

# Classification of the Soils

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The system of soil classification used by the National Cooperative Soil Survey has six categories (11). 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 on laboratory measurements. Table 18 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

**ORDER.** Eleven 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 Umbrept (*Umbr*, meaning shade, 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; 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 Haplumbrepts (*Hapl*, meaning minimal horizonation, plus *umbrepts*, the suborder of the Inceptisols that has an umbric epipedon).

**SUBGROUP.** Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic 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 known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Haplumbrepts.

**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 class, mineral content, temperature regime, depth of the root zone, consistence, moisture equivalent, slope, and permanent cracks. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is coarse-loamy, mixed, mesic Typic Haplumbrepts.

**SERIES.** The series consists of soils that have similar horizons in their profile. The horizons are 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 underlying material within a series. The Plott series is an example of the coarse-loamy, mixed, mesic Typic Haplumbrepts.

## Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. The descriptions are arranged in alphabetic order.

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 location of the typical pedon is described, and coordinates are identified by the State plane grid system. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" (12). Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" (11). Unless otherwise stated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units of each soil series are described in the section "Detailed Soil Map Units."

## Arkaqua Series

The Arkaqua series consists of very deep, somewhat poorly drained, moderately permeable soils. These soils formed in recent alluvium on flood plains along the major streams. Elevation ranges from about 1,900 to 2,500 feet. Slopes range from 0 to 2 percent. The soils are fine-loamy, mixed, mesic Fluvaquentic Dystrochrepts.

Arkaqua soils are associated with Biltmore, Rosman, and Toxaway soils. Biltmore soils are sandy and well drained. Rosman soils are coarse-loamy and well drained. Toxaway soils are poorly drained or very poorly drained. Biltmore soils are on natural levees along the stream channels. Rosman soils are in slightly elevated areas near the stream channels. Toxaway soils are in depressions farther from the stream channels.

Typical pedon of Arkaqua loam, 0 to 2 percent slopes, frequently flooded; about 6.0 miles south of Franklin on U.S. Highway 441, about 0.4 mile east on Secondary Road 1644, about 600 feet north of the road, in a corn field (State plane coordinates 517,400 feet N., 689,900 feet E.):

- Ap—0 to 10 inches; dark brown (10YR 3/3) loam; moderate fine and medium granular structure; very friable; few fine flakes of mica; moderately acid; abrupt smooth boundary.
- Bw1—10 to 22 inches; dark yellowish brown (10YR 4/4) loam; few fine distinct brownish yellow (10YR 6/8) mottles; weak medium subangular blocky structure; friable; few fine flakes of mica; strongly acid; gradual wavy boundary.
- Bw2—22 to 29 inches; mottled brownish yellow (10YR 6/8) and gray (10YR 5/1) loam; weak medium subangular blocky structure; friable; few fine flakes of mica; strongly acid; clear wavy boundary.
- Bg—29 to 48 inches; gray (10YR 5/1) clay loam; weak coarse subangular blocky structure; friable; common fine flakes of mica; strongly acid; clear wavy boundary.
- Cg—48 to 60 inches; gray (10YR 5/1) loam; massive; friable; many fine flakes of mica; strongly acid.

The thickness of the solum ranges from 37 to 60 inches. The depth to bedrock is more than 60 inches. Generally, reaction ranges from very strongly acid to moderately acid. In limed areas, however, it ranges to neutral in the upper part of the profile. The number of mica flakes ranges from few to many.

The Ap or A horizon has hue of 10YR, value of 3 or 4, and chroma of 2 or 3.

The Bw horizon has hue of 10YR, value of 3 to 6, and chroma of 3 to 8. It has mottles with chroma of 1 or

2 within a depth of 24 inches. It is sandy loam, fine sandy loam, loam, or clay loam.

The Bg horizon has hue of 10YR, value of 3 to 5, and chroma of 1 or 2. It is sandy loam, fine sandy loam, loam, or clay loam.

The Cg horizon has hue of 7.5YR to 2.5Y, value of 3 to 6, and chroma of 1 or 2. The C horizon, if it occurs, has hue of 7.5YR to 2.5Y and value and chroma of 3 to 6. It has common or many mottles with chroma of 1 or 2. The Cg and C horizons are sandy loam, fine sandy loam, loam, or clay loam.

## Biltmore Series

The Biltmore series consists of very deep, well drained, rapidly permeable soils. These soils formed in recent alluvium on flood plains along the major streams. Elevation ranges from about 1,900 to 2,500 feet. Slopes range from 0 to 3 percent. The soils are mixed, mesic Typic Udipsamments.

Biltmore soils are associated with Arkaqua, Rosman, and Toxaway soils. Arkaqua and Toxaway soils are fine-loamy. Also, Arkaqua soils are somewhat poorly drained. Toxaway soils are poorly drained or very poorly drained. Rosman soils are coarse-loamy. Arkaqua and Toxaway soils are in depressions. Rosman soils are away from the stream channel.

Typical pedon of Biltmore sandy loam, 0 to 3 percent slopes, frequently flooded; about 3.5 miles north of Franklin on North Carolina Highway 28, about 2.0 miles north on Secondary Road 1372 to Porter's farm, 0.75 mile north of a farm house along a bend in a river (State plane coordinates 581,300 feet N., 681,700 feet E.):

- Ap—0 to 12 inches; dark yellowish brown (10YR 4/4) sandy loam; weak fine granular structure; very friable; few fine flakes of mica; strongly acid; clear smooth boundary.
- C—12 to 60 inches; yellowish brown (10YR 5/8) loamy fine sand; single grained; very friable; few fine flakes of mica; strongly acid.

The sandy sediments are 40 inches or more thick. Reaction ranges from strongly acid to neutral. The number of mica flakes is few or common. The content of rock fragments is as much as 10 percent to a depth of 40 inches but may be more than 35 percent below a depth of 40 inches. The rock fragments are dominantly gravel in the upper 40 inches and dominantly cobbles below a depth of 40 inches.

The Ap or A horizon has hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 1 to 6. Where value is 3 and chroma is 1 to 3, the horizon is less than 10 inches thick.

The C horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 8 within a depth of 40 inches. It has hue of 7.5YR or 10YR, value of 4 to 7, and chroma of 1 to 6 below a depth of 40 inches. It is dominantly sand, loamy sand, or loamy fine sand. In some pedons, however, it has thin strata of sandy loam, loam, or silt loam. The total thickness of the strata is less than 6 inches within a depth of 40 inches. In some pedons the part of the C horizon below a depth of 40 inches consists of cobbles and gravel stratified with sandy and loamy sediments.

### Braddock Series

The Braddock series consists of very deep, well drained, moderately permeable soils. These soils formed in old alluvium on high stream terraces. Elevation ranges from about 1,900 to 2,500 feet. Slopes range from 2 to 30 percent. The soils are clayey, mixed, mesic Typic Hapludults.

Braddock soils are associated with Dillsboro, Hayesville, and Saunook soils. Dillsboro soils have a browner subsoil than that of the Braddock soils. Hayesville soils formed in residuum and have a C horizon of saprolite. Saunook soils are fine-loamy. Dillsboro soils are in depressions. Hayesville soils are in areas where the landscape breaks sharply. Saunook soils are in drainageways.

Typical pedon of Braddock clay loam, 8 to 15 percent slopes, eroded; about 1.0 mile west of the intersection of U.S. Highways 441 and 64 on U.S. Highway 64, about 1.1 miles south on Secondary Road 1153 to Secondary Road 1148, about 600 feet north of the intersection, in a hay field (State plane coordinates 539,100 feet N., 680,600 feet E.):

Ap—0 to 11 inches; reddish brown (5YR 4/4) clay loam; weak medium granular structure; friable; many fine roots; few fine flakes of mica; about 10 percent gravel; moderately acid; clear smooth boundary.

Bt1—11 to 21 inches; red (2.5YR 4/8) clay; moderate fine and medium subangular blocky structure; firm; common distinct clay films on faces of peds; sticky and slightly plastic; few fine roots; few fine flakes of mica; moderately acid; gradual wavy boundary.

Bt2—21 to 31 inches; red (2.5YR 4/6) clay; moderate fine subangular blocky structure; friable; common distinct clay films on faces of peds; slightly sticky and slightly plastic; few fine flakes of mica; very strongly acid; gradual wavy boundary.

Bt3—31 to 43 inches; red (2.5YR 4/6) clay; moderate medium subangular blocky structure; friable; few distinct clay films on faces of peds; slightly sticky and slightly plastic; few manganese stains; few fine

flakes of mica; very strongly acid; gradual wavy boundary.

BC—43 to 57 inches; red (2.5YR 4/8) clay loam; common medium distinct strong brown (7.5YR 5/8) mottles; weak medium subangular blocky structure; friable; common manganese stains; common fine flakes of mica; very strongly acid; gradual wavy boundary.

C—57 to 60 inches; multicolored loam; massive; very friable; common fine flakes of mica; very strongly acid.

The thickness of the solum ranges from 40 to more than 60 inches. Generally, reaction is very strongly acid or strongly acid, except where the surface layer has been limed. In some pedons that have been limed in the past, however, the A horizon and the upper part of the Bt horizon range from moderately acid to neutral. The number of mica flakes is few or common. The content of water-rounded gravel and cobbles ranges from 0 to 35 percent in the A and B horizons and is as much as 60 percent in the C horizon. The rock fragments are dominantly cobbles. Some of the fragments, however, are gravel or stones.

The Ap or A horizon has hue of 5YR or 7.5YR, value of 4 or 5, and chroma of 3 to 6.

The Bt horizon dominantly has hue of 10R or 2.5YR, value of 3 to 5, and chroma of 6 to 8. In some pedons, however, it has subhorizons with hue of 5YR. The number of mottles in the shades of yellow or brown ranges from none to common. The texture is clay loam or clay in the fine-earth fraction.

The BC horizon has hue of 10R or 2.5YR, value of 3 to 5, and chroma of 6 to 8. In many pedons it is mottled or streaked in shades of red, yellow, or brown. It is sandy clay loam, clay loam, or loam in the fine-earth fraction.

The C horizon has hue of 10R or 2.5YR, value of 3 to 5, and chroma of 6 to 8 or is multicolored. It is sandy loam, fine sandy loam, or loam in the fine-earth fraction.

### Brasstown Series

The Brasstown series consists of deep, well drained, moderately permeable soils. These soils formed in material weathered from metasedimentary rock, such as phyllite, slate, and metasandstone. They are on low mountains. Elevation ranges from about 1,900 to 3,500 feet. Slopes range from 8 to 95 percent. The soils are fine-loamy, mixed, mesic Typic Hapludults.

Brasstown soils are associated with Junaluska, Santeetlah, and Spivey soils. Junaluska soils are moderately deep. Santeetlah and Spivey soils formed in colluvium and have an umbric epipedon. Also, Spivey soils are loamy-skeletal. Junaluska soils are on the

upper part of side slopes and in areas where the landscape breaks sharply. Santeetlah and Spivey soils are in coves, in drainageways, and on toe slopes.

Typical pedon of Brasstown loam, in an area of Brasstown-Junaluska complex, 30 to 50 percent slopes; along the Little Tennessee River; north of Franklin on North Carolina Highway 28 to Secondary Road 1370, west on Secondary Road 1370 to Secondary Road 1364, north on Secondary Road 1364 to Secondary Road 1363, north 1.1 miles on Secondary Road 1363, about 50 feet west of the road (State plane coordinates 591,800 feet N., 659,300 feet E.):

- Oi—1 inch to 0; partially decomposed leaves, twigs, roots, and other deciduous plant material.
- A—0 to 6 inches; reddish brown (5YR 4/4) loam; moderate fine and medium granular structure; friable; common fine to coarse roots; about 10 percent channers; few fine flakes of mica; strongly acid; clear smooth boundary.
- BA—6 to 12 inches; red (2.5YR 4/6) loam; weak fine and medium subangular blocky structure; friable; common fine to coarse roots; about 10 percent channers; few fine flakes of mica; strongly acid; gradual wavy boundary.
- Bt—12 to 36 inches; red (2.5YR 4/8) clay loam; moderate fine and medium subangular blocky structure; friable; few faint clay films on faces of peds; common medium and coarse roots; about 5 percent channers; few fine flakes of mica; strongly acid; gradual wavy boundary.
- BC—36 to 45 inches; red (2.5YR 4/8) loam; weak fine and medium subangular blocky structure; friable; few medium and coarse roots; about 15 percent channers; common fine flakes of mica; strongly acid; clear wavy boundary.
- Cr—45 to 60 inches; multicolored, weathered, highly fractured metasandstone; partially consolidated but can be dug with difficulty with a spade; few thin seams of red (2.5YR 4/8) fine sandy loam in cracks between rocks.

The thickness of the solum ranges from 30 to 59 inches. The depth to weathered bedrock ranges from 40 to 60 inches. Reaction ranges from extremely acid to moderately acid. The number of mica flakes is few or common. The content of rock fragments ranges from 5 to 35 percent. The rock fragments are dominantly channers.

The A horizon has hue of 5YR to 10YR, value of 4 or 5, and chroma of 3 to 6.

The BA horizon has hue of 2.5YR to 7.5YR, value of 4 to 6, and chroma of 4 to 8. It is sandy loam, fine sandy loam, loam, silt loam, or sandy clay loam in the fine-earth fraction.

The Bt horizon has hue of 2.5YR to 7.5YR, value of 4 to 6, and chroma of 4 to 8. At least part of the horizon has hue of 2.5YR or 5YR. The texture is loam, sandy clay loam, or clay loam in the fine-earth fraction.

The BC horizon has hue of 2.5YR to 7.5YR, value of 4 to 6, and chroma of 4 to 8. It is sandy loam, fine sandy loam, loam, silt loam, or sandy clay loam in the fine-earth fraction.

The C horizon, if it occurs, is multicolored or has hue of 5YR or 7.5YR, value of 4 or 5, and chroma of 4 to 8. In the fine-earth fraction, it is fine sandy loam, loam, or silt loam that weathered from saprolite.

The Cr horizon is multicolored, weathered, partially consolidated metasedimentary bedrock, such as phyllite, slate, and metasandstone. It can be dug with difficulty with a spade.

## Burton Series

The Burton series consists of moderately deep, well drained, moderately rapidly permeable soils. These soils formed in material weathered from high-grade, metamorphic and igneous, felsic to mafic crystalline rocks, such as mica gneiss, hornblende gneiss, and granite. They are on high mountains. Elevation is generally more than 4,800 feet. Slopes range from 8 to 50 percent. The soils are coarse-loamy, mixed, frigid Typic Haplumbrepts.

Burton soils are associated with Craggey, Cullasaja, and Wayah soils. Craggey soils are shallow. Cullasaja soils are mesic, are loamy-skeletal, and formed in colluvium. Wayah soils are very deep. Craggey soils are near small areas of rock outcrop. Cullasaja soils are at the head of drainageways and on toe slopes. Wayah soils are in saddles and in the less sloping areas.

Typical pedon of Burton sandy loam, in an area of Burton-Craggey-Rock outcrop complex, windswept, 15 to 30 percent slopes, stony; from the parking lot at the end of U.S. Forest Service Road 69 to the Wayah Bald tower, 100 feet north of the tower on the Appalachian Trail on Wayah Bald, 20 feet east of the trail (State plane coordinates 550,900 feet N., 637,100 feet E.):

- Oi—2 inches to 0; partially decomposed leaves, twigs, roots, and other deciduous plant material.
- A1—0 to 7 inches; black (10YR 2/1) sandy loam; weak fine and medium granular structure; very friable; many fine to coarse roots; about 5 percent gravel and 5 percent cobbles; few fine flakes of mica; very strongly acid; clear smooth boundary.
- A2—7 to 13 inches; very dark brown (10YR 2/2) sandy loam; moderate fine and medium granular structure; very friable; common fine and few medium and coarse roots; about 5 percent gravel and 5 percent

cobbles; few fine flakes of mica; strongly acid; clear smooth boundary.

- AB—13 to 18 inches; very dark grayish brown (10YR 3/2) sandy loam; moderate medium granular structure; very friable; common fine and few medium and coarse roots; about 5 percent gravel and 10 percent cobbles; few fine flakes of mica; strongly acid; gradual wavy boundary.
- Bw—18 to 24 inches; dark yellowish brown (10YR 4/4) cobbly sandy loam; weak fine and medium subangular blocky structure; very friable; few medium and coarse roots; about 5 percent gravel, 10 percent cobbles, and 5 percent stones; common fine flakes of mica; strongly acid; gradual wavy boundary.
- C—24 to 36 inches; yellowish brown (10YR 5/6) cobbly sandy loam that weathered from saprolite; massive; very friable; few medium and coarse roots; about 5 percent gravel, 15 percent cobbles, and 5 percent stones; common fine and medium flakes of mica; moderately acid; clear irregular boundary.
- R—36 inches; hard mica gneiss bedrock.

The thickness of the solum ranges from 15 to 39 inches. The depth to hard bedrock ranges from 20 to 40 inches. Reaction ranges from extremely acid to moderately acid. The number of mica flakes is few or common. The content of rock fragments is as much as 35 percent. The rock fragments are dominantly cobbles. Some of the fragments, however, are gravel or stones.

The A horizon has hue of 7.5YR or 10YR, value of 2 or 3, and chroma of 1 to 3.

The AB horizon has hue of 10YR, value of 3 or 4, and chroma of 2 or 3. It is loam, fine sandy loam, or sandy loam in the fine-earth fraction.

The Bw horizon has hue of 7.5YR or 10YR, value of 3 to 6, and chroma of 4 to 8. It is sandy loam, fine sandy loam, or loam in the fine-earth fraction.

The C horizon is saprolite. It has hue of 7.5YR or 10YR, value of 3 to 6, and chroma of 4 to 8 or is multicolored. It is loamy sand or sandy loam in the fine-earth fraction.

Some pedons have a thin Cr horizon, which is multicolored, weathered, partially consolidated bedrock.

The R layer is hard, high-grade, metamorphic or igneous, felsic to mafic crystalline bedrock, such as mica gneiss, hornblende gneiss, and granite.

### Cashiers Series

The Cashiers series consists of very deep, well drained, moderately rapidly permeable soils. These soils formed in material weathered from high-grade, metamorphic, mica-rich rocks, such as mica gneiss and mica schist. They are on low and intermediate

mountains. Elevation ranges from about 2,000 to 4,800 feet. Slopes range from 30 to 95 percent. The soils are coarse-loamy, micaceous, mesic Umbric Dystrochrepts.

Cashiers soils are associated with Chandler, Fannin, Cullasaja, and Tuckasegee soils. Chandler and Fannin soils have an ochric epipedon. Also, Fannin soils have an argillic horizon. Cullasaja and Tuckasegee soils formed in colluvium and contain less mica than the Cashiers soils. Also, Cullasaja soils are loamy-skeletal. Chandler and Fannin soils are on south- to west-facing slopes. Cullasaja and Tuckasegee soils are in coves, in drainageways, and on toe slopes.

