---	---	None	Very brief	Occasional
		June	0-91	>200	---	---	None	Very brief	Occasional
		July	0-91	>200	---	---	None	Very brief	Occasional
		August	0-91	>200	---	---	None	Very brief	Occasional
		September	0-91	>200	---	---	None	Very brief	Occasional
		October	0-91	>200	---	---	None	Very brief	Occasional
		November	0-91	>200	---	---	None	Very brief	Occasional
		December	0-15	>200	---	---	None	Very brief	Occasional
Wesser	A/D								
		January	0-15	>200	8-23	Long	Frequent	Brief	Frequent
		February	0-15	>200	8-23	Long	Frequent	Brief	Frequent
		March	0-15	>200	8-23	Long	Frequent	Brief	Frequent
		April	0-15	>200	8-23	Long	Frequent	Brief	Frequent
		May	15-30	>200	8-23	Brief	Frequent	Brief	Frequent
		June	15-30	>200	8-23	Brief	Frequent	Brief	Frequent
		July	15-30	>200	8-23	Brief	Frequent	Brief	Frequent
		August	15-30	>200	8-23	Brief	Frequent	Brief	Frequent
		September	15-30	>200	8-23	Brief	Frequent	Brief	Frequent
		October	15-30	>200	8-23	Brief	Frequent	Brief	Frequent
		November	15-30	>200	8-23	Brief	Frequent	Brief	Frequent
		December	0-15	>200	8-23	Long	Frequent	Brief	Frequent
AwC:									
Alarka	A/D								
		January	0-15	>200	---	---	None	---	None
		February	0-15	>200	---	---	None	---	None
		March	0-15	>200	---	---	None	---	None
		April	0-15	>200	---	---	None	---	None
		May	0-91	>200	---	---	None	---	None
		June	0-91	>200	---	---	None	---	None
		July	0-91	>200	---	---	None	---	None
		August	0-91	>200	---	---	None	---	None
		September	0-91	>200	---	---	None	---	None
		October	0-91	>200	---	---	None	---	None
		November	0-91	>200	---	---	None	---	None
		December	0-15	>200	---	---	None	---	None

Table 15.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Cm	Cm	Cm				
AwC:									
Whiteside	C								
		January	46-91	>200	---	---	None	---	None
		February	46-91	>200	---	---	None	---	None
		March	46-91	>200	---	---	None	---	None
		April	46-91	>200	---	---	None	---	None
		May	46-91	>200	---	---	None	---	None
		June	80-120	>200	---	---	None	---	None
		July	80-120	>200	---	---	None	---	None
		August	80-120	>200	---	---	None	---	None
		September	80-120	>200	---	---	None	---	None
		October	80-120	>200	---	---	None	---	None
		November	46-91	>200	---	---	None	---	None
		December	46-91	>200	---	---	None	---	None
AxB:									
Allegheny	B								
		Jan-Dec	---	---	---	---	None	---	None
BaE:									
Balsam	A								
		Jan-Dec	---	---	---	---	None	---	None
Tanasee	A								
		Jan-Dec	---	---	---	---	None	---	None
Bm:									
Biltmore	A								
		January	120-183	>200	---	---	None	Brief	Frequent
		February	120-183	>200	---	---	None	Brief	Frequent
		March	120-183	>200	---	---	None	Brief	Frequent
		April	120-183	>200	---	---	None	Brief	Frequent
		May	120-183	>200	---	---	None	Brief	Frequent
		June	---	---	---	---	None	Brief	Frequent
		July	---	---	---	---	None	Brief	Frequent
		August	---	---	---	---	None	Brief	Frequent
		September	---	---	---	---	None	Brief	Frequent
		October	---	---	---	---	None	Brief	Frequent
		November	---	---	---	---	None	Brief	Frequent
		December	120-183	>200	---	---	None	Brief	Frequent
BpC:									
Breakneck	B								
		Jan-Dec	---	---	---	---	None	---	None
Pullback	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 15.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Cm	Cm	Cm				
BpD:									
Breakneck	B	Jan-Dec	---	---	---	---	None	---	None
Pullback	D	Jan-Dec	---	---	---	---	None	---	None
BpF:									
Breakneck	B	Jan-Dec	---	---	---	---	None	---	None
Pullback	D	Jan-Dec	---	---	---	---	None	---	None
BrE:									
Breakneck	B	Jan-Dec	---	---	---	---	None	---	None
Luftee	A	Jan-Dec	---	---	---	---	None	---	None
Clingman	D	Jan-Dec	---	---	---	---	None	---	None
Pinnacle	A	Jan-Dec	---	---	---	---	None	---	None
BrF:									
Breakneck	B	Jan-Dec	---	---	---	---	None	---	None
Luftee	A	Jan-Dec	---	---	---	---	None	---	None
Clingman	D	Jan-Dec	---	---	---	---	None	---	None
Pinnacle	A	Jan-Dec	---	---	---	---	None	---	None
BuF:									
Burton	B	Jan-Dec	---	---	---	---	None	---	None
Craggey	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop.									
CaB:									
Cades	B	Jan-Dec	---	---	---	---	None	---	None
CcF:									
Cataska	D	Jan-Dec	---	---	---	---	None	---	None
Sylco	C	Jan-Dec	---	---	---	---	None	---	None

Table 15.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Cm	Cm	Cm				
ChF:									
Cheoah	A								
		Jan-Dec	---	---	---	---	None	---	None
CkF:									
Chestnut	B								
		Jan-Dec	---	---	---	---	None	---	None
Cleveland	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop.									
CmC:									
Chiltoskie	A								
		Jan-Dec	---	---	---	---	None	---	None
Heintooga	A								
		Jan-Dec	---	---	---	---	None	---	None
Horsetrough	A/D								
		January	15-40	>200	---	---	None	---	None
		February	15-40	>200	---	---	None	---	None
		March	15-40	>200	---	---	None	---	None
		April	15-40	>200	---	---	None	---	None
		May	15-40	>200	---	---	None	---	None
		June	15-40	>200	---	---	None	---	None
		July	15-40	>200	---	---	None	---	None
		August	15-40	>200	---	---	None	---	None
		September	15-40	>200	---	---	None	---	None
		October	15-40	>200	---	---	None	---	None
		November	15-40	>200	---	---	None	---	None
		December	15-40	>200	---	---	None	---	None
CmD:									
Chiltoskie	A								
		Jan-Dec	---	---	---	---	None	---	None
Heintooga	A								
		Jan-Dec	---	---	---	---	None	---	None
CnF:									
Clifton	B								
		Jan-Dec	---	---	---	---	None	---	None