Typical pedon of Cashiers gravelly fine sandy loam, 30 to 50 percent slopes; south of Highland on Secondary Road 1603 to U.S. Forest Service Road 441, south on U.S. Forest Service Road 441 to U.S. Forest Service Road 4563, west on U.S. Forest Service Road 4563 to the end of the road on Chestnut Mountain, about 600 feet north of the road, in a wooded area (State plane coordinates 493,100 feet N., 756,200 feet E.):

- Oi—3 inches to 0; partially decomposed leaves, twigs, roots, and other deciduous plant material.
- A—0 to 8 inches; dark brown (10YR 3/3) gravelly fine sandy loam; moderate fine and medium granular structure; very friable; many fine to coarse roots; about 10 percent gravel and 5 percent cobbles; common fine flakes of mica; strongly acid; clear smooth boundary.
- Bw—8 to 31 inches; yellowish brown (10YR 5/4) fine sandy loam; weak fine and medium subangular blocky structure; very friable; common medium and coarse roots; about 5 percent gravel and 5 percent cobbles; many fine and medium flakes of mica; very strongly acid; gradual wavy boundary.
- BC—31 to 49 inches; brownish yellow (10YR 6/8) fine sandy loam; weak fine and medium subangular blocky structure; very friable; common medium and coarse roots; about 5 percent gravel and 5 percent cobbles; many fine and medium flakes of mica; few pockets and streaks of multicolored saprolite; very strongly acid; gradual wavy boundary.
- C—49 to 60 inches; multicolored sandy loam that weathered from saprolite; massive; very friable; few coarse roots; about 5 percent gravel and 5 percent cobbles; many medium and coarse flakes of mica; very strongly acid.

The thickness of the solum ranges from 30 to 60 inches. The depth to bedrock is more than 60 inches. Reaction ranges from very strongly acid to moderately acid. The number of mica flakes is common or many in the A horizon and many in the lower horizons. The content of rock fragments ranges from 0 to 35 percent.

The rock fragments are dominantly gravel. Some of the fragments, however, are cobbles or stones.

The A horizon has hue of 10YR, value of 2 or 3, and chroma of 1 to 3.

The Bw horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8. It is sandy loam, fine sandy loam, or loam in the fine-earth fraction.

The BC horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8. It is sandy loam, fine sandy loam, or loam in the fine-earth fraction. It typically has few or common pockets or streaks of saprolite.

The C horizon is multicolored saprolite that weathered from mica-rich rocks, such as mica gneiss and mica schist. It is loamy sand, sandy loam, or fine sandy loam in the fine-earth fraction.

### Cataska Series

The Cataska series consists of shallow, excessively drained, moderately rapidly permeable soils. These soils formed in material weathered from metasedimentary rock, such as slate, phyllite, and metasandstone. They are on low and intermediate mountains. Elevation ranges from about 2,000 to 4,800 feet. Slopes range from 30 to 95 percent. The soils are loamy-skeletal, mixed, mesic, shallow Typic Dystrochrepts.

Cataska soils are associated with Santeetlah, Spivey, and Sylco soils. Santeetlah and Spivey soils have an umbric epipedon, are very deep, and formed in colluvium. Sylco soils are moderately deep. Santeetlah and Spivey soils are in drainageways. Sylco soils are intermingled with areas of the Cataska soils.

Typical pedon of Cataska very channery loam, in an area of Cataska-Sylco complex, 50 to 95 percent slopes; northeast about 1.1 miles on U.S. Highway 19 from the Nantahala Power Plant in the Nantahala Gorge, southeast 2.1 miles on Secondary Road 1412, about 50 feet east of the road (State plane coordinates 590,800 feet N., 600,300 feet E.):

Oi—2 inches to 0; partially decomposed leaves, twigs, roots, and other deciduous plant material.

A—0 to 6 inches; dark brown (10YR 3/3) very channery loam; moderate fine granular structure; very friable; many fine to coarse roots; about 30 percent channers and 15 percent flagstones; very strongly acid; gradual wavy boundary.

Bw—6 to 16 inches; dark yellowish brown (10YR 4/4) very channery loam; weak fine subangular blocky structure; very friable; common fine to coarse roots; about 25 percent channers and 20 percent flagstones; strongly acid; gradual irregular boundary.

Cr—16 to 30 inches; multicolored, weathered, fractured slate; partially consolidated but can be dug with difficulty with a spade; few thin seams of dark yellowish brown (10YR 3/4) loam in fractures.

R—30 inches; hard, fractured slate.

The thickness of the solum ranges from 12 to 19 inches. The depth to weathered bedrock ranges from 12 to 20 inches. The depth to hard bedrock ranges from 20 to 40 inches. Reaction ranges from extremely acid to strongly acid. The content of rock fragments ranges from 35 to 60 percent. The rock fragments are dominantly channers and flagstones.

The A horizon has hue of 10YR, value of 3 or 4, and chroma of 2 to 4. Where value is 3 and chroma is 2 or 3, the horizon is less than 7 inches thick.

The Bw horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8. It is loam or silt loam in the fine-earth fraction.

The Cr horizon is multicolored, weathered, partially consolidated bedrock. It can be dug with difficulty with a spade.

The R layer is hard metasedimentary bedrock, such as slate, phyllite, and metasandstone.

### Chandler Series

The Chandler series consists of very deep, somewhat excessively drained, moderately rapidly permeable soils. These soils formed in material weathered from high-grade, metamorphic, mica-rich rocks, such as mica gneiss and mica schist. They are on low and intermediate mountains. Elevation ranges from about 2,000 to 4,800 feet. Slopes range from 15 to 95 percent. The soils are coarse-loamy, micaceous, mesic Typic Dystrochrepts.

Chandler soils are associated with Cashiers, Cullasaja, Fannin, and Tuckasegee soils. Cashiers soils have a thicker dark epipedon than that of the Chandler soils. Cullasaja and Tuckasegee soils have an umbric epipedon. Also, Cullasaja soils are loamy-skeletal. Fannin soils have an argillic horizon. Cashiers soils are on north- to east-facing slopes. Cullasaja and Tuckasegee soils formed in colluvium. They are in coves, in drainageways, and on toe slopes. Fannin soils are on south- to west-facing slopes.

Typical pedon of Chandler gravelly fine sandy loam, 30 to 50 percent slopes; south of Highlands on North Carolina Highway 28 to Secondary Road 1618, west on Secondary Road 1618 to U.S. Forest Service Road 79, west on U.S. Forest Service Road 79 to Brown Gap, north 0.7 mile on U.S. Forest Service Road 367 to Gnat Ridge, 100 feet east in a wooded area (State plane coordinates 487,700 feet N., 734,100 feet E.):

- Oi—2 inches to 0; partially decomposed leaves, twigs, roots, and other deciduous plant material.
- A—0 to 5 inches; dark brown (10YR 3/3) gravelly fine sandy loam; weak medium granular structure; very friable; many fine to coarse roots; about 15 percent gravel and 5 percent cobbles; many fine and medium flakes of mica; strongly acid; clear wavy boundary.
- Bw1—5 to 17 inches; yellowish brown (10YR 5/8) loam; moderate medium subangular blocky structure; very friable; common medium and coarse roots; about 10 percent gravel; many fine and medium flakes of mica; strongly acid; gradual wavy boundary.
- Bw2—17 to 29 inches; brownish yellow (10YR 6/8) sandy loam; weak medium subangular blocky structure; very friable; few medium and coarse roots; about 5 percent gravel and 5 percent cobbles; many fine and medium flakes of mica; strongly acid; gradual wavy boundary.
- C1—29 to 41 inches; brownish yellow (10YR 6/8) sandy loam that weathered from saprolite; massive; very friable; about 5 percent gravel and 5 percent cobbles; many medium flakes of mica; moderately acid; gradual wavy boundary.
- C2—41 to 60 inches; multicolored sandy loam that weathered from saprolite; massive; very friable; about 5 percent gravel and 5 percent cobbles; many medium flakes of mica; moderately acid.

The thickness of the solum ranges from 20 to 40 inches. The depth to bedrock is more than 72 inches. Reaction ranges from very strongly acid to moderately acid. The number of mica flakes is common or many in the A horizon and many in the lower horizons. The content of rock fragments ranges from 0 to 35 percent. The rock fragments are dominantly gravel. Some of the fragments, however, are cobbles or stones.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 2 to 4. Where value is 3 and chroma is 2 or 3, the horizon is less than 7 inches thick.

The Bw horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8. It is sandy loam, fine sandy loam, or loam in the fine-earth fraction.

The C horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8 or is multicolored. It is saprolite that weathered from mica-rich rocks, such as mica gneiss and mica schist. It is sandy loam or fine sandy loam in the fine-earth fraction.

### Cheoah Series

The Cheoah series consists of deep, well drained, moderately rapidly permeable soils. These soils formed in material weathered from metasedimentary rocks, such as phyllite, slate, and metasandstone. They are on

low and intermediate mountains. Elevation ranges from about 2,000 to 4,800 feet. Slopes range from 30 to 95 percent. The soils are coarse-loamy, mixed, mesic Typic Haplumbrepts.

Cheoah soils are associated with Santeetlah, Soco, Spivey, and Stecoah soils. Santeetlah soils formed in colluvium and are very deep. Soco and Stecoah soils have an ochric epipedon. Also, Soco soils are moderately deep. Spivey soils are loamy-skeletal. Santeetlah and Spivey soils are in coves, in drainageways, and on toe slopes. Soco and Stecoah soils are on south- to west-facing slopes.

Typical pedon Cheoah channery loam, 50 to 95 percent slopes; near Junaluska Gap; west of Franklin on U.S. Highway 64 to Secondary Road 1310, west on Secondary Road 1310 to Secondary Road 1400, west on Secondary Road 1400 to Secondary Road 1401, west on Secondary Road 1401 to U.S. Forest Service Road 7270, about 400 feet southeast on U.S. Forest Service 7270, south of the road 400 feet, in a wooded area (State plane coordinates 565,500 feet N., 601,500 feet E.):

- Oi—3 inches to 0; partially decomposed leaves, twigs, roots, and other deciduous plant material.
- A1—0 to 3 inches; very dark brown (10YR 2/2) channery loam; moderate fine and medium granular structure; very friable; many fine to coarse roots; about 10 percent channers and 5 percent flagstones; few fine flakes of mica; very strongly acid; clear smooth boundary.
- A2—3 to 12 inches; dark brown (10YR 3/3) channery fine sandy loam; moderate fine and medium granular structure; very friable; common fine to coarse roots; about 10 percent channers and 5 percent flagstones; few fine flakes of mica; strongly acid; clear smooth boundary.
- AB—12 to 17 inches; dark yellowish brown (10YR 4/4) channery fine sandy loam; moderate medium granular structure; very friable; common medium and coarse roots; about 10 percent channers and 5 percent flagstones; few fine flakes of mica; strongly acid; clear smooth boundary.
- Bw—17 to 36 inches; yellowish brown (10YR 5/4) fine sandy loam; weak medium subangular blocky structure; friable; few medium and coarse roots; about 10 percent channers; few fine flakes of mica; strongly acid; gradual wavy boundary.
- BC—36 to 47 inches; yellowish brown (10YR 5/6) channery fine sandy loam; weak medium subangular blocky structure; friable; few medium roots; about 20 percent channers and 10 percent flagstones; few fine flakes of mica; strongly acid; gradual wavy boundary.

Cr—47 to 60 inches; multicolored, weathered, interbedded metasandstone and phyllite; partially consolidated but can be dug with difficulty with a spade; few thin seams of yellowish brown (10YR 5/8) fine sandy loam in fractures.

The thickness of the solum ranges from 30 to 59 inches. The depth to weathered bedrock ranges from 40 to 60 inches. Reaction ranges from extremely acid to strongly acid in the A horizon and from extremely acid to moderately acid in the lower horizons. The number of mica flakes is few or common. The content of rock fragments ranges from 5 to 35 percent. The rock fragments are dominantly channers and flagstones.

The A horizon has hue of 10YR, value of 2 or 3, and chroma of 1 to 3. The AB horizon, if it occurs, has hue of 10YR and value and chroma of 3 or 4.

The Bw and BC horizons have hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 8. They are fine sandy loam or loam in the fine-earth fraction. Typically, the BC horizon contains more rock fragments than the Bw horizon.

The C horizon, if it occurs, is multicolored saprolite. It is sandy loam, fine sandy loam, or loam in the fine-earth fraction.

The Cr horizon is multicolored, weathered, partially consolidated metasedimentary bedrock, such as metasandstone, phyllite, and slate. It can be dug with difficulty with a spade.

## Chestnut Series

The Chestnut series consists of moderately deep, well drained, moderately rapidly permeable soils. These soils formed in material weathered from high-grade, metamorphic or igneous, felsic to mafic crystalline rocks, such as mica gneiss, hornblende gneiss, and granite. They are on intermediate mountains. Elevation ranges from about 3,500 to 4,800 feet. Slopes range from 2 to 95 percent. The soils are coarse-loamy, mixed, mesic Typic Dystrochrepts.

Chestnut soils are associated with Cullasaja, Edneyville, Plott, and Tuckasegee soils. Cullasaja, Edneyville, Plott, and Tuckasegee soils are very deep. Also, Cullasaja, Plott, and Tuckasegee soils have an umbric epipedon. Cullasaja soils are loamy-skeletal. Cullasaja and Tuckasegee soils formed in colluvium. They are in coves, in drainageways, and on toe slopes. Edneyville soils are on the lower part of side slopes and in areas where the landscape breaks less sharply. Plott soils are on north- to east-facing slopes.

Typical pedon of Chestnut gravelly fine sandy loam, in an area of Edneyville-Chestnut complex, 30 to 50 percent slopes, stony; at Winding Stair Gap; west of Franklin on U.S. Highway 64 to truck pullout at the top

of Winding Stair Gap, south 0.1 mile on the Appalachian Trail, about 50 feet southeast of the trail (State plane coordinates 529,200 feet N., 640,700 feet E.):

Oi—2 inches to 0; partially decomposed leaves, twigs, roots, and other deciduous plant material.

A—0 to 5 inches; dark brown (10YR 3/3) gravelly fine sandy loam; moderate fine and medium granular structure; very friable; many fine to coarse roots; about 10 percent gravel and 5 percent cobbles; few fine flakes of mica; moderately acid; clear wavy boundary.

AB—5 to 10 inches; dark yellowish brown (10YR 4/4) gravelly fine sandy loam; moderate medium granular structure; very friable; many fine to coarse roots; about 10 percent gravel and 5 percent cobbles; few fine flakes of mica; strongly acid; clear wavy boundary.

Bw—10 to 24 inches; dark yellowish brown (10YR 4/6) gravelly fine sandy loam; weak medium subangular blocky structure; very friable; common medium and coarse roots; about 15 percent gravel and 5 percent cobbles; common fine flakes of mica; strongly acid; gradual wavy boundary.

C—24 to 36 inches; multicolored cobbly fine sandy loam that weathered from saprolite; massive; very friable; few medium and coarse roots; about 15 percent gravel and 15 percent cobbles; common fine flakes of mica; very strongly acid; gradual irregular boundary.

Cr—36 to 45 inches; multicolored, weathered, fractured gneiss; partially consolidated but can be dug with difficulty with a spade; few thin seams of yellowish brown (10YR 5/4) sandy loam in fractures.

The thickness of the solum ranges from 15 to 39 inches. The depth to weathered bedrock ranges from 20 to 40 inches. The depth to hard bedrock is more than 40 inches. Reaction ranges from very strongly acid to moderately acid. The number of mica flakes is few or common. The content of rock fragments ranges from 5 to 35 percent. The rock fragments are dominantly gravel and cobbles. Some of the fragments, however, are stones.

The A horizon has hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 2 to 4. Where value is 3 and chroma is 2 or 3, the horizon is less than 7 inches thick.

The AB horizon has hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 2 to 4. Where value is 3 and chroma is 2 or 3, the horizon is less than 7 inches thick. The texture is loam, fine sandy loam, or sandy loam in the fine-earth fraction.

The Bw horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8. It is sandy loam, fine

sandy loam, or loam in the fine-earth fraction.

The C horizon is multicolored saprolite. It is loamy sand, sandy loam, or fine sandy loam in the fine-earth fraction.

The Cr horizon is multicolored, weathered, high-grade, metamorphic or igneous, felsic to mafic crystalline bedrock, such as mica gneiss, hornblende gneiss, and granite. It is partially consolidated but can be dug with difficulty with a spade.

The R layer, if it occurs, is hard bedrock, such as mica gneiss, hornblende gneiss, and granite.

### Cleveland Series

The Cleveland series consists of shallow, somewhat excessively drained, moderately rapidly permeable soils. These soils formed in material weathered from high-grade, metamorphic or igneous, felsic to mafic crystalline rocks, such as mica gneiss, hornblende gneiss, and granite. They are on intermediate mountains. Elevation ranges from about 3,500 to 4,800 feet. Slopes range from 15 to 95 percent. The soils are loamy, mixed, mesic Lithic Dystrachrepts.

Cleveland soils are associated with Chestnut, Cullasaja, and Plott soils. Chestnut soils are moderately deep. Cullasaja and Plott soils have an umbric epipedon. Also, Cullasaja soils are loamy-skeletal. Chestnut soils are on the lower part of side slopes and in areas where the landscape breaks less sharply. Cullasaja soils are in coves, in drainageways, and on toe slopes. Plott soils are on north- to east-facing slopes.

Typical pedon of Cleveland sandy loam, in an area of Cleveland-Chestnut-Rock outcrop complex, windswept, 15 to 30 percent slopes; on Whiteside Mountain; east of Highlands on U.S. Highway 64 to Secondary Road 1600, south on Secondary Road 1600 to the U.S. Forest Service parking lot at Whiteside Mountain, about 600 feet south on a trail to Whiteside Mountain, 40 feet east of the trail (State plane coordinates 509,400 feet N., 760,800 feet E.):

Oi—2 inches to 0; partially decomposed leaves, twigs, roots, and other deciduous plant material.

A—0 to 5 inches; black (10YR 2/1) sandy loam; weak fine and medium granular structure; very friable; many fine to coarse roots; about 5 percent gravel and 5 percent cobbles; few fine flakes of mica; moderately acid; clear wavy boundary.

Bw1—5 to 9 inches; dark yellowish brown (10YR 4/6) loam; weak medium subangular blocky structure; very friable; common medium and coarse roots; about 10 percent gravel and 5 percent cobbles; few fine flakes of mica; strongly acid; clear wavy boundary.

Bw2—9 to 17 inches; yellowish brown (10YR 5/8) loam; weak medium subangular blocky structure; very friable; common medium and coarse roots; about 10 percent gravel and 5 percent cobbles; few fine flakes of mica; strongly acid; abrupt wavy boundary.  
R—17 inches; hard granite bedrock.