Table 15.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Cm	Cm	Cm				
CoB:									
Cotaco	C								
		January	45-100	>200	---	---	None	---	None
		February	46-76	>200	---	---	None	---	None
		March	46-76	>200	---	---	None	---	None
		April	46-76	>200	---	---	None	---	None
		May	46-76	>200	---	---	None	---	None
		June	100-140	>200	---	---	None	---	None
		July	100-140	>200	---	---	None	---	None
		August	100-140	>200	---	---	None	---	None
		September	100-140	>200	---	---	None	---	None
		October	100-140	>200	---	---	None	---	None
		November	46-76	>200	---	---	None	---	None
		December	46-76	>200	---	---	None	---	None
CuD:									
Cullasaja, very stony	A								
		Jan-Dec	---	---	---	---	None	---	None
Tuckasegee, very stony	A								
		Jan-Dec	---	---	---	---	None	---	None
CuE:									
Cullasaja, very stony	A								
		Jan-Dec	---	---	---	---	None	---	None
Tuckasegee, very stony	A								
		Jan-Dec	---	---	---	---	None	---	None
CuF:									
Cullasaja, extremely stony	A								
		Jan-Dec	---	---	---	---	None	---	None
Rubble land.									
Cw:									
Cullowhee	A/D								
		January	46-61	>200	---	---	None	Very brief	Frequent
		February	46-61	>200	---	---	None	Very brief	Frequent
		March	46-61	>200	---	---	None	Very brief	Frequent
		April	46-61	>200	---	---	None	Very brief	Frequent
		May	46-61	>200	---	---	None	---	None
		June	61-76	>200	---	---	None	---	None
		July	61-76	>200	---	---	None	---	None
		August	61-76	>200	---	---	None	---	None
		September	61-76	>200	---	---	None	---	None
		October	61-76	>200	---	---	None	---	None
		November	61-76	>200	---	---	None	---	None
		December	46-61	>200	---	---	None	Very brief	Frequent

Table 15.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Cm	Cm	Cm				
Cw:									
Ela	A/D								
		January	0-15	>200	---	---	None	Very brief	Frequent
		February	0-15	>200	---	---	None	Very brief	Frequent
		March	0-15	>200	---	---	None	Very brief	Frequent
		April	0-15	>200	---	---	None	Very brief	Frequent
		May	0-30	>200	---	---	None	Very brief	Frequent
		June	0-30	>200	---	---	None	Very brief	Frequent
		July	0-30	>200	---	---	None	Very brief	Frequent
		August	0-30	>200	---	---	None	Very brief	Frequent
		September	0-30	>200	---	---	None	Very brief	Frequent
		October	0-30	>200	---	---	None	Very brief	Frequent
		November	0-15	>200	---	---	None	Very brief	Frequent
		December	0-15	>200	---	---	None	Very brief	Frequent
Dd:									
Dellwood	B								
		January	60-120	>200	---	---	None	Very brief	Occasional
		February	60-120	>200	---	---	None	Very brief	Occasional
		March	60-120	>200	---	---	None	Very brief	Occasional
		April	60-120	>200	---	---	None	Very brief	Occasional
		December	60-120	>200	---	---	None	Very brief	Occasional
Smokemont	A								
		January	122-183	>200	---	---	None	Very brief	Occasional
		February	122-183	>200	---	---	None	Very brief	Occasional
		March	122-183	>200	---	---	None	Very brief	Occasional
		April	122-183	>200	---	---	None	Very brief	Occasional
		December	122-183	>200	---	---	None	Very brief	Occasional
Urban land.									
Dg:									
Dellwood	B								
		January	60-120	>200	---	---	None	Very brief	Frequent
		February	60-120	>200	---	---	None	Very brief	Frequent
		March	60-120	>200	---	---	None	Very brief	Frequent
		April	60-120	>200	---	---	None	Very brief	Frequent
		December	60-120	>200	---	---	None	Very brief	Frequent
Smokemont	A								
		January	122-183	>200	---	---	None	Very brief	Frequent
		February	122-183	>200	---	---	None	Very brief	Frequent
		March	122-183	>200	---	---	None	Very brief	Frequent
		April	122-183	>200	---	---	None	Very brief	Frequent
		December	122-183	>200	---	---	None	Very brief	Frequent

Table 15.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Cm	Cm	Cm				
DhB:									
Dellwood	B								
		January	61-122	>200	---	---	None	Very brief	Frequent
		February	61-122	>200	---	---	None	Very brief	Frequent
		March	61-122	>200	---	---	None	Very brief	Frequent
		April	61-122	>200	---	---	None	Very brief	Frequent
		December	61-122	>200	---	---	None	Very brief	Frequent
Wesser	A/D								
		January	0-15	>200	8-23	Long	Frequent	Brief	Frequent
		February	0-15	>200	8-23	Long	Frequent	Brief	Frequent
		March	0-15	>200	8-23	Long	Frequent	Brief	Frequent
		April	0-15	>200	8-23	Long	Frequent	Brief	Frequent
		May	15-30	>200	8-23	Brief	Frequent	Brief	Frequent
		June	15-30	>200	8-23	Brief	Frequent	Brief	Frequent
		July	15-30	>200	8-23	Brief	Frequent	Brief	Frequent
		August	15-30	>200	8-23	Brief	Frequent	Brief	Frequent
		September	15-30	>200	8-23	Brief	Frequent	Brief	Frequent
		October	15-30	>200	8-23	Brief	Frequent	Brief	Frequent
		November	15-30	>200	8-23	Brief	Frequent	Brief	Frequent
		December	0-15	>200	8-23	Long	Frequent	Brief	Frequent
DtD:									
Ditney	B								
		Jan-Dec	---	---	---	---	None	---	None
Unicoi	D								
		Jan-Dec	---	---	---	---	None	---	None
DtF:									
Ditney	B								
		Jan-Dec	---	---	---	---	None	---	None
Unicoi	D								
		Jan-Dec	---	---	---	---	None	---	None
EpD:									
Evard, windswept	B								
		Jan-Dec	---	---	---	---	None	---	None
Cowee, windswept	C								
		Jan-Dec	---	---	---	---	None	---	None
EpE:									
Evard, windswept	B								
		Jan-Dec	---	---	---	---	None	---	None
Cowee, windswept	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 15.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Cm	Cm	Cm				
EvD:									
Evard	B	Jan-Dec	---	---	---	---	None	---	None
Cowee	C	Jan-Dec	---	---	---	---	None	---	None
EvE:									
Evard	B	Jan-Dec	---	---	---	---	None	---	None
Cowee	C	Jan-Dec	---	---	---	---	None	---	None
EvF:									
Evard	B	Jan-Dec	---	---	---	---	None	---	None
Cowee	C	Jan-Dec	---	---	---	---	None	---	None
HcE:									
Heintooga	A	Jan-Dec	---	---	---	---	None	---	None
Chiltoskie	A	Jan-Dec	---	---	---	---	None	---	None
HrF:									
Heintooga	A	Jan-Dec	---	---	---	---	None	---	None
Rubble land.									
JbD:									
Junaluska	C	Jan-Dec	---	---	---	---	None	---	None
Brasstown	B	Jan-Dec	---	---	---	---	None	---	None
JbE:									
Junaluska	C	Jan-Dec	---	---	---	---	None	---	None
Brasstown	B	Jan-Dec	---	---	---	---	None	---	None
JtC:									
Junaluska	C	Jan-Dec	---	---	---	---	None	---	None
Tsali	D	Jan-Dec	---	---	---	---	None	---	None

Table 15.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Cm	Cm	Cm				
JtD:									
Junaluska	C	Jan-Dec	---	---	---	---	None	---	None
Tsali	D	Jan-Dec	---	---	---	---	None	---	None
JtF:									
Junaluska	C	Jan-Dec	---	---	---	---	None	---	None
Tsali	D	Jan-Dec	---	---	---	---	None	---	None
LeD:									
Lauada	C	Jan-Dec	---	---	---	---	None	---	None
Fannin	B	Jan-Dec	---	---	---	---	None	---	None
LeE:									
Lauada	C	Jan-Dec	---	---	---	---	None	---	None
Fannin	B	Jan-Dec	---	---	---	---	None	---	None
LeF:									
Lauada	C	Jan-Dec	---	---	---	---	None	---	None
Fannin	B	Jan-Dec	---	---	---	---	None	---	None
LfD:									
Leatherwood, stony	A	Jan-Dec	---	---	---	---	None	---	None
LfE:									
Leatherwood, stony	A	Jan-Dec	---	---	---	---	None	---	None
LfF:									
Leatherwood, stony	A	Jan-Dec	---	---	---	---	None	---	None
LoB:									
Lonon	B	Jan-Dec	---	---	---	---	None	---	None

Table 15.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Cm	Cm	Cm				
LoC:									
Lonon	B								
		Jan-Dec	---	---	---	---	None	---	None
LoD:									
Lonon	B								
		Jan-Dec	---	---	---	---	None	---	None
LoE:									
Lonon	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop.									
LrD:									
Luftee	A								
		Jan-Dec	---	---	---	---	None	---	None
Anakeesta	A								
		Jan-Dec	---	---	---	---	None	---	None
LrF:									
Luftee	A								
		Jan-Dec	---	---	---	---	None	---	None
Anakeesta	A								
		Jan-Dec	---	---	---	---	None	---	None
NtC:									
Northcove	A								
		Jan-Dec	---	---	---	---	None	---	None
Maymead	A								
		Jan-Dec	---	---	---	---	None	---	None
Nowhere	A/D								
		January	15-40	>200	2-6	Brief	Occasional	---	None
		February	15-40	>200	2-6	Brief	Occasional	---	None
		March	15-40	>200	2-6	Brief	Occasional	---	None
		April	15-40	>200	---	---	None	---	None
		May	15-40	>200	---	---	None	---	None
		June	15-40	>200	---	---	None	---	None
		July	15-40	>200	---	---	None	---	None
		August	15-40	>200	---	---	None	---	None
		September	15-40	>200	---	---	None	---	None
		October	15-40	>200	---	---	None	---	None
		November	15-40	>200	---	---	None	---	None
		December	15-40	>200	2-6	Brief	Occasional	---	None

Table 15.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Cm	Cm	Cm				
NtD:									
Northcove	A	Jan-Dec	---	---	---	---	None	---	None
Maymead	A	Jan-Dec	---	---	---	---	None	---	None
NtE:									
Northcove	A	Jan-Dec	---	---	---	---	None	---	None
Maymead	A	Jan-Dec	---	---	---	---	None	---	None
OcD:									
Oconaluftee	A	Jan-Dec	---	---	---	---	None	---	None
Guyot	A	Jan-Dec	---	---	---	---	None	---	None
Heintooga	A	Jan-Dec	---	---	---	---	None	---	None
OcF:									
Oconaluftee	A	Jan-Dec	---	---	---	---	None	---	None
Heintooga	A	Jan-Dec	---	---	---	---	None	---	None
Rubble land.									
OwC:									
Oconaluftee, windswept	A	Jan-Dec	---	---	---	---	None	---	None
Guyot, windswept	A	Jan-Dec	---	---	---	---	None	---	None
Cataloochee, windswept	A	Jan-Dec	---	---	---	---	None	---	None
OwD:									
Oconaluftee, windswept	A	Jan-Dec	---	---	---	---	None	---	None
Guyot, windswept	A	Jan-Dec	---	---	---	---	None	---	None
Cataloochee, windswept	A	Jan-Dec	---	---	---	---	None	---	None

Table 15.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Cm	Cm	Cm				
OwE:									
Oconaluftee, windswept	A								
		Jan-Dec	---	---	---	---	None	---	None
Guyot, windswept	A								
		Jan-Dec	---	---	---	---	None	---	None
Cataloochee, windswept	A								
		Jan-Dec	---	---	---	---	None	---	None
OwF:									
Oconaluftee, windswept	A								
		Jan-Dec	---	---	---	---	None	---	None
Guyot, windswept	A								
		Jan-Dec	---	---	---	---	None	---	None
Cataloochee, windswept	A								
		Jan-Dec	---	---	---	---	None	---	None
Po:									
Potomac	A								
		January	122-183	>200	---	---	None	Brief	Frequent
		February	122-183	>200	---	---	None	Brief	Frequent
		March	122-183	>200	---	---	None	Brief	Frequent
		April	122-183	>200	---	---	None	Brief	Frequent
		May	122-183	>200	---	---	None	Brief	Frequent
		June	122-183	>200	---	---	None	Brief	Frequent
		July	122-183	>200	---	---	None	---	None
		August	122-183	>200	---	---	None	---	None
		September	122-183	>200	---	---	None	---	None
		October	122-183	>200	---	---	None	---	None
		November	122-183	>200	---	---	None	---	None
		December	122-183	>200	---	---	None	Brief	Frequent
Rd:									
Reddies	B								
		January	61-107	>200	---	---	None	Very brief	Frequent
		February	61-107	>200	---	---	None	Very brief	Frequent
		March	61-107	>200	---	---	None	Very brief	Frequent
		April	61-107	>200	---	---	None	Very brief	Frequent
		December	61-107	>200	---	---	None	Very brief	Frequent
Dellwood	B								
		January	61-122	>200	---	---	None	Very brief	Frequent
		February	61-122	>200	---	---	None	Very brief	Frequent
		March	61-122	>200	---	---	None	Very brief	Frequent
		April	61-122	>200	---	---	None	Very brief	Frequent
		December	61-122	>200	---	---	None	Very brief	Frequent

Table 15.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Cm	Cm	Cm				
RpF:									
Rock outcrop.									
Pullback	D								
		Jan-Dec	---	---	---	---	None	---	None
RtF:									
Rock outcrop.									
Luftee	A								
		Jan-Dec	---	---	---	---	None	---	None
RuF:									
Rock outcrop.									
Unicoi	D								
		Jan-Dec	---	---	---	---	None	---	None
Rv:									
Rosman	A								
		January	100-152	>200	---	---	None	Very brief	Frequent
		February	100-152	>200	---	---	None	Very brief	Frequent
		March	100-152	>200	---	---	None	Very brief	Frequent
		April	100-152	>200	---	---	None	Very brief	Frequent
		December	100-152	>200	---	---	None	Very brief	Frequent
Reddies	B								
		January	61-107	>200	---	---	None	Very brief	Frequent
		February	61-107	>200	---	---	None	Very brief	Frequent
		March	61-107	>200	---	---	None	Very brief	Frequent
		April	61-107	>200	---	---	None	Very brief	Frequent
		December	61-107	>200	---	---	None	Very brief	Frequent
Rw:									
Rosman	A								
		January	100-152	>200	---	---	None	Very brief	Occasional
		February	100-152	>200	---	---	None	Very brief	Occasional
		March	100-152	>200	---	---	None	Very brief	Occasional
		April	100-152	>200	---	---	None	Very brief	Occasional
		December	100-152	>200	---	---	None	Very brief	Occasional
Reddies	B								
		January	61-107	>200	---	---	None	Very brief	Occasional
		February	61-107	>200	---	---	None	Very brief	Occasional
		March	61-107	>200	---	---	None	Very brief	Occasional
		April	61-107	>200	---	---	None	Very brief	Occasional
		December	61-107	>200	---	---	None	Very brief	Occasional
Urban land.									