The thickness of the solum ranges from 10 to 19 inches. The depth to hard bedrock ranges from 10 to 20 inches. Reaction ranges from very strongly acid to moderately acid. The number of mica flakes is few or common. The content of rock fragments ranges from 0 to 35 percent. The rock fragments are dominantly gravel and cobbles.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 1 to 4. Where value is 2 or 3 and chroma is 1 to 3, the horizon is less than 7 inches thick.

The Bw horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8. It is sandy loam, fine sandy loam, or loam in the fine-earth fraction.

The Cr horizon, if it occurs, is multicolored, weathered, partially consolidated bedrock. It can be dug with difficulty with a spade.

The R layer is hard, high-grade, metamorphic or igneous, felsic to mafic crystalline bedrock, such as mica gneiss, hornblende gneiss, and granite.

### Cowee Series

The Cowee series consists of moderately deep, well drained, moderately permeable soils (fig. 9). These soils formed in material weathered from high-grade, metamorphic or igneous, felsic to mafic crystalline rocks, such as mica gneiss, hornblende gneiss, and granite. They are on low mountains. Elevation ranges from about 2,000 to 3,500 feet. Slopes range from 2 to 95 percent. The soils are fine-loamy, mixed, mesic Typic Hapludults.

Cowee soils are associated with Evard, Saunook, and Trimont soils. Evard, Saunook, and Trimont soils are very deep. Also, Saunook and Trimont soils have a thicker dark epipedon than that of the Cowee soils. Evard soils are on the lower part of side slopes and in areas where the landscape breaks less sharply. Saunook soils formed in colluvium. They are in coves, in drainageways, and on toe slopes. Trimont soils are on north- to east-facing slopes.

Typical pedon of Cowee sandy loam, in an area of Evard-Cowee complex, 50 to 95 percent slopes; along Brown Creek; northeast of Franklin on U.S. Highway 441 to Secondary Road 1500, east on Secondary Road 1500 to U.S. Forest Service Road at Brown Creek, east 0.6 mile on U.S. Forest Service Road, north about 200 feet upslope of the road (State plane coordinates 568,400 feet N., 712,600 feet E.):

- Oi—2 inches to 0; partially decomposed leaves, twigs, roots, and other deciduous plant material.
- A—0 to 10 inches; brown (7.5YR 4/4) sandy loam; moderate fine and medium granular structure; friable; many fine to coarse roots; about 5 percent gravel and 5 percent cobbles; few fine flakes of mica; strongly acid; clear smooth boundary.
- Bt—10 to 27 inches; red (2.5YR 4/8) clay loam; moderate medium subangular blocky structure; firm; few faint clay films on faces of peds; common medium and coarse roots; about 10 percent gravel; few fine flakes of mica; strongly acid; clear wavy boundary.
- C—27 to 38 inches; multicolored gravelly sandy loam that weathered from saprolite; massive; friable; few medium and coarse roots; about 10 percent gravel and 5 percent cobbles; common fine flakes of mica; strongly acid; clear wavy boundary.
- Cr—38 to 45 inches; multicolored, weathered, fractured gneiss; partially consolidated but can be dug with difficulty with a spade; few thin seams of red (2.5YR 4/8) loamy material in cracks between rocks.

The thickness of the solum ranges from 15 to 39 inches. The depth to weathered bedrock ranges from 20 to 40 inches. The depth to hard bedrock is more than 40 inches. Reaction ranges from very strongly acid to moderately acid. The number of mica flakes is few or common. The content of rock fragments ranges from 0 to 35 percent. The rock fragments are dominantly gravel and cobbles.

The A horizon has hue of 5YR to 10YR, value of 3 to 5, and chroma of 3 to 6. Where value and chroma are 3, the horizon is less than 7 inches thick.

The BA horizon, if it occurs, has hue of 5YR or 7.5YR, value of 4 to 6, and chroma of 4 to 8. It is sandy loam, fine sandy loam, or loam in the fine-earth fraction.

The Bt horizon has hue of 2.5YR to 7.5YR, value of 4 to 6, and chroma of 4 to 8. It is loam, sandy clay loam, or clay loam in the fine-earth fraction.

The BC horizon, if it occurs, hue of 2.5YR to 7.5YR, value of 4 to 6, and chroma of 4 to 8. It is sandy loam, fine sandy loam, or loam in the fine-earth fraction.

The C horizon, if it occurs, is multicolored saprolite. It is sandy loam or fine sandy loam in the fine-earth fraction.

The Cr horizon is multicolored, weathered, high-grade, metamorphic or igneous, felsic to mafic crystalline bedrock, such as mica gneiss, hornblende gneiss, and granite. It is partially consolidated but can be dug with difficulty with a spade.

The R layer, if it occurs, is hard bedrock, commonly mica gneiss, hornblende gneiss, or granite.

## Craggey Series

The Craggey series consists of shallow, somewhat excessively drained, moderately rapidly permeable soils. These soils formed in material weathered from high-grade, metamorphic or igneous, felsic to mafic crystalline rock, such as mica gneiss, hornblende gneiss, and granite. They are on high mountains. Elevation is generally more than 4,800 feet. Slopes range from 15 to 50 percent. The soils are loamy, mixed, frigid Lithic Haplumbrepts.

Craggey soils are associated with Burton, Cullasaja, and Wayah soils. Burton soils are moderately deep. Cullasaja soils are mesic, are loamy-skeletal, and formed in colluvium. Cullasaja and Wayah soils are very deep. Burton soils are in the center of the mapped areas and away from areas of rock outcrop. Cullasaja soils are at the head of drainageways and on toe slopes. Wayah soils are in saddles and in the less sloping areas.

Typical pedon of Craggey cobbly sandy loam, in an area of Burton-Craggey-Rock outcrop complex, windswept, 15 to 30 percent slopes, stony; on Wayah Bald; about 150 feet west of the parking lot at the end of U.S. Forest Service Road 69 (State plane coordinates 549,500 feet N., 636,200 feet E.):

- Oi—2 inches to 0; partially decomposed leaves, twigs, roots, and other deciduous plant material.
- A1—0 to 8 inches; black (10YR 2/1) cobbly sandy loam; weak fine and medium granular structure; very friable; many fine to coarse roots; about 5 percent gravel, 10 percent cobbles, and 5 percent stones; few fine flakes of mica; very strongly acid; clear smooth boundary.
- A2—8 to 11 inches; very dark grayish brown (10YR 3/2) cobbly sandy loam; weak fine and medium granular structure; very friable; common fine and few medium and coarse roots; about 5 percent gravel and 10 percent cobbles; few fine flakes of mica; strongly acid; clear smooth boundary.
- Bw—11 to 17 inches; dark yellowish brown (10YR 4/4) cobbly sandy loam; weak fine and medium subangular blocky structure; very friable; few medium and coarse roots; about 5 percent gravel, 10 percent cobbles, and 5 percent stones; few fine flakes of mica; strongly acid; clear wavy boundary.
- R—17 inches; hard mica gneiss bedrock.

The thickness of the solum ranges from 10 to 19 inches. The depth to hard bedrock ranges from 10 to 20 inches. Reaction ranges from extremely acid to moderately acid. The number of mica flakes is few or common. The content of rock fragments ranges from 5 to 35 percent. The rock fragments are dominantly

cobbles. Some of the fragments, however, are gravel or stones.

The A horizon has hue of 7.5YR or 10YR, value of 2 or 3, and chroma of 1 to 3.

The Bw horizon has hue of 7.5YR or 10YR, value of 3 to 6, and chroma of 4 to 6. It is sandy loam, fine sandy loam, or loam in the fine-earth fraction.

The C horizon, if it occurs, is multicolored saprolite. It is fine sandy loam or sandy loam in the fine-earth fraction.

The R layer is hard, high-grade, metamorphic or igneous, felsic to mafic crystalline bedrock, such as mica gneiss, hornblende gneiss, and granite.

### Cullasaja Series

The Cullasaja series consists of very deep, well drained, moderately rapidly permeable soils. These soils are cobbly to extremely bouldery. They formed in colluvium weathered from high-grade, metamorphic or igneous, felsic to mafic crystalline rocks, such as mica gneiss, hornblende gneiss, and granite. They are in coves, in drainageways, and on toe slopes. Elevation ranges from about 3,500 to 5,000 feet. Slopes range from 8 to 95 percent. The soils are loamy-skeletal, mixed, mesic Typic Haplumbrepts.

Cullasaja soils are associated with Chestnut, Edneyville, Plott, Tuckasegee, and Wayah soils. Chestnut, Edneyville, Plott, Tuckasegee, and Wayah soils are coarse-loamy. Also, Chestnut and Edneyville soils have an ochric epipedon. Chestnut soils are moderately deep. Wayah soils are in the frigid temperature regime. Chestnut, Edneyville, and Plott soils are on the adjacent uplands. Tuckasegee soils are intermingled with areas of the Cullasaja soils in coves, in drainageways, and on toe slopes. Wayah soils are on head slopes and ridges at elevations above 4,800 feet.

Typical pedon of Cullasaja cobbly sandy clay loam, in an area of Cullasaja-Tuckasegee complex, 15 to 30 percent slopes, stony; about 3.0 miles west of the Coweeta Hydrologic Station office on Shope Creek Road, upslope about 40 feet from a hairpin curve in the road, about 500 feet east of a weir on Watershed 36 (State plane coordinates 505,700 feet N., 664,600 feet E.):

Oi—2 inches to 0; partially decomposed leaves, twigs, roots, and other deciduous plant material.

A1—0 to 10 inches; very dark grayish brown (10YR 3/2) cobbly sandy clay loam; moderate fine and medium granular structure; very friable; many fine and medium and common coarse roots; about 5 percent gravel, 10 percent cobbles, and 5 percent stones; few fine flakes of mica; very strongly acid; clear wavy boundary.

A2—10 to 17 inches; dark brown (10YR 3/3) cobbly fine sandy loam; moderate fine and medium granular structure; very friable; common fine to coarse roots; about 10 percent gravel, 10 percent cobbles, and 5 percent stones; few fine flakes of mica; very strongly acid; clear wavy boundary.

Bw—17 to 32 inches; strong brown (7.5YR 4/6) cobbly sandy loam; weak fine and medium subangular blocky structure; very friable; common medium and coarse roots; about 10 percent gravel, 20 percent cobbles, and 20 percent stones; few fine flakes of mica; strongly acid; clear wavy boundary.

BC—32 to 65 inches; strong brown (7.5YR 4/6) cobbly loamy sand; weak fine and medium subangular blocky structure; very friable; few medium and coarse roots; about 10 percent gravel, 15 percent cobbles, and 30 percent stones; few fine flakes of mica; moderately acid.

The thickness of the solum ranges from 30 to more than 60 inches. The depth to bedrock is more than 72 inches. Reaction ranges from very strongly acid to moderately acid. The number of mica flakes is few or common. The content of rock fragments ranges from 15 to 60 percent to a depth of 20 inches and is more than 35 percent below a depth of 20 inches.

The A horizon has hue of 10YR, value of 2 or 3, and chroma of 1 to 3.

The Bw horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 8. It is sandy loam, fine sandy loam, loam, or sandy clay loam in the fine-earth fraction.

The BC horizon has hue of 7.5YR or 10YR, value of 3 to 6, and chroma of 4 to 8. It is loamy sand or sandy loam in the fine-earth fraction.

The C horizon, if it occurs, has hue of 7.5YR or 10YR, value of 3 to 6, and chroma of 4 to 8 or is multicolored. It is loamy sand or sandy loam in the fine-earth fraction.

### Dellwood Series

The Dellwood series consists of moderately well drained soils that are shallow to strata of sand, gravel, and cobbles and are very deep over bedrock. These soils are moderately rapidly permeable in the surface layer and rapidly or very rapidly permeable in the subsoil and underlying material. They formed in recent alluvium on flood plains along small streams. Elevation ranges from about 1,850 to 3,000 feet. Slopes range from 0 to 5 percent. The soils are sandy-skeletal, mixed, mesic Fluventic Haplumbrepts.

Dellwood soils are associated with Nikwasi and Reddies soils. Nikwasi and Reddies soils are

moderately deep to strata of sand, gravel, and cobbles. Also, Nikwasi soils are poorly drained or very poorly drained. Reddies soils are moderately well drained. Nikwasi soils are in depressions. Reddies soils are in slightly elevated areas.

Typical pedon of Dellwood gravelly fine sandy loam, 0 to 5 percent slopes, frequently flooded; along Jones Creek; west of Franklin on U.S. Highway 64 to Secondary Road 1128, south on Secondary Road 1128 to Secondary Road 1130, south 0.3 mile on Secondary Road 1130, about 250 feet west of the road, in a pasture (State plane coordinates 520,600 feet N., 667,200 feet E.):

A—0 to 12 inches; very dark grayish brown (10YR 3/2) gravelly fine sandy loam; moderate fine and medium granular structure; very friable; many fine and medium roots; about 15 percent gravel and 5 percent cobbles; common fine and medium flakes of mica; slightly acid; clear wavy boundary.

Bw—12 to 16 inches; dark yellowish brown (10YR 4/4) cobbly sandy loam; weak fine and medium granular structure; very friable; few medium roots; about 10 percent gravel and 20 percent cobbles; common fine and medium flakes of mica; moderately acid; gradual wavy boundary.

C—16 to 40 inches; multicolored very cobbly sand; single grained; loose; about 15 percent gravel and 40 percent cobbles; common fine and medium flakes of mica; moderately acid.

The loamy sediments are 8 to 20 inches deep to strata of sand, gravel, cobbles, and stones. The depth to hard bedrock is more than 60 inches. Reaction ranges from very strongly acid to neutral. The number of mica flakes is few or common. The content of rock fragments ranges from 5 to 35 percent in the A and B horizons and is more 35 percent in the C horizon. The content of rock fragments in the control section averages more than 35 percent.

The A horizon has hue of 10YR, value of 3, and chroma of 2 or 3.

The Bw horizon has hue of 7.5YR or 10YR and value and chroma of 4 to 6. It is sandy loam or fine sandy loam in the fine-earth fraction.

The C horizon has hue of 7.5YR to 2.5Y, value of 4 or 5, and chroma of 4 to 6 or is multicolored. It is sand, loamy sand, or sandy loam in the fine-earth fraction.

### Dillard Series

The Dillard series consists of very deep, moderately well drained, moderately slowly permeable soils. These soils formed in old alluvium on low stream terraces.

Elevation ranges from about 1,900 to 2,500 feet. Slopes range from 1 to 5 percent. The soils are fine-loamy, mixed, mesic Aquic Hapludults.

Dillard soils are associated with Hemphill and Statler soils. Hemphill soils are very poorly drained and contain more than 35 percent clay in the argillic horizon. Statler soils are well drained. Hemphill soils are in depressions. Statler soils are in slightly elevated areas.

Typical pedon of Dillard loam, 1 to 5 percent slopes, rarely flooded; about 3.8 miles west of Franklin on U.S. Highway 64 to Mt. Hope Church, about 700 feet west of the church, in a corn field (State plane coordinates 541,700 feet N., 667,400 feet E.):

Ap—0 to 7 inches; dark brown (10YR 3/3) loam; weak fine granular structure; very friable; few fine flakes of mica; moderately acid; clear smooth boundary.

Bt1—7 to 21 inches; yellowish brown (10YR 5/6) clay loam; common fine distinct strong brown (7.5YR 5/6) mottles; moderate medium subangular blocky structure; friable; few faint clay films on faces of peds; few fine flakes of mica; moderately acid; gradual wavy boundary.

Bt2—21 to 36 inches; yellowish brown (10YR 5/6) clay loam; common fine distinct light gray (10YR 7/2) and few fine distinct strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; firm; few faint clay films on faces of peds; few fine flakes of mica; strongly acid; gradual wavy boundary.

Btg—36 to 50 inches; light gray (10YR 6/2) loam; many medium distinct strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; friable; common fine flakes of mica; strongly acid; gradual wavy boundary.

C—50 to 60 inches; yellowish brown (10YR 5/6) sandy loam; few medium distinct light gray (10YR 6/2) and few medium distinct strong brown (7.5YR 5/6) mottles; massive; very friable; common fine flakes of mica; strongly acid.

The thickness of the solum ranges from 40 to 60 inches. Reaction is strongly acid or moderately acid in the A horizon, except where the surface layer has been limed, and is very strongly acid or strongly acid in B and C horizons. The number of mica flakes is few or common.

The Ap or A horizon has hue of 10YR, value of 3 or 4, and chroma of 2 or 3. Where value is 3, the horizon is 10 inches or less thick.

The Bt horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8. Mottles with chroma of 2 or less are within the upper 24 inches of the horizon. The texture is sandy clay loam or clay loam.

The Btg horizon has hue of 10YR, value of 5 or 6,

and chroma of 1 or 2. It is sandy clay loam or clay loam.

The C horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8. It is sand, loamy sand, sandy loam, loam, sandy clay loam, or clay loam in the fine-earth fraction.

The Cg horizon, if it occurs, has hue of 10YR, value of 5 or 6, and chroma of 1 or 2. It is sandy clay loam or clay loam.

### Dillsboro Series

The Dillsboro series consists of very deep, well drained, moderately permeable soils. These soils formed in old alluvium on high stream terraces. Elevation ranges from about 1,900 to 2,500 feet. Slopes range from 2 to 15 percent. The soils are clayey, mixed, mesic Humic Hapludults.

Dillsboro soils are associated with Braddock and Saunook soils. Braddock soils have a lighter colored epipedon than that of the Dillsboro soils and a redder argillic horizon. Saunook soils are fine-loamy and formed in colluvium. Braddock soils are on small knolls. Saunook soils are in drainageways.

Typical pedon of Dillsboro loam, 2 to 8 percent slopes; about 1.0 mile west of the intersection of U.S. Highways 441 and 64 on U.S. Highway 64, about 1.1 miles south on Secondary Road 1153 to Secondary Road 1148, about 500 feet northwest of the intersection, in a hay field (State plane coordinates 539,000 feet N., 680,700 feet E.):

- Ap—0 to 12 inches; dark brown (7.5YR 3/4) loam; moderate medium granular structure; friable; many fine roots; few fine flakes of mica; about 10 percent gravel; strongly acid; clear smooth boundary.
- Bt1—12 to 26 inches; strong brown (7.5YR 5/6) clay loam; moderate fine and medium subangular blocky structure; friable; few distinct clay films on faces of peds; few fine roots; few fine flakes of mica; moderately acid; gradual wavy boundary.
- Bt2—26 to 42 inches; strong brown (7.5YR 5/8) clay; moderate fine and medium subangular blocky structure; firm; common distinct clay films on faces of peds; slightly sticky and slightly plastic; few fine flakes of mica; moderately acid; gradual wavy boundary.
- Bt3—42 to 50 inches; strong brown (7.5YR 5/8) clay loam; weak medium subangular blocky structure; friable; few faint clay films on faces of peds; few fine flakes of mica; strongly acid; gradual wavy boundary.
- BC—50 to 60 inches; strong brown (7.5YR 5/8) loam; weak medium subangular blocky structure; friable; common fine flakes of mica; very strongly acid.