Table 15.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Cm	Cm	Cm				
RxF:									
Rubble land.									
Spivey	A	Jan-Dec	---	---	---	---	None	---	None
RZ.									
Rubble land									
SaD:									
Saunook, stony	B	Jan-Dec	---	---	---	---	None	---	None
SdC:									
Saunook, stony	B	Jan-Dec	---	---	---	---	None	---	None
Urban land.									
SI.									
Slide area									
SnF:									
Snowbird	B	Jan-Dec	---	---	---	---	None	---	None
SoD:									
Soco	B	Jan-Dec	---	---	---	---	None	---	None
Stecoah	A	Jan-Dec	---	---	---	---	None	---	None
SoF:									
Soco	B	Jan-Dec	---	---	---	---	None	---	None
Stecoah	A	Jan-Dec	---	---	---	---	None	---	None
SpD:									
Soco, windswept	B	Jan-Dec	---	---	---	---	None	---	None
Stecoah, windswept	A	Jan-Dec	---	---	---	---	None	---	None
SpF:									
Soco, windswept	B	Jan-Dec	---	---	---	---	None	---	None
Stecoah, windswept	A	Jan-Dec	---	---	---	---	None	---	None

Table 15.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Cm	Cm	Cm				
SsB:									
Spivey	A								
		Jan-Dec	---	---	---	---	None	---	None
Santeetlah	A								
		Jan-Dec	---	---	---	---	None	---	None
Nowhere	A/D								
		January	15-40	>200	2-6	Brief	Occasional	---	None
		February	15-40	>200	2-6	Brief	Occasional	---	None
		March	15-40	>200	2-6	Brief	Occasional	---	None
		April	15-40	>200	---	---	None	---	None
		May	15-40	>200	---	---	None	---	None
		June	15-40	>200	---	---	None	---	None
		July	15-40	>200	---	---	None	---	None
		August	15-40	>200	---	---	None	---	None
		September	15-40	>200	---	---	None	---	None
		October	15-40	>200	---	---	None	---	None
		November	15-40	>200	---	---	None	---	None
		December	15-40	>200	2-6	Brief	Occasional	---	None
SsC:									
Spivey	A								
		Jan-Dec	---	---	---	---	None	---	None
Santeetlah	A								
		Jan-Dec	---	---	---	---	None	---	None
Nowhere	A/D								
		January	15-40	>200	2-6	Brief	Occasional	---	None
		February	15-40	>200	2-6	Brief	Occasional	---	None
		March	15-40	>200	2-6	Brief	Occasional	---	None
		April	15-40	>200	---	---	None	---	None
		May	15-40	>200	---	---	None	---	None
		June	15-40	>200	---	---	None	---	None
		July	15-40	>200	---	---	None	---	None
		August	15-40	>200	---	---	None	---	None
		September	15-40	>200	---	---	None	---	None
		October	15-40	>200	---	---	None	---	None
		November	15-40	>200	---	---	None	---	None
		December	15-40	>200	2-6	Brief	Occasional	---	None
SsD:									
Spivey	A								
		Jan-Dec	---	---	---	---	None	---	None
Santeetlah	A								
		Jan-Dec	---	---	---	---	None	---	None

Table 15.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Cm	Cm	Cm				
SsE:									
Spivey	A								
		Jan-Dec	---	---	---	---	None	---	None
Santeetlah	A								
		Jan-Dec	---	---	---	---	None	---	None
StB:									
Statler	A								
		January	---	---	---	---	None	---	Rare
		February	---	---	---	---	None	---	Rare
		March	---	---	---	---	None	---	Rare
		April	---	---	---	---	None	---	Rare
		May	---	---	---	---	None	---	Rare
		June	---	---	---	---	None	---	Rare
		July	---	---	---	---	None	---	Rare
		August	---	---	---	---	None	---	Rare
		September	---	---	---	---	None	---	Rare
		October	---	---	---	---	None	---	Rare
		November	---	---	---	---	None	---	Rare
		December	---	---	---	---	None	---	Rare
StC:									
Statler	A								
		January	---	---	---	---	None	---	Rare
		February	---	---	---	---	None	---	Rare
		March	---	---	---	---	None	---	Rare
		April	---	---	---	---	None	---	Rare
		May	---	---	---	---	None	---	Rare
		June	---	---	---	---	None	---	Rare
		July	---	---	---	---	None	---	Rare
		August	---	---	---	---	None	---	Rare
		September	---	---	---	---	None	---	Rare
		October	---	---	---	---	None	---	Rare
		November	---	---	---	---	None	---	Rare
		December	---	---	---	---	None	---	Rare
TaC:									
Tanasee	A								
		Jan-Dec	---	---	---	---	None	---	None
Balsam	A								
		Jan-Dec	---	---	---	---	None	---	None
TaD:									
Tanasee	A								
		Jan-Dec	---	---	---	---	None	---	None
Balsam	A								
		Jan-Dec	---	---	---	---	None	---	None

Table 15.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Cm	Cm	Cm				
ThB:									
Thurmont, stony	B								
		January	90-183	>200	---	---	None	---	None
		February	90-183	>200	---	---	None	---	None
		March	90-183	>200	---	---	None	---	None
		April	90-183	>200	---	---	None	---	None
		May	120-183	>200	---	---	None	---	None
		June	120-183	>200	---	---	None	---	None
		July	120-183	>200	---	---	None	---	None
		August	120-183	>200	---	---	None	---	None
		September	120-183	>200	---	---	None	---	None
		October	120-183	>200	---	---	None	---	None
		November	90-183	>200	---	---	None	---	None
		December	90-183	>200	---	---	None	---	None
Dillard, stony	C								
		January	60-90	>200	---	---	None	---	None
		February	60-90	>200	---	---	None	---	None
		March	60-90	>200	---	---	None	---	None
		April	60-90	>200	---	---	None	---	None
		May	100-140	>200	---	---	None	---	None
		June	100-140	>200	---	---	None	---	None
		July	100-140	>200	---	---	None	---	None
		August	100-140	>200	---	---	None	---	None
		September	100-140	>200	---	---	None	---	None
		October	100-140	>200	---	---	None	---	None
		November	60-90	>200	---	---	None	---	None
		December	60-90	>200	---	---	None	---	None
ThC:									
Thurmont, stony	B								
		January	90-183	>200	---	---	None	---	None
		February	90-183	>200	---	---	None	---	None
		March	90-183	>200	---	---	None	---	None
		April	90-183	>200	---	---	None	---	None
		May	120-183	>200	---	---	None	---	None
		June	120-183	>200	---	---	None	---	None
		July	120-183	>200	---	---	None	---	None
		August	120-183	>200	---	---	None	---	None
		September	120-183	>200	---	---	None	---	None
		October	120-183	>200	---	---	None	---	None
		November	90-183	>200	---	---	None	---	None
		December	90-183	>200	---	---	None	---	None

Table 15.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Cm	Cm	Cm				
To:									
Toxaway	B/D								
		January	0-30	>200	8-23	Brief	Occasional	Very brief	Occasional
		February	0-30	>200	8-23	Brief	Occasional	Very brief	Occasional
		March	0-30	>200	8-23	Brief	Occasional	Very brief	Occasional
		April	0-30	>200	---	---	None	---	None
		May	80-120	>200	---	---	None	---	None
		June	80-120	>200	---	---	None	---	None
		July	80-120	>200	---	---	None	---	None
		August	80-120	>200	---	---	None	---	None
		September	80-120	>200	---	---	None	---	None
		October	80-120	>200	---	---	None	---	None
		November	0-30	>200	8-23	Brief	Occasional	Very brief	Occasional
		December	0-30	>200	8-23	Brief	Occasional	Very brief	Occasional
TuC:									
Tuckasegee, stony	A								
		Jan-Dec	---	---	---	---	None	---	None
Cullasaja, stony	A								
		Jan-Dec	---	---	---	---	None	---	None
Ud:									
Udorthents	B								
		Jan-Dec	---	---	---	---	None	---	None
W.									
Water									
WaC:									
Wayah, windswept	A								
		Jan-Dec	---	---	---	---	None	---	None
WaD:									
Wayah, windswept	A								
		Jan-Dec	---	---	---	---	None	---	None
WaF:									
Wayah, windswept	A								
		Jan-Dec	---	---	---	---	None	---	None
WeD:									
Wayah	A								
		Jan-Dec	---	---	---	---	None	---	None
WeF:									
Wayah	A								
		Jan-Dec	---	---	---	---	None	---	None

Table 16.—Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that data were not populated. Components with no data in all columns will not display. Depths are in metric)

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		cm				
AwB:						
Alarka	No restriction	---	---	Low	Moderate	High
Wesser	No restriction	---	---	Low	Moderate	High
AwC:						
Alarka	No restriction	---	---	Low	Moderate	High
Whiteside	No restriction	---	---	Low	High	Moderate
AxB:						
Allegheny	No restriction	---	---	None	Moderate	High
BaE:						
Balsam	No restriction	---	---	Moderate	Moderate	High
Tanasee	No restriction	---	---	Moderate	Moderate	Moderate
Bm:						
Biltmore	No restriction	---	---	None	Low	High
BpC:						
Breakneck	Lithic bedrock	51-102	Indurated	Moderate	Moderate	High
Pullback	Lithic bedrock	25-51	Indurated	Moderate	Moderate	High
BpD:						
Breakneck	Lithic bedrock	51-102	Indurated	Moderate	Moderate	High
Pullback	Lithic bedrock	25-51	Indurated	Moderate	Moderate	High
BpF:						
Breakneck	Lithic bedrock	51-102	Indurated	Moderate	Moderate	High
Pullback	Lithic bedrock	25-51	Indurated	Moderate	Moderate	High
BrE:						
Breakneck	Lithic bedrock	51-102	Indurated	Moderate	Moderate	High
Luftee	Lithic bedrock	51-102	Indurated	Moderate	Moderate	High
Clingman	Lithic bedrock	8-51	Indurated	Moderate	High	High
Pinnacle	Lithic bedrock	51-102	Indurated	Moderate	High	High

Table 16.—Soil Features—Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		cm				
BrF:						
Breakneck	Lithic bedrock	51-102	Indurated	Moderate	Moderate	High
Luftee	Lithic bedrock	51-102	Indurated	Moderate	Moderate	High
Clingman	Lithic bedrock	8-51	Indurated	Moderate	High	High
Pinnacle	Lithic bedrock	51-102	Indurated	Moderate	High	High
BuF:						
Burton	Lithic bedrock	51-102	Indurated	Moderate	Moderate	High
Craggey	Lithic bedrock	25-51	Indurated	Moderate	Moderate	High
CaB:						
Cades	No restriction	---	---	None	Moderate	Moderate
CcF:						
Cataska	Paralithic bedrock	25-51	Moderately cemented	Moderate	Moderate	High
	Lithic bedrock	51-122	Indurated			
Sylco	Lithic bedrock	51-102	Moderately cemented	Moderate	Moderate	High
ChF:						
Cheoah	Paralithic bedrock	102-152	Moderately cemented	Moderate	Moderate	Moderate
CkF:						
Chestnut	Paralithic bedrock	51-102	Strongly cemented	Moderate	Low	High
Cleveland	Lithic bedrock	25-51	Indurated	Moderate	Moderate	High
CmC:						
Chiltoskie	No restriction	---	---	Moderate	Moderate	High
Heintooga	No restriction	---	---	Moderate	Moderate	High
Horsetrough	Paralithic bedrock	102-152	Moderately cemented	Moderate	Moderate	High
CmD:						
Chiltoskie	No restriction	---	---	Moderate	Moderate	High
Heintooga	No restriction	---	---	Moderate	Moderate	High

Table 16.—Soil Features—Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		cm				
CnF:						
Clifton	No restriction	---	---	Low	Moderate	Moderate
CoB:						
Cotaco	No restriction	---	---	None	High	High
CuD:						
Cullasaja, very stony	No restriction	---	---	Moderate	Moderate	High
Tuckasegee, very stony	No restriction	---	---	Moderate	Moderate	Moderate
CuE:						
Cullasaja, very stony	No restriction	---	---	Moderate	Moderate	High
Tuckasegee, very stony	No restriction	---	---	Moderate	Moderate	Moderate
CuF:						
Cullasaja, extremely stony	No restriction	---	---	Moderate	Moderate	High
Rubble land	No restriction	---	---	Moderate	High	---
Cw:						
Cullowhee	No restriction	---	---	Low	High	High
Ela	No restriction	---	---	Low	Moderate	High
Dd:						
Dellwood	No restriction	---	---	Low	Low	Moderate
Smokemont	No restriction	---	---	Low	Low	High
Dg:						
Dellwood	No restriction	---	---	Low	Low	Moderate
Smokemont	No restriction	---	---	Low	Low	High
DhB:						
Dellwood	No restriction	---	---	Low	Low	Moderate
Wesser	No restriction	---	---	Low	Moderate	High
DtD:						
Ditney	Lithic bedrock Paralithic bedrock	51-102 51-102	Indurated Moderately cemented	Moderate	Low	High
Unicoi	Lithic bedrock	18-51	Indurated	Moderate	Moderate	High