The thickness of the solum is more than 60 inches. Generally, reaction ranges from very strongly acid to moderately acid. In some pedons that have been limed in the past, however, the A horizon and the upper part of the Bt horizon range from moderately acid to neutral. The number of mica flakes is few or common. The content of water-rounded gravel and cobbles ranges from 0 to 35 percent in the A and B horizons and is as much as 60 percent in the C horizon. The rock fragments are dominantly cobbles. Some of the fragments, however, are gravel or stones.

The Ap or A horizon has hue of 7.5YR or 10YR, value of 3, and chroma of 2 to 4.

The Bt horizon has hue of 5YR to 10YR, value of 4 to 6, and chroma of 4 to 8. It is clay loam or clay in the fine-earth fraction.

The BC horizon has hue of 5YR to 10YR, value of 4 to 6, and chroma of 4 to 8. It is loam, sandy clay loam, or clay loam in the fine-earth fraction.

The C horizon, if it occurs, has hue of 5YR to 10YR, value of 4 to 6, and chroma of 4 to 8 or is multicolored. It is sandy loam, fine sandy loam, or loam in the fine-earth fraction.

### Edneyville Series

The Edneyville series consists of very deep, well drained, moderately rapidly permeable soils (fig. 10). These soils formed in material weathered from high-grade, metamorphic or igneous, felsic to mafic crystalline rocks, such as mica gneiss, hornblende gneiss, and granite. They are on intermediate mountains. Elevation ranges from about 3,500 to 4,800 feet. Slopes range from 2 to 95 percent. The soils are coarse-loamy, mixed, mesic Typic Dystrochrepts.

Edneyville soils are associated with Chestnut, Cullasaja, Plott, and Tuckasegee soils. Chestnut soils are moderately deep. Cullasaja, Plott, and Tuckasegee soils have an umbric epipedon. Also, Cullasaja soils are loamy-skeletal. Chestnut soils are on the upper part of side slopes and in areas where the landscape breaks sharply. Cullasaja and Tuckasegee soils formed in colluvium. They are in coves, in drainageways, and on toe slopes. Plott soils are on north- to east-facing slopes.

Typical pedon of Edneyville fine sandy loam, in an area of Edneyville-Chestnut complex, 15 to 30 percent slopes, stony; east of Franklin on U.S. Highway 64 to about 0.8 mile beyond the Dry Falls parking area, about 200 feet northeast of the road, on a ridge (State plane coordinates 501,800 feet N., 733,400 feet E.):

- Oi—2 inches to 0; partially decomposed leaves, twigs, roots, and other deciduous plant material.
- A—0 to 5 inches; dark yellowish brown (10YR 3/4) fine

sandy loam; moderate medium granular structure; very friable; many fine to coarse roots; about 5 percent gravel and 5 percent cobbles; few fine flakes of mica; strongly acid; abrupt smooth boundary.

Bw1—5 to 12 inches; strong brown (7.5YR 5/6) loam; moderate medium subangular blocky structure; very friable; common medium and coarse roots; about 10 percent gravel; few fine flakes of mica; very strongly acid; gradual wavy boundary.

Bw2—12 to 39 inches; strong brown (7.5YR 5/8) fine sandy loam; weak medium subangular blocky structure; very friable; few medium and coarse roots; about 10 percent gravel; few fine flakes of mica; very strongly acid; gradual wavy boundary.

BC—39 to 43 inches; mottled yellowish brown (10YR 5/8), strong brown (7.5YR 5/6), and light yellowish brown (10YR 6/4) fine sandy loam; weak medium subangular blocky structure; very friable; few medium and coarse roots; about 5 percent gravel and 5 percent cobbles; few fine flakes of mica; very strongly acid; gradual wavy boundary.

C1—43 to 51 inches; mottled yellowish brown (10YR 5/6), yellowish red (5YR 5/8), and very pale brown (10YR 8/3) sandy loam that weathered from saprolite; massive; very friable; few medium roots; about 5 percent gravel and 5 percent cobbles; common fine flakes of mica; very strongly acid; gradual wavy boundary.

C2—51 to 64 inches; sandy loam in shades of gray, black, and white that weathered from saprolite; massive; very friable; few medium roots; about 5 percent gravel and 5 percent cobbles; common fine flakes of mica; very strongly acid.

The thickness of the solum ranges from 20 to 55 inches. The depth to bedrock is more than 60 inches. Reaction ranges from very strongly acid to moderately acid, except where the surface layer has been limed. The number of mica flakes is few or common. The content of rock fragments ranges from 0 to 35 percent. The rock fragments are dominantly gravel and cobbles. Some of the fragments, however, are stones.

The A horizon has hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 2 to 4. Where value is 3 and chroma is 2 or 3, the horizon is less than 7 inches thick.

The AB horizon, if it occurs, has hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 2 to 4. It is fine sandy loam or sandy loam.

The Bw horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8. It is sandy loam, fine sandy loam, or loam in the fine-earth fraction.

The BC horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8 or is mottled in shades of

brown and yellow. It is sandy loam or fine sandy loam in the fine-earth fraction.

The C horizon is saprolite. It has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8 or is multicolored. It is loamy sand, sandy loam, or fine sandy loam in the fine-earth fraction.

## Evard Series

The Evard series consists of very deep, well drained, moderately permeable soils (fig. 11). These soils formed in material weathered from high-grade, metamorphic or igneous, felsic to mafic crystalline rock, such as mica gneiss, hornblende gneiss, and granite. They are on low mountains. Elevation ranges from about 2,000 to 3,500 feet. Slopes range from 2 to 95 percent. The soils are fine-loamy, oxidic, mesic Typic Hapludults.

Evard soils are associated with Cowee, Saunook, and Trimont soils. Cowee soils are moderately deep. Saunook and Trimont soils have a thicker dark epipedon than that of the Evard soils. Cowee soils are on the upper part of side slopes and in areas where the landscape breaks sharply. Saunook soils formed in colluvium. They are in coves, in drainageways, and on toe slopes. Trimont soils are on north- to east-facing slopes.

Typical pedon of Evard fine sandy loam, in an area of Evard-Cowee complex, 50 to 95 percent slopes; northeast of Franklin on U.S. Highway 441 to Secondary Road 1500, east on Secondary Road 1500 to U.S. Forest Service Road at Brown Creek, east 0.6 mile on U.S. Forest Service Road, north about 50 feet upslope of the road (State plane coordinates 568,300 feet N., 712,700 feet E.):

Oi—2 inches to 0; partially decomposed leaves, twigs, roots, and other deciduous plant material.

A—0 to 5 inches; brown (7.5YR 4/4) fine sandy loam; moderate fine and medium granular structure; friable; many fine to coarse roots; about 5 percent gravel and 5 percent cobbles; few fine flakes of mica; strongly acid; clear smooth boundary.

BA—5 to 8 inches; strong brown (7.5YR 4/6) loam; moderate fine and medium subangular blocky structure; friable; many fine to coarse roots; about 5 percent gravel and 5 percent cobbles; few fine flakes of mica; strongly acid; clear smooth boundary.

Bt1—8 to 23 inches; yellowish red (5YR 4/6) sandy clay loam; moderate fine and medium subangular blocky structure; friable; few faint clay films on faces of peds; common medium and coarse roots; about 10 percent gravel; few fine flakes of mica; strongly acid; gradual wavy boundary.

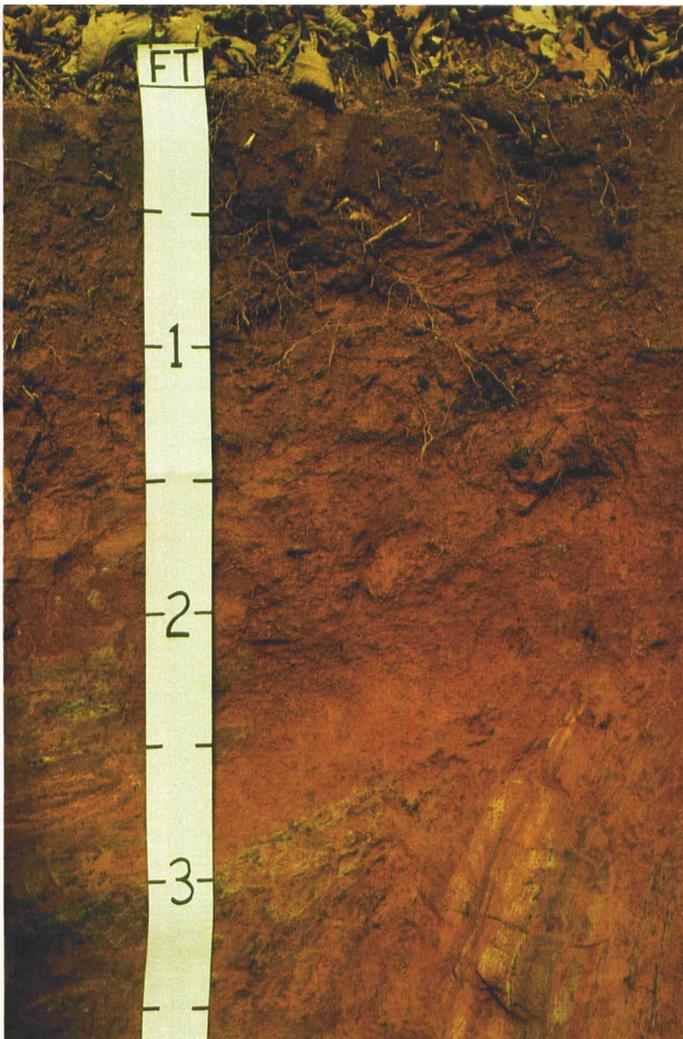


Figure 9.—Typical profile of a Cowee sandy loam. Cowee soils are moderately deep over soft, weathered bedrock.

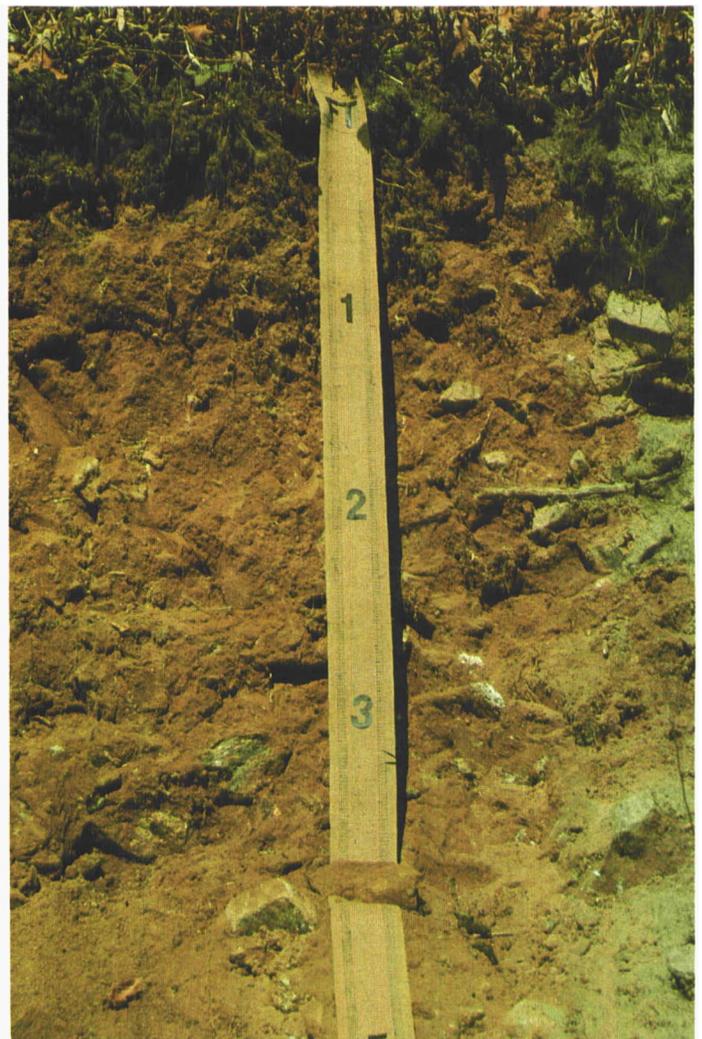


Figure 10.—Typical profile of an Edneyville fine sandy loam. Edneyville soils have widely spaced rock fragments.

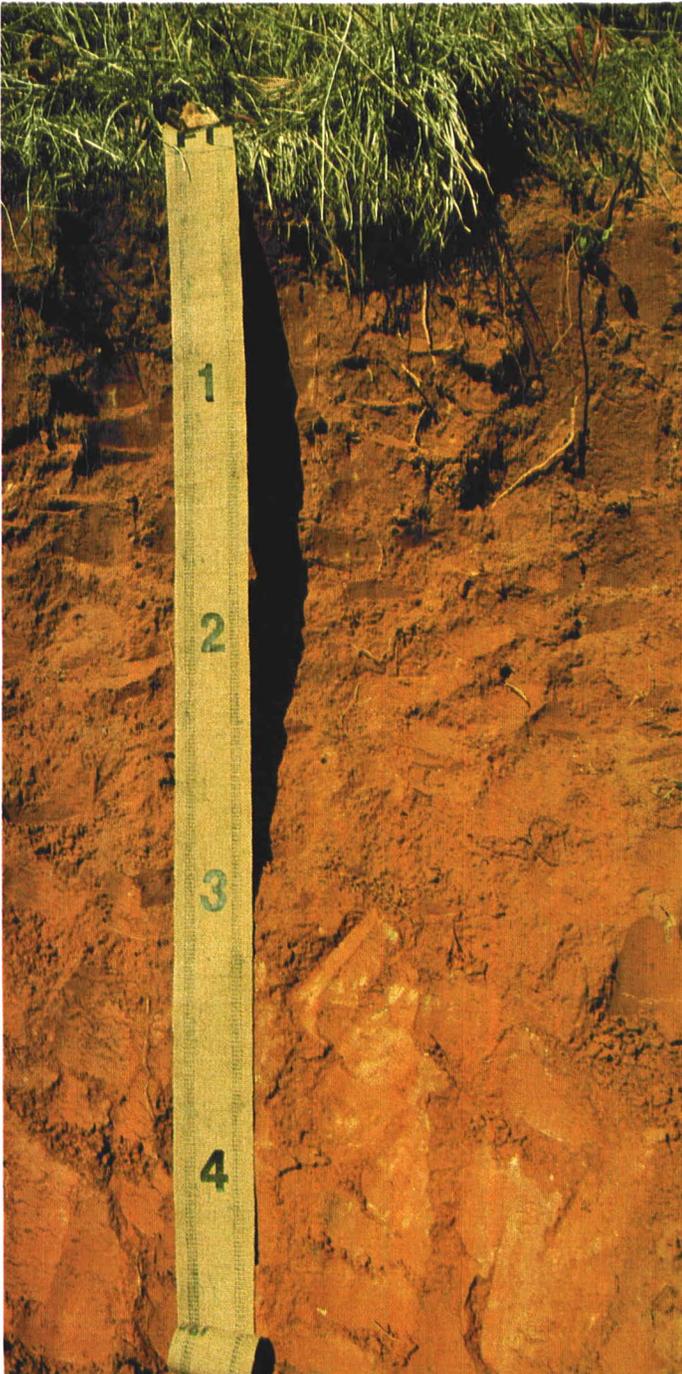


Figure 11.—Typical profile of an Evard fine sandy loam.



Figure 12.—Typical profile of a Junaluska channery fine sandy loam. Junaluska soils are moderately deep over soft, weathered bedrock.



Figure 13.—Typical profile of a Plott fine sandy loam. Plott soils have a thick, dark surface layer.



Figure 14.—Typical profile of a Trimont gravelly loam.

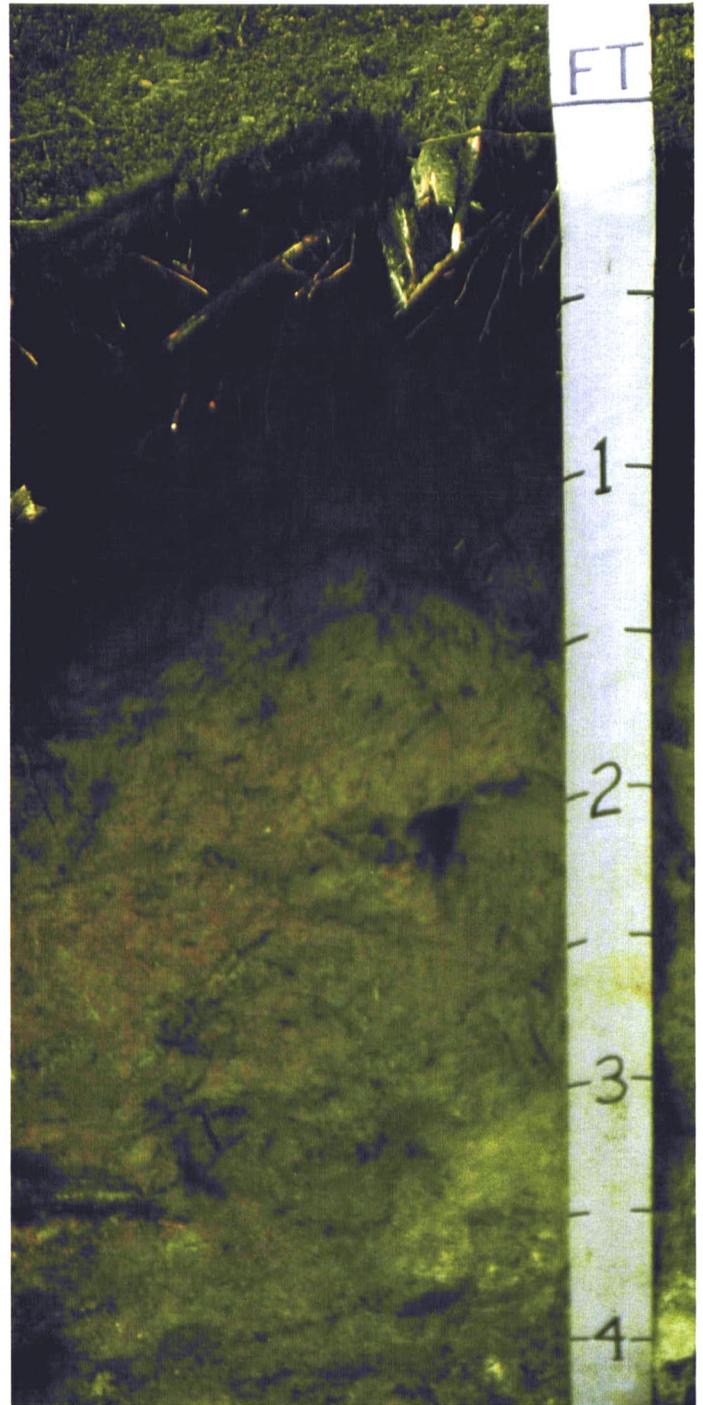


Figure 15.—Typical profile of a Wayah sandy loam. Wayah soils have a dark surface layer that extends to a depth of about 13 inches.

- Bt2—23 to 35 inches; red (2.5YR 4/6) sandy clay loam; moderate fine and medium subangular blocky structure; firm; few faint clay films on faces of peds; common medium and coarse roots; about 10 percent gravel; few fine flakes of mica; strongly acid; gradual wavy boundary.
- BC—35 to 45 inches; red (2.5YR 4/6) fine sandy loam; weak fine and medium subangular blocky structure; friable; few medium and coarse roots; about 10 percent gravel; common fine flakes of mica; strongly acid; clear wavy boundary.
- C—45 to 61 inches; multicolored sandy loam that weathered from saprolite; massive; friable; few coarse roots; about 5 percent gravel and 5 percent cobbles; common fine flakes of mica; strongly acid; gradual irregular boundary.
- Cr—61 to 66 inches; multicolored, weathered, fractured mica gneiss; partially consolidated but can be dug with difficulty with a spade; few thin seams of red (2.5YR 4/8) loam in cracks between rocks.

The thickness of the solum ranges from 20 to more than 40 inches. The depth to bedrock is more than 60 inches. Reaction ranges from very strongly acid to moderately acid, except where the surface layer has been limed. The number of mica flakes is few or common. The content of rock fragments ranges from 0 to 35 percent in the A and C horizons and from 0 to 15 percent in the B horizon. The rock fragments are dominantly gravel. Some of the fragments, however, are cobbles or stones.

The A horizon has hue of 5YR to 10YR, value of 3 to 5, and chroma of 3 to 6.

The BA horizon has hue of 2.5YR to 7.5YR, value of 4 to 6, and chroma of 6 to 8. It is sandy loam, fine sandy loam, or loam in the fine-earth fraction.

The Bt horizon has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 4 to 8. It is loam, sandy clay loam, or clay loam in the fine-earth fraction.

The BC horizon has hue of 2.5YR to 7.5YR, value of 4 to 6, and chroma of 6 to 8. It is sandy loam, fine sandy loam, or loam in the fine-earth fraction.

The C horizon is multicolored saprolite that weathered from high-grade, metamorphic or igneous, felsic to mafic crystalline rock, such as mica gneiss, hornblende gneiss, and granite. It is sandy loam, fine sandy loam, or loam in the fine-earth fraction.

The Cr horizon is multicolored, partially consolidated, weathered bedrock. It can be dug with difficulty with a spade.

## Fannin Series

The Fannin series consists of very deep, well drained, moderately permeable soils. These soils

formed in material weathered from high-grade, metamorphic, mica-rich rocks, such as mica gneiss and mica schist. They are on low mountains. Elevation ranges from about 2,000 to 3,500 feet. Slopes range from 8 to 95 percent. The soils are fine-loamy, micaceous, mesic Typic Hapludults.

Fannin soils are associated with Cashiers, Chandler, and Saunook soils. Cashiers and Chandler soils are coarse-loamy. Saunook soils are Humic Hapludults. Cashiers and Chandler soils are on north- to east-facing slopes. Saunook soils are in coves, in drainageways, and on toe slopes.

Typical pedon of Fannin fine sandy loam, 15 to 30 percent slopes; south of Highlands on North Carolina Highway 28 to Secondary Road 1618, west on Secondary Road 1618 to U.S. Forest Service Road 79, west on U.S. Forest Service Road 79 to Brown Gap, about 50 feet north of the intersection of U.S. Forest Service Roads 79 and 77, in a wooded area (State plane coordinates 486,900 feet N., 732,500 feet E.):

- Oi—2 inches to 0; partially decomposed leaves, twigs, roots, and other deciduous plant material.
- A—0 to 4 inches; brown (7.5YR 4/4) fine sandy loam; weak fine and medium granular structure; friable; many fine to coarse roots; about 5 percent gravel and 5 percent cobbles; common fine and medium flakes of mica; moderately acid; abrupt smooth boundary.
- BA—4 to 7 inches; yellowish red (5YR 4/6) fine sandy loam; weak medium subangular blocky structure; very friable; common fine to coarse roots; about 5 percent gravel; common fine and medium flakes of mica; moderately acid; clear wavy boundary.
- Bt—7 to 21 inches; red (2.5YR 4/6) sandy clay loam; moderate fine and medium subangular blocky structure; firm; few discontinuous clay films on faces of peds; common medium and coarse roots; about 5 percent gravel; many fine and medium flakes of mica; strongly acid; gradual wavy boundary.
- BC—21 to 27 inches; red (2.5YR 5/8) fine sandy loam; weak fine and medium subangular blocky structure; friable; few medium and coarse roots; about 10 percent gravel; many fine and medium flakes of mica; moderately acid; gradual wavy boundary.
- C—27 to 60 inches; multicolored sandy loam that weathered from saprolite; massive; friable; few coarse roots; about 5 percent gravel and 5 percent cobbles; many fine and medium flakes of mica; moderately acid.

The thickness of the solum ranges from 20 to 45 inches. The depth to bedrock is more than 72 inches. Reaction ranges from very strongly acid to moderately acid. The number of mica flakes is common or many in

the A horizon and the upper part of the B horizon and is many in the lower part of the B horizon and in the C horizon. The content of rock fragments ranges from 0 to 35 percent in the A and C horizons and from 0 to 25 percent in the B horizon. The rock fragments are dominantly gravel. Some of the fragments, however, are cobbles or stones.

The A horizon has hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 2 to 4.

The BA horizon has hue of 5YR, value of 4 or 5, and chroma of 4 to 6. It is fine sandy loam or loam in the fine-earth fraction.

The Bt horizon has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 4 to 8. It is loam, sandy clay loam, or clay loam in the fine-earth fraction.

The BC horizon has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 4 to 8. It is sandy loam, fine sandy loam, or loam in the fine-earth fraction.

The C horizon is multicolored saprolite. It is sandy loam or fine sandy loam in the fine-earth fraction.

## Hayesville Series

The Hayesville series consists of very deep, well drained, moderately permeable soils. These soils formed in material weathered from high-grade, metamorphic, felsic crystalline rock, such as mica gneiss. They are on uplands in low rolling hills. Elevation ranges from about 2,000 to 2,500 feet. Slopes range from 2 to 30 percent. The soils are clayey, kaolinitic, mesic Typic Kanhapludults.

Hayesville soils are associated with Braddock, Cowee, Evard, and Saunook soils. Braddock soils formed in old alluvium and do not have a C horizon of saprolite. Cowee, Evard, and Saunook soils are fine-loamy. Braddock soils are on the adjacent high stream terraces. Cowee and Evard soils are in areas where the landscape breaks more abruptly. Saunook soils are in drainageways.

Typical pedon of Hayesville clay loam, 8 to 15 percent slopes, eroded; about 1.5 miles west of the intersection of U.S. Highways 441 and 64 on U.S. Highway 64, about 0.4 mile south on Secondary Road 1148 to Louisa Chapel Church, about 300 feet southeast of the church, in a hay field (State plane coordinates 542,100 feet N., 679,900 feet E.):

Ap—0 to 6 inches; reddish brown (5YR 4/4) clay loam; weak medium granular structure; friable; many fine roots; few fine flakes of mica; about 10 percent gravel; neutral; clear smooth boundary.

Bt1—6 to 18 inches; red (2.5YR 4/8) clay; moderate medium subangular blocky structure; firm; common distinct clay films on faces of peds; sticky and

slightly plastic; few medium roots; few fine flakes of mica; neutral; clear wavy boundary.

Bt2—18 to 33 inches; red (2.5YR 4/8) clay loam; moderate medium subangular blocky structure; friable; few distinct clay films on faces of peds; slightly sticky and slightly plastic; few fine flakes of mica; slightly acid; gradual wavy boundary.

BC—33 to 45 inches; red (2.5YR 4/8) loam; weak medium subangular blocky structure; friable; few fine flakes of mica; very strongly acid; gradual wavy boundary.

C—45 to 60 inches; multicolored loam that weathered from saprolite; massive; very friable; common fine flakes of mica; very strongly acid.

The thickness of the solum ranges from 30 to 60 inches. The depth to bedrock is more than 60 inches. Generally, reaction ranges from extremely acid to moderately acid, except where the surface layer has been limed. In some pedons that have been limed in the past, however, the A horizon and the upper part of the Bt horizon range to neutral. The number of mica flakes is few or common. The content of rock fragments ranges from 0 to 15 percent. The rock fragments are dominantly gravel. Some of the fragments, however, are cobbles.

The A horizon has hue of 5YR or 7.5YR, value of 4 or 5, and chroma of 3 to 6.

The Bt horizon has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 to 8. It is clay loam or clay in the fine-earth fraction.

The BC horizon has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 to 8. It is loam, sandy clay loam, or clay loam in the fine-earth fraction.

The C horizon is multicolored saprolite that weathered from high-grade, metamorphic, felsic crystalline rock, such as mica gneiss. It is sandy loam, fine sandy loam, or loam in the fine-earth fraction.

## Hemphill Series

The Hemphill series consists of very deep, very poorly drained, slowly permeable soils. These soils formed in old alluvium on low stream terraces. Elevation ranges from about 1,900 to 2,500 feet. Slopes range from 0 to 3 percent. The soils are fine, mixed, mesic Typic Umbraqualfs.

Hemphill soils are associated with Dillard and Statler soils. Dillard and Statler soils have an ochric epipedon and are fine-loamy. Also, Dillard soils are moderately well drained. Statler soils are well drained. Dillard and Statler soils are in slightly elevated areas.

Typical pedon of Hemphill loam, 0 to 3 percent slopes, rarely flooded; about 3.2 miles north of Franklin on North Carolina Highway 28, about 2.2 miles west on

Secondary Road 1379, about 0.4 mile southwest on old Secondary Road 1433, about 300 feet east of the road, in a corn field (State plane coordinates 565,100 feet N., 679,400 feet E.):

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) loam; weak fine granular structure; very friable; few fine flakes of mica; moderately acid; clear smooth boundary.

Btg1—8 to 13 inches; dark gray (10YR 4/1) clay loam; moderate medium subangular blocky structure; firm; few faint clay films on faces of peds; few fine flakes of mica; strongly acid; gradual wavy boundary.

Btg2—13 to 32 inches; gray (10YR 5/1) clay loam; common fine distinct strong brown (7.5YR 5/6) mottles; moderate medium subangular blocky structure; firm; few faint clay films on faces of peds; few fine flakes of mica; strongly acid; gradual wavy boundary.

BCg—32 to 60 inches; gray (10YR 5/1) sandy clay loam; few fine distinct strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; firm; few thin lenses of sand in the lower part; common fine flakes of mica; very strongly acid.

The thickness of the solum ranges from 40 to more than 60 inches. Reaction ranges from very strongly acid to neutral. The number of mica flakes is few or common. The content of rock fragments ranges from 0 to 15 percent in the A and B horizons and from 0 to 60 percent in the C horizon, if it occurs.

The A horizon has hue of 10YR, value of 3, and chroma of 1 to 3.

The Btg horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 or 2, or it is neutral in hue and has value of 4 to 6. It is clay loam, silty clay loam, or clay in the fine-earth fraction.

The BCg horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 or 2, or it is neutral in hue and has value of 4 to 6. It is loam, sandy clay loam, or clay loam in the fine-earth fraction.

The C horizon, if it occurs, has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 or 2, or it is neutral in hue and has value of 4 to 6. It is old alluvium. It is sand, loamy sand, sandy loam, loam, sandy clay loam, or clay loam in the fine-earth fraction.

## Junaluska Series

The Junaluska series consists of moderately deep, well drained, moderately permeable soils (fig. 12). These soils formed in material weathered from metasedimentary rocks, such as phyllite, slate, and metasandstone. They are on low mountains. Elevation ranges from about 1,900 to 3,500 feet. Slopes range

from 8 to 95 percent. The soils are fine-loamy, mixed, mesic Typic Hapludults.

Junaluska soils are associated with Brasstown, Santeetlah, and Spivey soils. Brasstown soils are deep. Santeetlah and Spivey soils formed in colluvium. They have an umbric epipedon. Also, Santeetlah soils are coarse-loamy. Spivey soils are loamy-skeletal. Brasstown soils are on the lower part of side slopes and in areas where the landscape breaks less sharply. Santeetlah and Spivey soils are in coves, in drainageways, and on toe slopes.

Typical pedon of Junaluska channery fine sandy loam, in an area of Brasstown-Junaluska complex, 30 to 50 percent slopes; along the Little Tennessee River; north of Franklin on North Carolina Highway 28 to Secondary Road 1370, west on Secondary Road 1370 to Secondary Road 1364, north on Secondary Road 1364 to Secondary Road 1363, north 1.1 miles on Secondary Road 1363, about 150 feet west of the road (State plane coordinates 591,800 feet N., 659,200 feet E.):

Oi—1 inch to 0; partially decomposed leaves, twigs, roots, and other deciduous plant material.

A—0 to 5 inches; yellowish red (5YR 4/6) channery fine sandy loam; moderate medium granular structure; friable; many fine to coarse roots; about 15 percent channers; few fine flakes of mica; strongly acid; clear smooth boundary.

Bt—5 to 21 inches; red (2.5YR 4/6) sandy clay loam; weak fine and medium subangular blocky structure; friable; few faint clay films on faces of peds; common fine and medium roots; about 10 percent channers; few fine flakes of mica; strongly acid; gradual wavy boundary.

C—21 to 36 inches; multicolored flaggy fine sandy loam that weathered from saprolite; massive; very friable; about 10 percent channers and 10 percent flagstones; few fine flakes of mica; strongly acid; gradual wavy boundary.

Cr—36 to 45 inches; multicolored, weathered, highly fractured metasandstone; partially consolidated but can be dug with difficulty with a spade; few thin seams of yellowish red (5YR 5/8) sandy clay loam in cracks between rocks.

The thickness of the solum ranges from 15 to 39 inches. The depth to weathered bedrock ranges from 20 to 40 inches. Reaction ranges from extremely acid to moderately acid. The number of mica flakes is few or common. The content of rock fragments ranges from 5 to 35 percent. The rock fragments are dominantly channers and flagstones.

The A horizon has hue of 7.5YR or 10YR, value of 3

to 5, and chroma of 3 to 8. Where value or chroma is 3, the horizon is less than 6 inches thick.

The BA horizon, if it occurs, has hue of 2.5YR to 7.5YR, value of 4 to 6, and chroma of 4 to 8. It is fine sandy loam or loam in the fine-earth fraction.

The Bt horizon has hue of 2.5YR to 7.5YR, value of 4 to 6, and chroma of 4 to 8. At least part of the horizon has hue of 2.5YR or 5YR. The texture is loam or clay loam in the fine-earth fraction.

The BC horizon, if it occurs, has hue of 2.5YR to 7.5YR, value of 4 to 6, and chroma of 4 to 8. It is fine sandy loam or loam in the fine-earth fraction.

The C horizon is multicolored saprolite that weathered from metasedimentary rock. It is sandy loam or fine sandy loam in the fine-earth fraction.

The Cr horizon is multicolored, weathered metasedimentary bedrock, such as phyllite, slate, and metasandstone. It is partially consolidated but can be dug with difficulty with a spade.

### Nikwasi Series

The Nikwasi series consists of poorly drained or very poorly drained soils that are moderately deep to strata of sand, gravel, and cobbles and are very deep over bedrock. These soils are moderately rapidly permeable in the A horizon and rapidly permeable in the C horizon. They formed in recent alluvium on flood plains along small streams. Elevation ranges from about 1,850 to 3,000 feet. Slopes range from 0 to 2 percent. The soils are coarse-loamy over sandy or sandy-skeletal, mixed, nonacid, mesic Cumulic Humaquepts.

Nikwasi soils are associated with Dellwood and Reddies soils. Dellwood and Reddies soils are moderately well drained. Also, Dellwood soils are loamy-skeletal. Reddies soils are in slightly elevated areas. Dellwood soils are along present and old stream channels.

Typical pedon of Nikwasi fine sandy loam, 0 to 2 percent slopes, frequently flooded; north of Franklin on North Carolina Highway 28 to Secondary Road 1340, north on Secondary Road 1340 to Secondary Road 1341, northeast 1.4 miles on Secondary Road 1341, about 300 feet east of the road, in a pasture (State plane coordinates 581,800 feet N., 690,400 feet E.):

Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) fine sandy loam; weak medium granular structure; very friable; many fine roots; few fine flakes of mica; strongly acid; clear smooth boundary.

A—9 to 17 inches; very dark grayish brown (2.5YR 3/2) loamy sand; weak medium granular structure; very friable; common fine roots; common fine flakes of mica; very strongly acid; abrupt wavy boundary.

AC—17 to 25 inches; very dark gray (10YR 3/1) sand;

massive; very friable; few fine roots; common fine flakes of mica; very strongly acid; abrupt wavy boundary.

Cg—25 to 60 inches; dark gray (10YR 4/1) extremely gravelly sand; single grained; loose; about 70 percent waterworn gravel and cobbles; common fine flakes of mica; very strongly acid.

The depth to the sandy C horizon, which contains more than 35 percent gravel or cobbles or both, is 24 to 40 inches. The depth to bedrock is more than 60 inches. Generally, reaction is very strongly acid or strongly acid. In limed areas, however, the Ap horizon is slightly acid to strongly acid. The number of mica flakes ranges from few to many. The content of rock fragments ranges from 0 to 35 percent in the horizons above the skeletal alluvium. The rock fragments are dominantly gravel and cobbles.

The A horizon has hue of 10YR or 2.5Y, value of 2 or 3, and chroma of 1 to 3. The AC horizon has hue of 10YR or 2.5Y, value of 2 or 3, and chroma of 1 to 3. It is loamy sand or loamy fine sand.

The Cg horizon has hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 or 2. It is coarse sand, sand, loamy coarse sand, or loamy sand in the fine-earth fraction.

The Nikwasi soils in Macon County are taxadjuncts to the series because they have a loamy Ap or A1 horizon that is less than 10 inches in thickness and are more acid between depths of 10 and 40 inches than is definitive for the series. These differences, however, do not affect the overall use, management, and behavior of these soils.