Table 16.—Soil Features—Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		cm				
DtF:						
Ditney	Lithic bedrock	51-102	Indurated	Moderate	Low	High
	Paralithic bedrock	51-102	Moderately cemented			
Unicoi	Lithic bedrock	18-51	Indurated	Moderate	Moderate	High
EpD:						
Evard, windswept	Paralithic bedrock	152-183	Moderately cemented	Moderate	Moderate	Moderate
Cowee, windswept	Paralithic bedrock	51-102	Moderately cemented	Moderate	Moderate	Moderate
EpE:						
Evard, windswept	Paralithic bedrock	152-183	Moderately cemented	Moderate	Moderate	Moderate
Cowee, windswept	Paralithic bedrock	51-102	Moderately cemented	Moderate	Moderate	Moderate
EvD:						
Evard	Paralithic bedrock	152-183	Moderately cemented	Moderate	Moderate	Moderate
Cowee	Paralithic bedrock	51-102	Moderately cemented	Moderate	Moderate	Moderate
EvE:						
Evard	Paralithic bedrock	152-183	Moderately cemented	Moderate	Moderate	Moderate
Cowee	Paralithic bedrock	51-102	Moderately cemented	Moderate	Moderate	Moderate
EvF:						
Evard	Paralithic bedrock	152-183	Moderately cemented	Moderate	Moderate	Moderate
Cowee	Paralithic bedrock	51-102	Moderately cemented	Moderate	Moderate	Moderate
HcE:						
Heintooga	No restriction	---	---	Moderate	Moderate	High
Chiltoskie	No restriction	---	---	Moderate	Moderate	High

Table 16.—Soil Features—Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		cm				
HrF:						
Heintooga	No restriction	---	---	Moderate	Moderate	High
JbD:						
Junaluska	Paralithic bedrock	51-102	Strongly cemented	Moderate	Moderate	High
Brasstown	Paralithic bedrock	102-152	Strongly cemented	Moderate	Moderate	High
JbE:						
Junaluska	Paralithic bedrock	51-102	Strongly cemented	Moderate	Moderate	High
Brasstown	Paralithic bedrock	102-152	Strongly cemented	Moderate	Moderate	High
JtC:						
Junaluska	Paralithic bedrock	51-102	Strongly cemented	Moderate	Moderate	High
Tsali	Paralithic bedrock	25-51	Strongly cemented	Moderate	Moderate	High
JtD:						
Junaluska	Paralithic bedrock	51-102	Strongly cemented	Moderate	Moderate	High
Tsali	Paralithic bedrock	25-51	Strongly cemented	Moderate	Moderate	High
JtF:						
Junaluska	Paralithic bedrock	51-102	Strongly cemented	Moderate	Moderate	High
Tsali	Paralithic bedrock	25-51	Strongly cemented	Moderate	Moderate	High
LeD:						
Lauada	Paralithic bedrock	51-102	Very strongly cemented	Moderate	Moderate	High
Fannin	Paralithic bedrock	153-203	Very strongly cemented	Moderate	Moderate	Moderate

Table 16.—Soil Features—Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		cm				
LeE:						
Lauada	Paralithic bedrock	51-102	Very strongly cemented	Moderate	Moderate	High
Fannin	Paralithic bedrock	153-203	Very strongly cemented	Moderate	Moderate	Moderate
LeF:						
Lauada	Paralithic bedrock	51-102	Very strongly cemented	Moderate	Moderate	High
Fannin	Paralithic bedrock	153-203	Very strongly cemented	Moderate	Moderate	Moderate
LfD:						
Leatherwood, stony	No restriction	---	---	Moderate	Moderate	High
LfE:						
Leatherwood, stony	No restriction	---	---	Moderate	Moderate	High
LfF:						
Leatherwood, stony	No restriction	---	---	Moderate	Moderate	High
LoB:						
Lonon	No restriction	---	---	Moderate	Moderate	Moderate
LoC:						
Lonon	No restriction	---	---	Moderate	Moderate	Moderate
LoD:						
Lonon	No restriction	---	---	Moderate	Moderate	Moderate
LoE:						
Lonon	No restriction	---	---	Moderate	Moderate	Moderate
LrD:						
Luftee	Lithic bedrock	51-102	Indurated	Moderate	Moderate	High
Anakeesta	Lithic bedrock	102-152	Indurated	Moderate	Moderate	High
LrF:						
Luftee	Lithic bedrock	52-102	Indurated	Moderate	Moderate	High
Anakeesta	Lithic bedrock	102-152	Indurated	Moderate	Moderate	High

Table 16.—Soil Features—Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Hardness	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		cm				
NtC:						
Northcove	No restriction	---	---	Moderate	Moderate	High
Maymead	No restriction	---	---	Moderate	Low	Moderate
Nowhere	No restriction	---	---	Moderate	Moderate	High
NtD:						
Northcove	No restriction	---	---	Moderate	Moderate	High
Maymead	No restriction	---	---	Moderate	Low	Moderate
NtE:						
Northcove	No restriction	---	---	Moderate	Moderate	High
Maymead	No restriction	---	---	Moderate	Low	Moderate
OcD:						
Oconaluftee	No restriction	---	---	Moderate	Moderate	High
Guyot	Paralithic bedrock	102-152	Strongly cemented	Moderate	Moderate	High
Heintooga	No restriction	---	---	Moderate	Moderate	High
OcF:						
Oconaluftee	No restriction	---	---	Moderate	Moderate	High
Heintooga	No restriction	---	---	Moderate	Moderate	High
OwC:						
Oconaluftee, windswept	No restriction	---	---	Moderate	Moderate	High
Guyot, windswept	Paralithic bedrock	102-152	Strongly cemented	Moderate	Moderate	High
Cataloochee, windswept	Paralithic bedrock	51-102	Strongly cemented	Moderate	Moderate	High
OwD:						
Oconaluftee, windswept	No restriction	---	---	Moderate	Moderate	High
Guyot, windswept	Paralithic bedrock	102-152	Strongly cemented	Moderate	Moderate	High
Cataloochee, windswept	Paralithic bedrock	51-102	Strongly cemented	Moderate	Moderate	High

Table 16.—Soil Features—Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		cm				
OwE:						
Oconaluftee, windswept	No restriction	---	---	Moderate	Moderate	High
Guyot, windswept	Paralithic bedrock	102-152	Strongly cemented	Moderate	Moderate	High
Cataloochee, windswept	Paralithic bedrock	51-102	Strongly cemented	Moderate	Moderate	High
OwF:						
Oconaluftee, windswept	No restriction	---	---	Moderate	Moderate	High
Guyot, windswept	Paralithic bedrock	102-152	Strongly cemented	Moderate	Moderate	High
Cataloochee, windswept	Paralithic bedrock	51-102	Strongly cemented	Moderate	Moderate	High
Po:						
Potomac	No restriction	---	---	Low	Low	Moderate
Rd:						
Reddies	No restriction	---	---	Low	High	Moderate
Dellwood	No restriction	---	---	Low	Low	Moderate
RpF:						
Pullback	Lithic bedrock	25-51	Indurated	Moderate	Moderate	High
RtF:						
Luftee	Lithic bedrock	51-102	Indurated	Moderate	Moderate	High
RuF:						
Unicoi	Lithic bedrock	18-51	Indurated	Moderate	Moderate	High
Rv:						
Rosman	No restriction	---	---	Moderate	Moderate	Moderate
Reddies	No restriction	---	---	Low	High	Moderate
Rw:						
Rosman	No restriction	---	---	Moderate	Moderate	Moderate
Reddies	No restriction	---	---	Low	High	Moderate
RxF:						
Spivey	No restriction	---	---	Moderate	Moderate	High