### Oconaluftee Series

The Oconaluftee series consists of very deep, well drained, moderately rapidly permeable soils. These soils formed in material weathered from metasedimentary rocks, such as phyllite, slate, and metasandstone. They are on high mountains. Elevation is generally more than 4,800 feet. Slopes range from 30 to 95 percent. The soils are coarse-loamy, mixed, frigid Typic Haplumbrepts.

Oconaluftee soils are associated with Cataska, Santeetlah, Spivey, and Sylco soils. Cataska, Santeetlah, Spivey, and Sylco soils are at lower elevations than the Oconaluftee soils and are in the mesic temperature regime. Also, Cataska soils are shallow. Sylco soils are moderately deep. Spivey soils are loamy-skeletal. Sylco and Cataska soils are at the edge of small areas of rock outcrop. Santeetlah and Spivey soils formed in colluvium. They are at the head of drainageways and on toe slopes.

Typical pedon of Oconaluftee channery loam,

windswept, 30 to 50 percent slopes; on Tusquitee Bald; west of Franklin on U.S. Highway 64 to Secondary Road 1310, west on Secondary Road 1310 to Secondary Road 1400, west on Secondary Road 1400 to Secondary Road 1401, west on Secondary Road 1401 to Secondary Road 1605 in Cherokee County, west on Secondary Road 1605 to U.S. Forest Service Road 708, southeast on U.S. Forest Service Road 708 to U.S. Forest Service Road 440, west on U.S. Forest Service 440 Road to Old Road Gap, south 2.1 miles on a U.S. Forest Service trail to the junction of Macon, Clay, and Cherokee counties (State plane coordinates 540,900 feet N., 587,500 feet E.):

- Oi—2 inches to 0; partially decomposed leaves, twigs, roots, and other deciduous plant material.
- A1—0 to 8 inches; black (10YR 2/1) channery loam; weak fine and medium granular structure; very friable; many fine to coarse roots; about 15 percent channers and 5 percent flagstones; few fine flakes of mica; strongly acid; clear smooth boundary.
- A2—8 to 12 inches; very dark brown (10YR 2/2) channery loam; weak fine and medium granular structure; very friable; many fine to coarse roots; about 15 percent channers and 5 percent flagstones; few fine flakes of mica; strongly acid; clear smooth boundary.
- Bw—12 to 44 inches; dark grayish brown (10YR 4/3) channery loam; weak fine and medium subangular blocky structure; friable; few medium and coarse roots; about 15 percent channers and 5 percent flagstones; few fine flakes of mica; strongly acid; clear wavy boundary.
- C—44 to 60 inches; multicolored flaggy fine sandy loam that weathered from saprolite; massive; very friable; about 5 percent channers, 15 percent flagstones, and 10 percent stones; few fine and medium flakes of mica; strongly acid.

The thickness of the solum ranges from 30 to 60 inches. The depth to bedrock is more than 60 inches. Reaction ranges from extremely acid to strongly acid in the A horizon and from extremely acid to moderately acid in the other horizons. The number of mica flakes is few or common. The content of rock fragments ranges from 0 to 35 percent. The rock fragments are dominantly channers and flagstones. Some of the fragments, however, are stones.

The A horizon has hue of 10YR, value of 2 or 3, and chroma of 1 to 3.

The Bw horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 3 to 8. It is fine sandy loam or loam in the fine-earth fraction.

The BC horizon, if it occurs, has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 3 to 8. It is fine

sandy loam or loam in the fine-earth fraction. Typically, the content of rock fragments increases in the BC horizon compared to the overlying horizons.

The C horizon is multicolored saprolite that weathered from metasedimentary rock. It is sandy loam, loam, or fine sandy loam in the fine-earth fraction.

## Plott Series

The Plott series consists of very deep, well drained, moderately rapidly permeable soils (fig. 13). These soils formed in material weathered from high-grade, metamorphic or igneous, felsic to mafic crystalline rocks, such as mica gneiss, hornblende gneiss, and granite. They are on intermediate mountains. Elevation ranges from about 3,500 to 4,800 feet. Slopes range from 8 to 95 percent. The soils are coarse-loamy, mixed, mesic Typic Haplumbrepts.

Plott soils are associated with Chestnut, Cullasaja, Edneyville, and Tuckasegee soils. Chestnut soils are moderately deep. Chestnut and Edneyville soils have an ochric epipedon. Cullasaja soils are loamy-skeletal. Cullasaja and Tuckasegee soils formed in colluvium. Chestnut and Edneyville soils are on south- to west-facing slopes. Cullasaja and Tuckasegee soils are in coves, in drainageways, and on toe slopes.

Typical pedon of Plott fine sandy loam, 50 to 95 percent slopes, stony; west of Franklin on U.S. Highway 64 to Secondary Road 1448, south 1.8 miles on Secondary Road 1448 to U.S. Forest Service Road 67, south 0.6 mile on U.S. Forest Service Road 67 to Rock Gap, about 300 feet southeast of the gap on an old logging road, 75 feet south of the road (State plane coordinates 519,800 feet N., 649,100 feet E.):

- Oi—2 inches to 0; partially decomposed leaves, twigs, roots, and other deciduous plant material.
- A1—0 to 6 inches; very dark brown (10YR 2/2) fine sandy loam; weak medium granular structure; very friable; many fine to coarse roots; about 1 percent gravel; few fine flakes of mica; strongly acid; clear wavy boundary.
- A2—6 to 14 inches; very dark grayish brown (10YR 3/2) fine sandy loam; moderate medium granular structure; very friable; many fine to coarse roots; about 3 percent gravel; few fine flakes of mica; strongly acid; clear wavy boundary.
- Bw1—14 to 32 inches; dark yellowish brown (10YR 3/4) fine sandy loam; weak medium subangular blocky structure; very friable; common medium and coarse roots; about 4 percent gravel; few fine flakes of mica; strongly acid; gradual wavy boundary.
- Bw2—32 to 46 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak medium subangular blocky structure; very friable; few medium and coarse

roots; about 4 percent gravel; few fine flakes of mica; strongly acid; gradual wavy boundary.

BC—46 to 62 inches; dark yellowish brown (10YR 4/6) gravelly fine sandy loam; weak medium subangular blocky structure; very friable; common fine roots; about 26 percent gravel; few fine flakes of mica; strongly acid.

The thickness of the solum ranges from 30 to more than 60 inches. The depth to bedrock is more than 60 inches. Reaction ranges from extremely acid to moderately acid in the A horizon, except where the surface layer has been limed, and from very strongly acid to moderately acid in the other horizons. The number of mica flakes is few or common. The content of rock fragments ranges from 0 to 35 percent. The rock fragments are dominantly gravel and cobbles. Some of the fragments, however, are stones.

The A horizon has hue of 10YR, value of 2 or 3, and chroma of 1 to 3.

The Bw horizon has hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 4 to 8. It is sandy loam, fine sandy loam, or loam in the fine-earth fraction.

The BC horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8. It is sandy loam, fine sandy loam, or loam in the fine-earth fraction.

The C horizon, if it occurs, is multicolored saprolite that weathered from high-grade, metamorphic or igneous, felsic to mafic crystalline rocks, such as mica gneiss, hornblende gneiss, and granite. It is loamy sand, sandy loam, or fine sandy loam in the fine-earth fraction.

## Reddies Series

The Reddies series consists of moderately well drained soils that are moderately deep to strata of sand, gravel, and cobbles and are very deep over bedrock. These soils are moderately rapidly permeable in the surface layer and subsoil and rapidly or very rapidly permeable in the underlying material. They formed in recent alluvium on flood plains along small streams. Elevation ranges from about 1,850 to 3,000 feet. Slopes range from 0 to 3 percent. The soils are coarse-loamy over sandy or sandy-skeletal, mixed, mesic Fluventic Haplumbrepts.

Reddies soils are associated with Dellwood, Nikwasi, and Rosman soils. Dellwood soils are sandy-skeletal. Nikwasi soils are poorly drained or very poorly drained. Rosman soils are deep to strata of sand, gravel, and cobbles. Dellwood soils are along stream channels. Nikwasi soils are in depressions. Rosman soils are in slightly elevated areas.

Typical pedon of Reddies fine sandy loam, 0 to 3 percent slopes, frequently flooded; along Allison Creek;

west of Franklin on U.S. Highway 64 to Secondary Road 1448, south 1.2 miles on Secondary Road 1448, about 200 feet west of the road, in a pasture (State plane coordinates 528,000 feet N., 662,700 feet E.):

Ap—0 to 12 inches; dark brown (10YR 3/3) fine sandy loam; weak fine and medium granular structure; very friable; many fine roots; about 5 percent gravel; common fine flakes of mica; neutral; abrupt smooth boundary.

Bw1—12 to 20 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak medium subangular blocky structure; very friable; common fine roots; common fine flakes of mica; strongly acid; gradual wavy boundary.

Bw2—20 to 26 inches; yellowish brown (10YR 5/4) fine sandy loam; weak medium subangular blocky structure; very friable; few fine roots; about 5 percent gravel and 5 percent cobbles; common fine and medium flakes of mica; strongly acid; clear wavy boundary.

C1—26 to 35 inches; mottled dark grayish brown (10YR 4/2) and yellowish brown (10YR 5/4) loamy sand; massive; loose; about 5 percent gravel and 5 percent cobbles; common fine and medium flakes of mica; very strongly acid; abrupt wavy boundary.

C2—35 to 60 inches; multicolored very cobbly sand; massive; loose; about 20 percent gravel and 35 percent cobbles; common fine and medium flakes of mica; very strongly acid.

The thickness of the solum ranges from 20 to 39 inches. Horizons that contain more than 35 percent gravel or cobbles or both are within a depth of 20 to 40 inches. The depth to bedrock is more than 60 inches. Reaction ranges from very strongly acid to neutral. The number of mica flakes is few or common. The content of rock fragments ranges from 0 to 35 percent in the horizons above the skeletal alluvium. The rock fragments are dominantly gravel above the sandy-skeletal alluvium and gravel and cobbles in the sandy-skeletal alluvium.

The A horizon has hue of 10YR, value of 3, and chroma of 2 or 3.

The Bw horizon has hue of 10YR, value of 4 or 5, and chroma of 4 to 8. In some pedons it has few to many mottles with chroma of 2 or less below a depth of 20 inches. It is sandy loam, fine sandy loam, or loam in the fine-earth fraction.

The upper part of the C horizon has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 2 to 4. It is loamy sand or sandy loam in the fine-earth fraction. The lower part of the C horizon is multicolored coarse sand, sand, or loamy sand in the fine-earth fraction. It has more than 35 percent rock fragments.

## Rosman Series

The Rosman series consists of very deep, well drained, moderately rapidly permeable soils. These soils formed in recent alluvium on flood plains along the larger streams. Elevation ranges from about 1,900 to 2,500 feet. Slopes range from 0 to 2 percent. The soils are coarse-loamy, mixed, mesic Fluventic Haplumbrepts.

Rosman soils are associated with Arkaqua, Biltmore, and Toxaway soils. Arkaqua and Toxaway soils are fine-loamy. Also, Arkaqua soils are somewhat poorly drained. Toxaway soils are poorly drained or very poorly drained. Biltmore soils are sandy. Arkaqua and Toxaway soils are in backwater areas. Biltmore soils are on natural levees along the stream channels.

Typical pedon of Rosman fine sandy loam, 0 to 2 percent slopes, frequently flooded; about 3.5 miles north of Franklin on North Carolina Highway 28 to Secondary Road 1372, about 2.0 miles north on Secondary Road 1372 to Porter's farm, about 1,000 feet northeast of a farm house, 150 feet west of a river (State plane coordinates 578,400 feet N., 681,400 feet E.):

Ap—0 to 16 inches; dark brown (10YR 3/3) fine sandy loam; moderate fine granular structure; very friable; many fine and medium roots; few fine flakes of mica; moderately acid; gradual wavy boundary.

Bw—16 to 57 inches; strong brown (7.5YR 4/6) loam; weak medium subangular blocky structure; very friable; few fine flakes of mica; moderately acid; gradual wavy boundary.

C—57 to 60 inches; strong brown (7.5YR 5/6) fine sandy loam; massive; very friable; few fine flakes of mica; strongly acid.

The thickness of the solum ranges from 35 to 60 inches. The depth to bedrock is more than 60 inches. Reaction ranges from strongly acid to slightly acid, except where the surface layer has been limed. The number of mica flakes is few or common. The content of rock fragments ranges from 0 to 15 percent within a depth of 40 inches and from 0 to 50 percent below a depth of 40 inches. The rock fragments are dominantly gravel above a depth of 40 inches and gravel and cobbles below a depth of 40 inches.

The A horizon has hue of 10YR, value of 3, and chroma of 1 to 3.

The Bw horizon has hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 3 to 8. It is sandy loam, fine sandy loam, or loam in the fine-earth fraction.

The C horizon has hue of 10YR or 7.5YR, value of 3 to 5, and chroma of 3 to 8. It is loamy sand, sandy loam, or fine sandy loam in the fine-earth fraction.

## Santeetlah Series

The Santeetlah series consists of very deep, well drained, moderately rapidly permeable soils. These soils formed in colluvium weathered from metasedimentary rocks, such as phyllite, slate, and metasandstone. They are in coves, in drainageways, and on toe slopes. Elevation ranges from about 2,000 to 4,800 feet. Slopes range from 8 to 50 percent. The soils are coarse-loamy, mixed, mesic Typic Haplumbrepts.

Santeetlah soils are associated with Cheoah, Soco, Spivey, and Stecoah soils. Cheoah soils are deep. Soco and Stecoah soils have an ochric epipedon. Also, Soco soils are moderately deep. Spivey soils formed in colluvium and are loamy-skeletal. Cheoah, Soco, and Stecoah soils are on the adjacent uplands, formed in residuum, and have a C horizon of saprolite. Spivey soils are intermingled with areas of the Santeetlah soils.

Typical pedon of Santeetlah loam, in an area of Spivey-Santeetlah complex, 15 to 30 percent slopes, stony; about 0.3 mile southeast of the Nantahala River power substation in Beechertown, about 100 feet south of Secondary Road 1310, in a wooded area (State plane coordinates 585,400 feet N., 606,000 feet E.):

Oi—2 inches to 0; partially decomposed leaves, twigs, roots, and other deciduous plant material.

A1—0 to 6 inches; black (10YR 2/1) loam; weak fine and medium granular structure; very friable; many fine to coarse roots; about 5 percent channers and 5 percent flagstones; few fine flakes of mica; strongly acid; clear wavy boundary.

A2—6 to 16 inches; very dark grayish brown (10YR 3/2) loam; moderate fine to coarse granular structure; very friable; few fine and many medium and coarse roots; about 5 percent channers and 5 percent flagstones; few fine flakes of mica; strongly acid; gradual wavy boundary.

Bw—16 to 42 inches; dark yellowish brown (10YR 4/4) loam; weak fine to coarse subangular blocky structure; very friable; common coarse roots; about 5 percent channers and 5 percent flagstones; few fine flakes of mica; very strongly acid; gradual wavy boundary.

BC—42 to 60 inches; dark yellowish brown (10YR 4/6) flaggy fine sandy loam; massive; friable; about 5 percent channers, 20 percent flagstones, 10 percent stones, and 10 percent boulders; few fine flakes of mica; very strongly acid.

The thickness of the solum ranges from 30 to more than 60 inches. The depth to bedrock is more than 60 inches. Reaction ranges from extremely acid to moderately acid, except where the surface layer has

been limed. The number of mica flakes is few or common. The content of rock fragments ranges from 5 to 35 percent within a depth of 40 inches and from 5 to 60 percent below a depth of 40 inches. The rock fragments are dominantly channers and flagstones above a depth of 40 inches and are channers, flagstones, stones, and boulders below a depth of 40 inches.

The A horizon has hue of 7.5YR or 10YR, value of 2 or 3, and chroma of 1 to 3.

The Bw horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8. It is fine sandy loam or loam in the fine-earth fraction.

The BC horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8. It is fine sandy loam or loam in the fine-earth fraction. Typically, the content of rock fragments increases in the BC horizon compared to the overlying horizons.

The C horizon, if it occurs, has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8 or is multicolored. It is loamy sand, sandy loam, fine sandy loam, or loam in the fine-earth fraction.

### Saunook Series

The Saunook series consists of very deep, well drained, moderately permeable soils. These soils formed in colluvium weathered from high-grade, metamorphic or igneous, felsic to mafic crystalline rocks, such as mica gneiss, hornblende gneiss, and granite. They are in coves, in drainageways, and on toe slopes. Elevation ranges from about 2,000 to 3,500 feet. Slopes range from 2 to 50 percent. The soils are fine-loamy, mixed, mesic Humic Hapludults.

Saunook soils are associated with Cowee, Evard, and Trimont soils. Cowee, Evard, and Trimont soils are on the adjacent uplands. They formed in residuum and have a C horizon of saprolite. Also, Cowee soils are moderately deep.

Typical pedon of Saunook gravelly loam, 15 to 50 percent slopes, stony; northeast of Franklin on U.S. Highway 441 to Secondary Road 1500, east on Secondary Road 1500 to U.S. Forest Service Road at Brown Creek, east 0.6 mile on U.S. Forest Service Road, about 1,000 feet south of the road, in a stand of eastern white pine (State plane coordinates 567,300 feet N., 712,600 feet E.):

- Ap—0 to 10 inches; dark brown (7.5YR 3/2) gravelly loam; moderate fine and medium granular structure; very friable; many fine to coarse roots; about 10 percent gravel and 5 percent cobbles; few fine flakes of mica; strongly acid; clear wavy boundary.
- Bt—10 to 34 inches; strong brown (7.5YR 4/6) clay loam; moderate medium subangular blocky

structure; friable; few discontinuous clay films on faces of peds; common medium and coarse roots; about 5 percent gravel and 5 percent cobbles; few fine flakes of mica; strongly acid; gradual wavy boundary.

- BC—34 to 44 inches; dark yellowish brown (10YR 4/6) cobbly fine sandy loam; weak medium subangular blocky structure; very friable; few medium and coarse roots; about 10 percent gravel and 15 percent cobbles; few fine flakes of mica; strongly acid; gradual wavy boundary.

- C—44 to 60 inches; dark yellowish brown (10YR 4/6) very cobbly fine sandy loam; massive; friable; about 15 percent gravel and 25 percent cobbles; common fine flakes of mica; strongly acid.

The thickness of the solum ranges from 40 to more than 60 inches. The depth to bedrock is more than 60 inches. Reaction ranges from extremely acid to moderately acid in the A horizon, except where the surface layer has been limed, and ranges from very strongly acid to slightly acid in the B and C horizons. The number of mica flakes is few or common. The content of rock fragments ranges from 0 to 35 percent in the A and Bt horizons and from 5 to 60 percent in the BC and C horizons. The rock fragments are dominantly gravel in the A and Bt horizons and dominantly cobbles in the BC and C horizons.

The Ap or A horizon has hue of 7.5YR or 10YR, value of 3, and chroma of 2 to 4.

The Bt horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8. It is loam, sandy clay loam, or clay loam in the fine-earth fraction.

The BC horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8. It is fine sandy loam, loam, or sandy clay loam in the fine-earth fraction.

The C horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8. It is sandy loam, fine sandy loam, or loam in the fine-earth fraction.

### Soco Series

The Soco series consists of moderately deep, well drained, moderately permeable soils. These soils formed in material weathered from metasedimentary rocks, such as phyllite, slate, and metasandstone. They are on low and intermediate mountains. Elevation ranges from about 2,000 to 4,800 feet. Slopes range from 8 to 95 percent. The soils are coarse-loamy, mixed, mesic Typic Dystrachrepts.

Soco soils are associated with Cheoah, Santeetlah, Spivey, and Stecoah soils. Cheoah, Santeetlah, and Spivey soils have an umbric epipedon. Also, Spivey soils are loamy-skeletal. Stecoah soils are deep. Cheoah soils are on north- to east-facing slopes.

Santeetlah and Spivey soils formed in colluvium. They are in coves, in drainageways, and on toe slopes. Stecoah soils are on the lower part of side slopes and in areas where the landscape breaks less sharply.

Typical pedon of Soco channery fine sandy loam, in an area of Soco-Stecoah complex, 30 to 50 percent slopes; west of Franklin on U.S. Highway 64 to Secondary Road 1310, west on Secondary Road 1310 to Secondary Road 1400, west on Secondary Road 1400 to Secondary Road 1401, west on Secondary Road 1401 to Secondary Road 1605 in Cherokee County, west on Secondary Road 1605 to U.S. Forest Service Road 708, south on U.S. Forest Service Road 708 to Wolf Creek Gap, 1,200 feet east of the gap (State plane coordinates 554,700 feet N., 588,200 feet E.):

- Oi—1 inch to 0; partially decomposed leaves, twigs, roots, and other deciduous plant material.
- A—0 to 5 inches; dark yellowish brown (10YR 4/4) channery fine sandy loam; moderate fine and medium granular structure; very friable; many fine to coarse roots; about 15 percent channers and 5 percent flagstones; few fine flakes of mica; extremely acid; clear smooth boundary.
- Bw1—5 to 13 inches; strong brown (7.5YR 5/6) channery fine sandy loam; moderate medium subangular blocky structure; friable; common fine to coarse roots; about 15 percent channers and 5 percent flagstones; few fine flakes of mica; very strongly acid; gradual wavy boundary.
- Bw2—13 to 22 inches; strong brown (7.5YR 5/6) flaggy fine sandy loam; weak medium subangular blocky structure; very friable; few medium and coarse roots; about 15 percent channers and 15 percent flagstones; few fine flakes of mica; very strongly acid; gradual irregular boundary.
- Cr—22 to 35 inches; multicolored, weathered, interbedded metasandstone and phyllite; partially consolidated but can be dug with difficulty with a spade; few thin seams of strong brown (7.5YR 4/6) fine sandy loam in fractures.

The thickness of the solum ranges from 17 to 39 inches. The depth to weathered bedrock ranges from 20 to 40 inches. Reaction ranges from extremely acid to strongly acid, except where the surface layer has been limed. The number of mica flakes is few or common. The content of rock fragments ranges from 0 to 35 percent. The rock fragments are dominantly channers and flagstones.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 3 to 6. Where value and chroma are 3, the horizon is less than 7 inches thick.

The Bw horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8. It is sandy loam, fine sandy loam, or loam in the fine-earth fraction.

The BC horizon, if it occurs, has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8. It is sandy loam, fine sandy loam, or loam in the fine-earth fraction.

The C horizon, if it occurs, is multicolored saprolite that weathered from metasedimentary rocks. It is sandy loam or fine sandy loam in the fine-earth fraction.

The Cr horizon is multicolored, weathered metasedimentary bedrock, such as metasandstone, phyllite, and slate. It is partially consolidated but can be dug with difficulty with a spade.

### Spivey Series

The Spivey series consists of very deep, well drained, moderately rapidly permeable and moderately permeable soils. These soils formed in colluvium weathered from metasedimentary rocks, such as phyllite, slate, and metasandstone. They are in coves, in drainageways, and on toe slopes. Elevation ranges from about 2,500 to 5,000 feet. Slopes range from 8 to 50 percent. The soils are loamy-skeletal, mixed, mesic Typic Haplumbrepts.

Spivey soils are associated with Cheoah, Oconaluftee, Santeetlah, Soco, and Stecoah soils. Cheoah, Oconaluftee, Santeetlah, Soco, and Stecoah soils are coarse-loamy. Also, Soco and Stecoah soils have an ochric epipedon. Soco soils are moderately deep. Oconaluftee soils are in the frigid temperature regime. Cheoah, Soco, and Stecoah soils are on the adjacent uplands. Santeetlah soils are intermingled with areas of the Spivey soils. Oconaluftee soils are on head slopes and ridges at elevations above 4,800 feet.

Typical pedon of Spivey very flaggy loam, in an area of Spivey-Santeetlah complex, 15 to 30 percent slopes, stony; about 0.25 mile southeast of the Nantahala River power substation in Beechertown, about 200 feet south of Secondary Road 1310, in a wooded area (State plane coordinates 585,500 feet N., 605,300 feet E.):

- Oi—2 inches to 0; partially decomposed leaves, twigs, roots, and other deciduous plant material.
- A1—0 to 10 inches; very dark brown (10YR 2/2) very flaggy loam; moderate fine and medium granular structure; very friable; many fine and medium and common coarse roots; about 15 percent channers, 20 percent flagstones, and 10 percent stones; few fine flakes of mica; very strongly acid; gradual wavy boundary.
- A2—10 to 18 inches; dark brown (10YR 3/3) very flaggy loam; very dark brown material from the A1 horizon in old root channels; moderate fine and medium

granular structure; very friable; common fine to coarse roots; about 15 percent channers, 20 percent flagstones, and 10 percent stones; few fine flakes of mica; very strongly acid; gradual wavy boundary.

**Bw1**—18 to 34 inches; dark yellowish brown (10YR 4/4) very flaggy fine sandy loam; very dark brown and dark brown material from the A horizon in old root channels; weak fine and medium subangular blocky structure; very friable; common medium and coarse roots; about 10 percent channers, 25 percent flagstones, and 20 percent stones; few fine flakes of mica; strongly acid; clear wavy boundary.

**Bw2**—34 to 60 inches; dark brown (10YR 4/3) flaggy fine sandy loam; weak fine and medium subangular blocky structure; very friable; few medium and coarse roots; about 10 percent channers, 20 percent flagstones, 10 percent stones, and 20 percent boulders; few fine flakes of mica; strongly acid.

The thickness of the solum ranges from 30 to more than 60 inches. The depth to bedrock is more than 60 inches. Reaction ranges from extremely acid to moderately acid, except where the surface layer has been limed. The number of mica flakes ranges from none to common. The content of rock fragments ranges from 15 to 60 percent within a depth of 20 inches and is more than 35 percent below a depth of 20 inches. The rock fragments are channers, flagstones, stones, and boulders.

The A horizon has hue of 10YR, value of 2 or 3, and chroma of 1 to 3.

The Bw horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 to 8. It is dominantly sandy loam, fine sandy loam, or loam in the fine-earth fraction. In some pedons, however, it has thin layers, which are sandy clay loam in the fine-earth fraction.

The C horizon, if it occurs, has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 to 8 or is multicolored. It is sandy loam, fine sandy loam, or loam in the fine-earth fraction.

## Statler Series

The Statler series consists of very deep, well drained, moderately permeable soils. These soils formed in old alluvium on low stream terraces. Elevation ranges from about 1,900 to 2,500 feet. Slopes range from 1 to 5 percent. The soils are fine-loamy, mixed, mesic Humic Hapludults.

Statler soils are associated with Hemphill and Dillard soils. Hemphill soils are poorly drained and have more than 35 percent clay in the argillic horizon. Dillard soils

are moderately well drained. Hemphill and Dillard soils are in depressions.

Typical pedon of Statler fine sandy loam, 1 to 5 percent slopes, rarely flooded; about 3.5 miles north of Franklin on North Carolina Highway 28 to North Carolina Highway 1372, about 2.0 miles north on North Carolina Highway 1372 to Porter's farm, 0.75 mile north of a farm house along a bend in a river (State plane coordinates 581,100 feet N., 681,600 feet E.):

**Ap**—0 to 10 inches; dark brown (10YR 3/3) fine sandy loam; weak fine granular structure; very friable; few fine flakes of mica; moderately acid; clear wavy boundary.

**Bt**—10 to 50 inches; strong brown (7.5YR 4/6) clay loam; moderate medium subangular blocky structure; friable; few faint clay films on faces of peds; few fine flakes of mica; slightly acid; gradual wavy boundary.

**BC**—50 to 60 inches; strong brown (7.5YR 4/6) sandy clay loam; weak medium subangular blocky structure; friable; common fine flakes of mica; slightly acid.

The thickness of the solum ranges from 40 to more than 60 inches. Generally, reaction is strongly acid or moderately acid, except where the surface layer has been limed. In some areas that have been limed in the past, however, the A horizon and the upper part of the Bt horizon range from moderately acid to neutral. The number of mica flakes is few or common. The content of rock fragments ranges from 0 to 15 percent in the A and B horizons and from 0 to 30 percent in the C horizon, if it occurs. The rock fragments are dominantly gravel in the A and B horizons and dominantly cobbles in the C horizon.

The A horizon has hue of 10YR, value of 3 or 4, and chroma of 2 or 3.

The Bt horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8. It is loam, sandy clay loam, or clay loam in the fine-earth fraction.

The BC horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8. It is fine sandy loam, loam, or sandy clay loam in the fine-earth fraction.

The C horizon, if it occurs, has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8 or is multicolored. It is fine sandy loam or loam in the fine-earth fraction.

The Statler soils in Macon County are taxadjuncts to the series because within a depth of 60 inches the decrease in content of clay is less than 20 percent from the maximum. This difference, however, does not affect the overall use, management, and behavior of these soils.

## Stecoah Series

The Stecoah series consists of deep, well drained, moderately rapidly permeable soils. These soils formed in material weathered from metasedimentary rocks, such as phyllite, slate, and metasandstone. They are on low and intermediate mountains. Elevation ranges from about 2,000 to 4,800 feet. Slopes range from 8 to 95 percent. The soils are coarse-loamy, mixed, mesic Typic Dystrochrepts.

Stecoah soils are associated with Cheoah, Santeetlah, Soco, and Spivey soils. Cheoah, Santeetlah, and Spivey soils have an umbric epipedon. Also, Spivey soils are loamy-skeletal. Soco soils are moderately deep. Santeetlah and Spivey soils formed in colluvium. They are in coves, in drainageways, and on toe slopes. Cheoah soils are on north- to east-facing slopes. Soco soils are on the upper part of side slopes and in areas where the landscape breaks sharply.

Typical pedon of Stecoah channery fine sandy loam, in an area of Soco-Stecoah complex, 30 to 50 percent slopes; west on Secondary Road 1400 to Secondary Road 1401, west on Secondary Road 1401 to Secondary Road 1605 in Cherokee County, west on Secondary Road 1605 to U.S. Forest Service Road 708, south on U.S. Forest Service Road 708 to Wolf Creek Gap, about 1,400 feet east of the gap (State plane coordinates 554,700 feet N., 588,400 feet E.):

- Oi—1 inch to 0; partially decomposed leaves, twigs, roots, and other deciduous plant material.
- A—0 to 6 inches; dark yellowish brown (10YR 3/4) channery fine sandy loam; moderate fine and medium granular structure; very friable; many fine to coarse roots; about 15 percent channers and 5 percent flagstones; few fine flakes of mica; strongly acid; clear smooth boundary.
- Bw—6 to 29 inches; strong brown (7.5YR 5/6) channery fine sandy loam; moderate medium subangular blocky structure; friable; common fine to coarse roots; about 15 percent channers and 5 percent flagstones; common fine flakes of mica; very strongly acid; gradual wavy boundary.
- C—29 to 54 inches; mottled strong brown (7.5YR 4/6), pale brown (10YR 6/3), and yellowish brown (10YR 5/8) sandy loam that weathered from saprolite; massive; very friable; about 15 percent channers and 10 percent flagstones; common fine flakes of mica; strongly acid; gradual wavy boundary.
- Cr—54 to 60 inches; multicolored, weathered, interbedded metasandstone and phyllite; partially consolidated but can be dug with difficulty with a spade; few thin seams of strong brown (7.5YR 4/6),

pale brown (10YR 6/3), and yellowish brown (10YR 5/8) fine sandy loam in cracks between rocks.

The thickness of the solum ranges from 24 to 50 inches. The depth to weathered bedrock ranges from 40 to 60 inches. Reaction ranges from extremely acid to strongly acid, except where the surface layer has been limed. The number of mica flakes is few or common. The content of rock fragments ranges from 0 to 35 percent. The rock fragments are dominantly channers and flagstones.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 3 to 6. Where value and chroma are 3, the horizon is less than 7 inches thick.

The Bw horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8. It is fine sandy loam or loam in the fine-earth fraction.

The BC horizon, if it occurs, has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8. It is fine sandy loam or loam in the fine-earth fraction.

The C horizon is multicolored saprolite. It is sandy loam, fine sandy loam, or loam in the fine-earth fraction.

The Cr horizon is multicolored, weathered metasedimentary bedrock, such as metasandstone, phyllite, and slate. It is partially consolidated but can be dug with difficulty with a spade.

## Sylco Series

The Sylco series consists of moderately deep, well drained, moderately permeable soils. These soils formed in material weathered from metasedimentary rocks, such as slate, phyllite, and metasandstone. They are on low and intermediate mountains. Elevation ranges from about 2,000 to 4,800 feet. Slopes range from 30 to 95 percent. The soils are loamy-skeletal, mixed, mesic Typic Dystrochrepts.

Sylco soils are associated with Cataska, Santeetlah, and Spivey soils. Cataska soils are shallow. They are intermingled with areas of the Sylco soils. Santeetlah and Spivey soils have an umbric epipedon and formed in colluvium. Santeetlah and Spivey soils are in drainageways.

Typical pedon of Sylco very channery loam, in an area of Cataska-Sylco complex, 50 to 95 percent slopes; in the Nantahala Gorge; northeast of the Nantahala Power Plant about 1.1 miles on U.S. Highway 19, about 2.1 miles southeast on Secondary Road 1412, about 50 feet east of the road (State plane coordinates 590,800 feet N., 600,300 feet E.):

- Oi—2 inches to 0; partially decomposed leaves, twigs, roots, and other deciduous plant material.
- A—0 to 6 inches; dark brown (10YR 3/3) very channery loam; moderate fine granular structure; very friable;

many fine to coarse roots; about 30 percent channers and 15 percent flagstones; very strongly acid; gradual wavy boundary.

Bw—6 to 22 inches; dark yellowish brown (10YR 4/4) very channery loam; weak fine subangular blocky structure; very friable; common fine to coarse roots; about 30 percent channers and 15 percent flagstones; strongly acid; gradual irregular boundary.

Cr—22 to 30 inches; multicolored, weathered, highly fractured slate; partially consolidated but can be dug with difficulty with a spade; few thin seams of dark yellowish brown (10YR 3/4) loam in cracks between rocks.

R—30 inches; hard, fractured slate.

The thickness of the solum ranges from 17 to 39 inches. The depth to weathered bedrock and hard bedrock ranges from 20 to 40 inches. Reaction ranges from extremely acid to strongly acid. The content of rock fragments ranges from 15 to 35 percent in the A horizon and is more than 35 percent in the B and C horizons.

The A horizon has hue of 10YR, value of 3 or 4, and chroma of 2 to 4. Where value is 3 and chroma is 2 or 3, the horizon is less than 7 inches thick.

The Bw horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 6. It is loam or silt loam in the fine-earth fraction.

The Cr horizon is multicolored, weathered metasedimentary bedrock, such as slate, phyllite, and metasandstone. It is partially consolidated but can be dug with difficulty with a spade.

The R layer is hard slate, phyllite, or metasandstone.

## Sylva Series

The Sylva series consists of very deep, poorly drained, moderately rapidly permeable soils. These soils formed in colluvium derived from high-grade, metamorphic or igneous, felsic to mafic crystalline rocks, such as mica gneiss, hornblende gneiss, and granite. They are in coves and drainageways. Elevation ranges from about 2,500 to 5,000 feet. Slopes range from 0 to 3 percent. The soils are coarse-loamy, mixed, acid, mesic Humic Haplaquepts.

Sylva soils are associated with Cullasaja, Nikwasi, Tuckasegee, and Whiteside soils. Cullasaja, Nikwasi, and Tuckasegee soils have an umbric epipedon. Also, Cullasaja and Tuckasegee soils are well drained. Cullasaja soils are loamy-skeletal. Whiteside soils are moderately well drained. Cullasaja, Tuckasegee, and Whiteside soils are in coves, in drainageways, and on toe slopes. Nikwasi soils are along small streams that flood.

Typical pedon of Sylva loam, in an area of Sylva-Whiteside complex, 0 to 3 percent slopes; about 2 miles east of Highlands on Secondary Road 1603, in Horse Cove about 100 feet north of the road, in an old field (State plane coordinates 496,400 feet N., 754,800 feet E.):

A1—0 to 4 inches; black (N 2/0) loam; weak fine granular structure; very friable; about 5 percent gravel; many fine and medium roots; common fine and medium flakes of mica; extremely acid; clear wavy boundary.

A2—4 to 8 inches; very dark grayish brown (2.5Y 3/2) loam; common fine distinct brown (10YR 5/3) mottles; weak medium granular structure; very friable; about 5 percent gravel; many fine and medium roots; common fine and medium flakes of mica; extremely acid; clear wavy boundary.

Bg1—8 to 16 inches; grayish brown (2.5Y 5/2) loam; common medium distinct dark brown (10YR 3/3) mottles; weak medium subangular blocky structure; very friable; about 5 percent gravel; few fine and medium roots; common fine and medium flakes of mica; very strongly acid; gradual wavy boundary.

Bg2—16 to 22 inches; light brownish gray (2.5Y 6/2) silty clay loam; weak medium subangular blocky structure; firm; few fine and medium roots; common fine flakes of mica; very strongly acid; gradual wavy boundary.

Bg3—22 to 32 inches; light brownish gray (2.5Y 6/2) sandy loam; weak medium subangular blocky structure; friable; about 5 percent gravel; few fine and medium roots; common fine and medium flakes of mica; very strongly acid; gradual wavy boundary.

Cg1—32 to 53 inches; light gray (2.5Y 7/2) loamy sand; massive; very friable; about 5 percent gravel; common medium and coarse flakes of mica; very strongly acid; gradual wavy boundary.