Table 16.—Soil Features—Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		cm				
SaD:						
Saunook, stony	No restriction	---	---	Moderate	Moderate	Moderate
SdC:						
Saunook, stony	No restriction	---	---	Moderate	Moderate	Moderate
SnF:						
Snowbird	Paralithic bedrock	102-152	Strongly cemented	Moderate	Moderate	Moderate
SoD:						
Soco	Paralithic bedrock	51-102	Strongly cemented	Moderate	Low	High
Stecoah	Paralithic bedrock	102-152	Strongly cemented	Moderate	Low	High
SoF:						
Soco	Paralithic bedrock	51-102	Strongly cemented	Moderate	Low	High
Stecoah	Paralithic bedrock	102-152	Strongly cemented	Moderate	Low	High
SpD:						
Soco, windswept	Paralithic bedrock	51-102	Strongly cemented	Moderate	Low	High
Stecoah, windswept	Paralithic bedrock	102-152	Strongly cemented	Moderate	Low	High
SpF:						
Soco, windswept	Paralithic bedrock	51-102	Strongly cemented	Moderate	Low	High
Stecoah, windswept	Paralithic bedrock	102-152	Strongly cemented	Moderate	Low	High
SsB:						
Spivey	No restriction	---	---	Moderate	Moderate	High
Santeetlah	No restriction	---	---	Moderate	Moderate	High
Nowhere	No restriction	---	---	Moderate	Moderate	High

Table 16.—Soil Features—Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		cm				
SsC:						
Spivey	No restriction	---	---	Moderate	Moderate	High
Santeetlah	No restriction	---	---	Moderate	Moderate	High
Nowhere	No restriction	---	---	Moderate	Moderate	High
SsD:						
Spivey	No restriction	---	---	Moderate	Moderate	High
Santeetlah	No restriction	---	---	Moderate	Moderate	High
SsE:						
Spivey	No restriction	---	---	Moderate	Moderate	High
Santeetlah	No restriction	---	---	Moderate	Moderate	High
StB:						
Statler	No restriction	---	---	Moderate	Moderate	Moderate
StC:						
Statler	No restriction	---	---	Moderate	Moderate	Moderate
TaC:						
Tanasee	No restriction	---	---	Moderate	Moderate	Moderate
Balsam	No restriction	---	---	Moderate	Moderate	High
TaD:						
Tanasee	No restriction	---	---	Moderate	Moderate	Moderate
Balsam	No restriction	---	---	Moderate	Moderate	High
ThB:						
Thurmont, stony	No restriction	---	---	Moderate	High	Moderate
Dillard, stony	No restriction	---	---	Moderate	High	Moderate
ThC:						
Thurmont, stony	No restriction	---	---	Moderate	High	Moderate
To:						
Toxaway	No restriction	---	---	Moderate	High	High
TuC:						
Tuckasegee, stony	No restriction	---	---	Moderate	Moderate	Moderate
Cullasaja, stony	No restriction	---	---	Moderate	Moderate	High

Table 16.—Soil Features—Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		cm				
Ud:						
Udorthents	No restriction	---	---	None	Moderate	Low
WaC:						
Wayah, windswept	No restriction	---	---	Moderate	Moderate	High
WaD:						
Wayah, windswept	No restriction	---	---	Moderate	Moderate	High
WaF:						
Wayah, windswept	No restriction	---	---	Moderate	Moderate	High
WeD:						
Wayah	No restriction	---	---	Moderate	Moderate	High
WeF:						
Wayah	No restriction	---	---	Moderate	Moderate	High

Table 17.—Taxonomic Classification of the Soils

(An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series)

Soil name	Family or higher taxonomic class
Alarka	Fine-loamy over sandy or sandy-skeletal, mixed, active, mesic Aeric Epiaquults
Allegheny	Fine-loamy, mixed, semiactive, mesic Typic Hapludults
Anakeesta	Loamy-skeletal, isotic, frigid Humic Dystrudepts
Balsam	Loamy-skeletal, isotic, frigid Humic Dystrudepts
Biltmore	Mixed, mesic Typic Udipsamments
Brasstown	Fine-loamy, mixed, subactive, mesic Typic Hapludults
Breakneck	Fine-loamy, isotic, frigid Humic Dystrudepts
Burton	Fine-loamy, isotic, frigid Humic Dystrudepts
Cades	Fine-loamy, mixed, semiactive, mesic Typic Hapludults
Cataloochee	Fine-loamy, isotic, frigid Humic Dystrudepts
Cataska	Loamy-skeletal, mixed, semiactive, mesic, shallow Typic Dystrudepts
Cheoah	Fine-loamy, isotic, mesic Humic Dystrudepts
Chestnut	Coarse-loamy, mixed, active, mesic Typic Dystrudepts
Chiltoskie	Fine-loamy, isotic, frigid Typic Dystrudepts
Cleveland	Loamy, mixed, active, mesic Lithic Dystrudepts
Clifton	Fine, mixed, semiactive, mesic Typic Hapludults
Clingman	Dysic, frigid Lithic Udifolists
Cotaco	Fine-loamy, mixed, semiactive, mesic Aquic Hapludults
Cowee	Fine-loamy, parasesquic, mesic Typic Hapludults
Craggey	Loamy, isotic, frigid Humic Lithic Dystrudepts
Cullasaja	Loamy-skeletal, isotic, mesic Humic Dystrudepts
Cullowhee	Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Fluvaquentic Dystrudepts
Dellwood	Sandy-skeletal, mixed, mesic Oxyaquic Dystrudepts
Dillard	Fine-loamy, mixed, semiactive, mesic Aquic Hapludults
Ditney	Coarse-loamy, mixed, semiactive, mesic Typic Dystrudepts
Ela	Coarse-loamy, siliceous, superactive, acid, mesic Fluvaquentic Humaquepts
Evard	Fine-loamy, parasesquic, mesic Typic Hapludults
Fannin	Fine-loamy, paramicaceous, mesic Typic Hapludults
Guyot	Fine-loamy, isotic, frigid Humic Dystrudepts
Heintooga	Loamy-skeletal, isotic, frigid Humic Dystrudepts
Horsetrough	Sandy-skeletal, isotic, frigid Typic Humaquepts
Junaluska	Fine-loamy, mixed, subactive, mesic Typic Hapludults
Lauada	Fine-loamy, micaceous, mesic Typic Hapludults
Leatherwood	Fine, mixed, semiactive, mesic Humic Dystrudepts
*Lonon	Fine, mixed, semiactive, mesic Typic Hapludults
Luftee	Loamy-skeletal, isotic, frigid Humic Dystrudepts
Maymead	Coarse-loamy, mixed, semiactive, mesic Typic Dystrudepts
Northcove	Loamy-skeletal, mixed, semiactive, mesic Typic Dystrudepts
Nowhere	Loamy-skeletal, isotic, acid, mesic Typic Humaquepts
Oconaluftee	Fine-loamy, isotic, frigid Humic Dystrudepts
Pinnacle	Dysic, frigid Typic Udifolists
Potomac	Sandy-skeletal, mixed, mesic Typic Udifluvents
Pullback	Loamy, isotic, frigid Humic Lithic Dystrudepts
Reddies	Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Oxyaquic Dystrudepts
Rosman	Coarse-loamy, mixed, superactive, mesic Fluventic Humic Dystrudepts
Santeetlah	Fine-loamy, isotic, mesic Humic Dystrudepts
Saunook	Fine-loamy, mixed, superactive, mesic Humic Hapludults
Smokemont	Sandy-skeletal, mixed, mesic Fluventic Humic Dystrudepts
Snowbird	Fine-loamy, mixed, active, mesic Humic Hapludults
Soco	Coarse-loamy, mixed, active, mesic Typic Dystrudepts
Spivey	Loamy-skeletal, isotic, mesic Humic Dystrudepts
Statler	Fine-loamy, mixed, active, mesic Humic Hapludults
Stecoah	Coarse-loamy, mixed, active, mesic Typic Dystrudepts
Sylco	Loamy-skeletal, mixed, active, mesic Typic Dystrudepts
Tanasee	Fine-loamy, isotic, frigid Humic Dystrudepts
Thurmont	Fine-loamy, mixed, active, mesic Oxyaquic Hapludults

Table 17.—Taxonomic Classification of the Soils—Continued

Soil name	Family or higher taxonomic class
*Toxaway	Fine-silty, mixed, superactive, nonacid, mesic Cumulic Humaquepts
Tsali	Loamy, mixed, subactive, mesic, shallow Typic Hapludults
Tuckasegee	Fine-loamy, isotic, mesic Humic Dystrudepts
Udorthents	Udorthents
Unicoi	Loamy-skeletal, mixed, semiactive, mesic Lithic Dystrudepts
Wayah	Fine-loamy, isotic, frigid Humic Dystrudepts
Wesser	Sandy-skeletal, mixed, mesic Humaqueptic Fluvaquents
Whiteside	Fine-loamy, mixed, active, mesic Aquic Hapludults

Table 18A.—Temperature and Precipitation

(Recorded in the period 1971-2000 at Oconaluftee, North Carolina)

Month	Temperature (degrees C)						Precipitation (millimeters)				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average daily	Maximum temp. higher than--	Minimum temp. lower than--	Average number of growing degree days* (units)	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snow-fall**
January--	8.8	-6.0	1.4	20	-21	51	154	81	288	9	102
February-	11.4	-4.7	3.4	24	-17	81	123	81	167	7	56
March----	15.9	-1.2	7.4	27	-13	209	156	93	215	9	20
April----	20.6	2.1	11.6	30	-7	389	115	64	167	7	23
May------	24.6	7.4	16.1	31	-2	640	137	98	172	9	0.0
June-----	28.1	12	20	33	3	838	120	66	170	8	0.0
July-----	29.6	14.3	22	34	8	956	123	69	169	9	0.0
August---	29.4	13.6	21.5	34	7	950	110	53	163	8	0.0
September	26.7	10.1	18.4	33	-0.6	749	101	54	149	6	0.0
October--	21.7	2.9	12.3	29	-7	435	90	43	135	5	0.0
November-	15.9	-1.2	7.4	27	-12	203	121	88	152	7	5
December-	10.8	-4.7	3.1	21	-17	78	133	84	182	8	15
Yearly:											
Average	20.3	3.8	12.1	---	---	---	---	---	---	---	---
Extreme	37.8	-30.6	---	35	-22	---	---	---	---	---	---
Total--	---	---	---	---	---	5,581	1,483	874	2,129	92	221

* 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 (4.4 degrees C).

** Average number of days per year with at least 1 inch of snow on the ground: 1.

Table 18B.—Temperature and Precipitation

(Recorded in the period 1988-2000 at Mt LeConte, Tennessee)

Month	Temperature (degrees C)						Precipitation (millimeters)				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average daily	Maximum temp. higher than--	Minimum temp. lower than--	Average number of growing degree days* (units)	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snow-fall**
January--	2.1	-7.2	-2.6	13	-25	0	193	153	231	13	391
February-	2.7	-6.6	-1.9	13	-24	0	163	102	216	12	427
March----	5.6	-4.5	0.6	18	-20	2	199	87	308	11	478
April----	10.3	-1.1	4.6	20	-14	13	165	128	199	10	165
May------	14.2	3.6	8.9	22	-6	61	193	147	232	11	36
June-----	17.7	7.8	12.8	24	-2	166	246	162	330	12	0.0
July-----	19.8	9.8	14.8	25	4	264	206	136	276	12	0.0
August---	19.1	8.7	13.9	24	2	219	204	104	305	11	0.0
September	16.8	6.0	11.4	23	-4	110	171	114	224	9	0.0
October--	12.6	1.5	7.1	21	-11	23	107	40	180	6	13
November-	6.8	-3.1	1.8	16	-16	1	169	124	212	8	124
December-	2.7	-6.4	-1.8	12	-22	0	157	92	212	9	323
Yearly:											
Average	10.9	0.7	5.8	---	---	---	---	---	---	---	---
Extreme	26	-28	---	26	-26	---	---	---	---	---	---
Total--	---	---	---	---	---	859	2,173	1,386	2,924	124	1,963

* 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 (4.4 degrees C).

** Average number of days per year with at least 1 inch of snow on the ground: 64.

Table 19A.—Freeze Dates in Spring and Fall

(Recorded in the period 1961-1990 at Oconaluftee, North Carolina)

Probability	Temperature		
	-4 °C or lower	-2 °C or lower	0 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	Apr. 24	May 9	May 26
2 years in 10 later than--	Apr. 18	May 3	May 19
5 years in 10 later than--	Apr. 8	Apr. 23	May 7
First freezing temperature in fall:			
1 year in 10 earlier than--	Oct. 10	Oct. 1	Sept. 26
2 years in 10 earlier than--	Oct. 17	Oct. 5	Sept. 29
5 years in 10 earlier than-	Oct. 29	Oct. 14	Oct. 5

Table 19B.—Freeze Dates in Spring and Fall

(Recorded in the period 1988-2000 at Mt LeConte, Tennessee)

Probability	Temperature		
	-4 ^{O}C or lower	-2 ^{O}C or lower	0 ^{O}F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	May 20	May 27	June 14
2 years in 10 later than--	May 14	May 22	June 8
5 years in 10 later than--	May 4	May 12	May 28
First freezing temperature in fall:			
1 year in 10 earlier than--	Sept. 27	Sept. 18	Aug. 28
2 years in 10 earlier than--	Oct. 2	Sept. 24	Sept. 6
5 years in 10 earlier than-	Oct. 10	Oct. 4	Sept. 22

Table 20A.—Growing Season

(Recorded in the period 1971-2000 at Oconaluftee, North Carolina)

Probability	Daily minimum temperature during growing season		
	Higher than -4 ^{o}C	Higher than -2 ^{o}C	Higher than 0 ^{o}C
	Days	Days	Days
9 years in 10	177	154	128
8 years in 10	185	162	136
5 years in 10	201	177	152
2 years in 10	217	192	169
1 year in 10	225	200	177

Table 20B.—Growing Season

(Recorded in the period 1988-2000 at Mt LeConte, Tennessee)

Probability	Daily minimum temperature during growing season		
	Higher than -4 ^{o}C	Higher than -2 ^{o}C	Higher than 0 ^{o}C
	Days	Days	Days
9 years in 10	134	127	88
8 years in 10	142	133	98
5 years in 10	157	144	117
2 years in 10	172	155	136
1 year in 10	180	161	146