Cg2—53 to 60 inches; gray (2.5Y 6/1) loam; massive; friable; about 2 percent gravel; common fine and medium flakes of mica; very strongly acid.

The thickness of the solum ranges from 22 to 40 inches. The depth to bedrock is more than 60 inches. Reaction ranges from extremely acid to strongly acid, except where the surface layer has been limed. The number of mica flakes ranges from few to many. The content of rock fragments ranges from 0 to 15 percent.

The A horizon has hue of 10YR or 2.5Y, value of 2 or 3, and chroma of 1 to 3, or it is neutral in hue and has value of 2 or 3.

The Bg horizon has hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 or 2. It is sandy loam, fine sandy loam, or loam in the fine-earth fraction.

The Cg horizon has hue of 10YR or 2.5Y, value of 4

to 7, and chroma of 1 or 2. It is dominantly loamy sand, sandy loam, fine sandy loam, or loam in the fine-earth fraction. In some pedons, however, it has thin layers, lenses, or pockets of silty clay loam, sandy clay loam, or clay loam. Some pedons have a 2Cg horizon below a depth of 60 inches. It is multicolored, loamy saprolite that weathered from crystalline rock.

## Toxaway Series

The Toxaway series consists of very deep, poorly drained and very poorly drained, moderately permeable soils. These soils formed in recent alluvium on flood plains along the major streams. Elevation ranges from about 1,900 to 2,500 feet. Slopes range from 0 to 2 percent. The soils are fine-loamy, mixed, nonacid, mesic Cumulic Humaquepts.

Toxaway soils are associated with Arkaqua, Biltmore, and Rosman soils. Arkaqua soils are somewhat poorly drained. Biltmore and Rosman soils are well drained. Also, Biltmore soils are sandy. Rosman soils are coarse-loamy. Arkaqua and Rosman soils are in slightly elevated areas nearer to the stream channels. Biltmore soils are on natural levees along the stream channels.

Typical pedon of Toxaway loam, 0 to 2 percent slopes, frequently flooded; south of Franklin on U.S. Highway 441 to Secondary Road 1649, east on Secondary Road 1649 to Secondary Road 1651, east on Secondary Road 1651 to Secondary Road 1653, north 0.3 mile on Secondary Road 1653, west about 700 feet, in a pasture (State plane coordinates 534,600 feet N., 692,400 feet E.):

- A1—0 to 14 inches; dark brown (10YR 3/3) loam; moderate fine and medium granular structure; very friable; few fine flakes of mica; moderately acid; abrupt smooth boundary.
- A2—14 to 36 inches; black (10YR 2/1) loam; moderate fine and medium granular structure; very friable; few fine flakes of mica; moderately acid; clear smooth boundary.
- Cg1—36 to 42 inches; dark gray (10YR 4/1) loam; massive; firm; few fine flakes of mica; strongly acid; gradual wavy boundary.
- Cg2—42 to 60 inches; light brownish gray (10YR 6/2) silty clay loam; massive; firm; many fine flakes of mica; strongly acid.

The thickness of the solum ranges from 24 to 50 inches. The thickness of the loamy layers ranges from 40 to more than 60 inches. Reaction ranges from strongly acid to slightly acid, except where the surface layer has been limed. The number of mica flakes ranges from few to many.

The A horizon has hue of 10YR, value of 2 or 3, and chroma of 1 to 3.

The Cg horizon has hue of 10YR or 2.5Y, value of 3 to 6, and chroma of 0 to 2, or it is neutral in hue. It is sandy loam, fine sandy loam, loam, silty clay loam, or clay loam.

## Trimont Series

The Trimont series consists of very deep, well drained, moderately permeable soils (fig. 14). These soils formed in material weathered from high-grade, metamorphic, felsic to mafic crystalline rock, such as mica gneiss and hornblende gneiss. They are on low and intermediate mountains. Elevation ranges from about 2,200 to 3,800 feet. Slopes range from 30 to 95 percent. The soils are fine-loamy, mixed, mesic Humic Hapludults.

Trimont soils are associated with Cowee, Evard, Plott, and Saunook soils. Cowee and Evard soils have a lighter colored epipedon than that of the Trimont soils. Also, Cowee soils are moderately deep. Plott soils are coarse-loamy. Saunook soils formed in colluvium. Cowee and Evard soils are on south- to west-facing slopes. Plott soils are at higher elevations than the Trimont soils. Saunook soils are in drainageways.

Typical pedon of Trimont gravelly loam, 30 to 50 percent slopes, stony; south of Cartoogechaye on Secondary Road 1448 to Secondary Road 1128, southeast on Secondary Road 1128 to Secondary Road 1130, on Secondary Road 1130 to end of the road, east on U.S. Forest Service Road 763 to U.S. Forest Service Road 7225, southeast on U.S. Forest Service Road 7225 to Coweeta Gap, northeast on the U.S. Forest Service Road to Black Mountain (State plane coordinates 517,700 feet N., 669,800 feet E.):

- Oi—2 inches to 0; partially decomposed leaves, twigs, roots, and other deciduous plant material.
- A—0 to 9 inches; dark brown (7.5YR 3/2) gravelly loam; moderate fine to coarse granular structure; very friable; many fine and common coarse roots; about 10 percent gravel and 5 percent cobbles; few fine flakes of mica; strongly acid; clear smooth boundary.
- Bt1—9 to 23 inches; reddish brown (5YR 4/4) sandy clay loam; moderate fine and medium subangular blocky structure; friable; few faint clay films on faces of peds; common fine to coarse roots; about 5 percent gravel and 5 percent cobbles; few fine flakes of mica; strongly acid; gradual wavy boundary.
- Bt2—23 to 34 inches; yellowish red (5YR 4/6) sandy clay loam; moderate fine to coarse subangular blocky structure; friable; few faint clay films on faces

of peds; common fine to coarse roots; about 5 percent gravel and 5 percent cobbles; few fine flakes of mica; strongly acid; gradual wavy boundary.

Bt3—34 to 45 inches; yellowish red (5YR 4/6) fine sandy loam; weak fine to coarse subangular blocky structure; friable; few faint clay films on faces of peds; few fine roots; about 5 percent cobbles; few fine flakes of mica; common fine prominent black (10YR 2/1) manganese stains; moderately acid; gradual wavy boundary.

C—45 to 60 inches; multicolored fine sandy loam that weathered from saprolite; massive; very friable; common fine flakes of mica; moderately acid.

The thickness of the solum ranges from 27 to 60 inches. The depth to bedrock is more than 60 inches. Reaction ranges from very strongly acid to moderately acid, except where the surface layer has been limed. The number of mica flakes is few or common. The content of rock fragments ranges from 0 to 35 percent. The rock fragments are dominantly gravel and cobbles.

The A horizon has hue of 7.5YR or 10YR, value of 2 or 3, and chroma of 2 to 4.

The AB horizon, if it occurs, has hue of 7.5YR or 10YR, value of 2 or 3, and chroma of 2 to 4. It is loam, fine sandy loam, or sandy loam.

The Bt horizon has hue of 2.5YR to 7.5YR, value of 4 to 6, and chroma of 4 to 8. It is loam, sandy clay loam, or clay loam in the fine-earth fraction.

The BC horizon, if it occurs, has hue of 2.5YR to 7.5YR, value of 4 to 6, and chroma of 4 to 8. It is sandy loam, fine sandy loam, or loam in the fine-earth fraction.

The C horizon is multicolored saprolite that weathered from high-grade, metamorphic, felsic to mafic crystalline rock, such as mica gneiss and hornblende gneiss. It is sandy loam, fine sandy loam, or loam in the fine-earth fraction.

The Cr horizon, if it occurs, is multicolored, weathered crystalline bedrock. It is partially consolidated but can be dug with difficulty with a spade.

## Tuckasegee Series

The Tuckasegee series consists of very deep, well drained, moderately rapidly permeable soils. These soils formed in colluvium weathered from high-grade, metamorphic or igneous, felsic to mafic crystalline rocks, such as mica gneiss, hornblende gneiss, and granite. They are in coves, in drainageways, and on toe slopes. Elevation ranges from about 3,500 to 5,000 feet. Slopes range from 2 to 95 percent. The soils are fine-loamy, mixed, mesic Typic Haplumbrepts.

Tuckasegee soils are associated with Chestnut, Cullasaja, Edneyville, Plott, and Whiteside soils.

Chestnut and Edneyville soils have an ochric epipedon. Also, Chestnut soils are moderately deep. Cullasaja soils are loamy-skeletal. Plott soils formed in residuum and have a C horizon of saprolite. Whiteside soils are moderately well drained. Chestnut, Edneyville, and Plott soils are on the adjacent uplands. Cullasaja and Whiteside soils are intermingled with areas of the Tuckasegee soils.

Typical pedon of Tuckasegee fine sandy loam, in an area of Cullasaja-Tuckasegee complex, 15 to 30 percent slopes, stony; about 3.0 miles west of the Coweeta Hydrologic Station office on Shope Creek Road, about 150 feet upslope of a hairpin curve in the road, about 400 feet east of a weir on Watershed 36 (State plane coordinates 505,800 feet N., 664,500 feet E.):

Oi—2 inches to 0; partially decomposed leaves, twigs, roots, and other deciduous plant material.

A1—0 to 9 inches; black (10YR 2/1) fine sandy loam; moderate fine and medium granular structure; very friable; many fine, common medium, and few coarse roots; about 5 percent gravel; few fine flakes of mica; very strongly acid; clear smooth boundary.

A2—9 to 13 inches; dark brown (7.5YR 3/2) fine sandy loam; moderate fine and medium granular structure; very friable; common fine to coarse roots; about 5 percent gravel; few fine flakes of mica; very strongly acid; gradual wavy boundary.

Bw1—13 to 26 inches; dark brown (7.5YR 3/4) fine sandy loam; weak medium subangular blocky structure; friable; common medium and coarse roots; about 5 percent gravel and 5 percent cobbles; few fine flakes of mica; strongly acid; gradual wavy boundary.

Bw2—26 to 47 inches; brown (7.5YR 4/4) sandy clay loam; weak medium subangular blocky structure; friable; few medium and coarse roots; about 5 percent gravel, 5 percent cobbles, and 15 percent stones; few fine flakes of mica; strongly acid; gradual wavy boundary.

BC—47 to 65 inches; strong brown (7.5YR 4/6) cobbly sandy clay loam; weak medium subangular blocky structure; friable; few medium roots; about 10 percent gravel, 15 percent cobbles, and 30 percent stones; few fine flakes of mica; strongly acid.

The thickness of the solum ranges from 40 to more than 60 inches. The depth to bedrock is more than 72 inches. Reaction ranges from very strongly acid to moderately acid, except where the surface layer has been limed. The number of mica flakes is few or common. The content of rock fragments ranges from 0 to 35 percent within a depth of 40 inches and from 5 to 60 percent below a depth of 40 inches.

The A horizon has hue of 7.5YR or 10YR, value of 2 or 3, and chroma of 1 to 3.

The Bw horizon has hue of 7.5YR or 10YR, value of 3 to 6, and chroma of 4 to 8. It is sandy loam, fine sandy loam, loam, or sandy clay loam in the fine-earth fraction.

The BC horizon has hue of 7.5YR or 10YR, value of 3 to 6, and chroma of 4 to 8. It is sandy loam, fine sandy loam, loam, or sandy clay loam in the fine-earth fraction. It commonly has a higher content of rock fragments than the Bw horizon.

The C horizon, if it occurs, is similar in color to the Bw horizon or is multicolored. It is loamy coarse sand, loamy sand, or sandy loam in the fine-earth fraction.

## Udorthents

Udorthents consist of areas where the layering of the natural soil has been destroyed by earthmoving equipment. Such activities as scraping, backfilling, trenching, and excavating have so altered the characteristics of the soil that a soil series can no longer be identified.

The excavated areas mainly are borrow pits from which the soil has been removed and used as foundation material for roads or buildings. The fill areas are sites where at least 20 inches of loamy, earthy fill material covers the natural soil, landfills, building sites, industrial sites, and playgrounds. They occur in any landscape position and are well drained or moderately well drained.

A typical pedon is not given for these soils because of their variability. Areas commonly are 2 to 20 feet thick. Some areas, however, are more than 50 feet thick. Landfill areas contain layers of nonsoil material covered by 2 or 3 feet of soil material.

The color of the Udorthents varies. It includes shades of red, yellow, and brown. The texture also varies. It includes loam, sandy loam, sandy clay loam, clay loam, and clay. Reaction ranges from extremely acid to moderately alkaline in areas where industrial waste having a high lime content has been deposited.

## Wayah Series

The Wayah series consists of very deep, well drained, moderately rapidly permeable soils (fig. 15). These soils formed in material weathered from high-grade, metamorphic or igneous, felsic to mafic crystalline rocks, such as mica gneiss, hornblende gneiss, and granite. They are on high mountains. Elevation is generally more than 4,800 feet. Slopes range from 8 to 95 percent. The soils are coarse-loamy, mixed, frigid Typic Haplumbrepts.

Wayah soils are associated with Burton, Craggey, and Cullasaja soils. Burton soils are moderately deep. Craggey soils are shallow. Cullasaja soils formed in colluvium and are loamy-skeletal. Burton and Craggey soils are at the edge of small areas of rock outcrop. Cullasaja soils are at the head of drainageways and on toe slopes.

Typical pedon of Wayah sandy loam, windswept, 15 to 30 percent slopes, stony; on Wine Springs Bald; about 250 feet north of the intersection of U.S. Forest Service Roads 69 and 69B (State plane coordinates 549,800 feet N., 633,700 feet E.):

Oi—2 inches to 0; partially decomposed leaves, twigs, roots, and other deciduous plant material.

A1—0 to 8 inches; very dark brown (10YR 2/2) sandy loam; weak fine and medium granular structure; very friable; many fine to coarse roots; about 5 percent gravel and 5 percent cobbles; few fine flakes of mica; strongly acid; clear smooth boundary.

A2—8 to 13 inches; very dark grayish brown (10YR 3/2) fine sandy loam; weak fine and medium granular structure; very friable; many fine to coarse roots; about 5 percent gravel and 5 percent cobbles; few fine flakes of mica; strongly acid; clear smooth boundary.

AB—13 to 15 inches; dark brown (10YR 4/3) fine sandy loam; weak fine and medium granular structure; very friable; many fine to coarse roots; about 5 percent gravel and 5 percent cobbles; few fine flakes of mica; strongly acid; clear smooth boundary.

Bw—15 to 27 inches; light olive brown (2.5Y 5/4) sandy loam; weak fine and medium subangular blocky structure; friable; few medium and coarse roots; about 5 percent gravel and 5 percent cobbles; few fine flakes of mica; medium acid; clear wavy boundary.

BC—27 to 37 inches; yellowish brown (10YR 5/4) sandy loam; weak fine and medium subangular blocky structure; very friable; about 5 percent gravel, 5 percent cobbles, and 5 percent stones; common fine and medium flakes of mica; strongly acid; gradual wavy boundary.

C—37 to 60 inches; multicolored loamy sand that weathered from saprolite; massive; very friable; about 5 percent gravel, 5 percent cobbles, and 5 percent stones; common fine and medium flakes of mica; strongly acid.

The thickness of the solum ranges from 20 to 50 inches. The depth to bedrock is more than 60 inches. Reaction ranges from extremely acid to strongly acid in

the A horizon, except where the surface layer has been limed, and from very strongly acid to moderately acid in the B and C horizons. The number of mica flakes is few or common. The content of rock fragments ranges from 0 to 35 percent. The rock fragments are dominantly gravel and cobbles. Some of the fragments, however, are stones.

The A horizon has hue of 10YR, value of 2 or 3, and chroma of 1 to 3. The AB horizon, if it occurs, has hue of 10YR and value and chroma of 3 or 4. It is loam, fine sandy loam, or sandy loam.

The Bw horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 3 to 8. It is sandy loam, fine sandy loam, or loam in the fine-earth fraction.

The BC horizon, if it occurs, has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 3 to 8. It is sandy loam or fine sandy loam in the fine-earth fraction. Typically, it has a higher content of rock fragments than the Bw horizon.

The C horizon is multicolored saprolite that weathered from high-grade, metamorphic or igneous, felsic to mafic crystalline rock, such as mica gneiss, hornblende gneiss, and granite. It is loamy sand or sandy loam in the fine-earth fraction.

## Whiteside Series

The Whiteside series consists of very deep, moderately well drained, moderately permeable soils. These soils formed in colluvium weathered from high-grade, metamorphic or igneous, felsic to mafic crystalline rocks, such as mica gneiss, hornblende gneiss, and granite. They are in coves, in drainageways, and on toe slopes. Elevation ranges from about 3,500 to 5,000 feet. Slopes range from 1 to 15 percent. The soils are fine-loamy, mixed, mesic Aquic Hapludults.

Whiteside soils are associated with Cullasaja, Nikwasi, Sylva, and Tuckasegee soils. Cullasaja soils are loamy-skeletal. Nikwasi and Sylva soils are poorly drained or very poorly drained. Also, Nikwasi soils formed in alluvium and are subject to flooding. Tuckasegee soils are well drained. Cullasaja, Tuckasegee, and Sylva soils are intermingled with areas of the Whiteside soils. Nikwasi soils are on flood plains.

Typical pedon of Whiteside loam, in an area of Tuckasegee-Whiteside complex, 8 to 15 percent slopes; west of Franklin on U.S. Highway 64 to Secondary Road 1310, west on Secondary Road 1310 to U.S. Forest Service Road 711, north on U.S. Forest Service Road 711 to White Oak Creek, east upstream along White Oak Creek to Big Laurel Creek, south 0.5 mile

(State plane coordinates 554,800 feet N., 635,900 feet E.):

- Oi—2 inches to 0; partially decomposed leaves, twigs, roots, and other deciduous plant material.
- A1—0 to 6 inches; very dark grayish brown (10YR 3/2) loam; moderate fine and medium granular structure; very friable; many fine to coarse roots; about 5 percent gravel and 5 percent cobbles; few fine flakes of mica; very strongly acid; clear smooth boundary.
- A2—6 to 11 inches; dark brown (10YR 3/3) loam; moderate fine and medium granular structure; very friable; many fine to coarse roots; about 5 percent gravel and 5 percent cobbles; few fine flakes of mica; very strongly acid; gradual wavy boundary.
- Bt1—11 to 16 inches; strong brown (7.5YR 5/6) clay loam; common medium distinct brownish yellow (10YR 6/8) and few medium distinct gray (10YR 6/1) mottles; weak medium subangular blocky structure; firm; few faint clay films on faces of peds; common medium and coarse roots; about 5 percent gravel and 5 percent cobbles; few fine flakes of mica; very strongly acid; gradual wavy boundary.
- Bt2—16 to 28 inches; brownish yellow (10YR 6/8) loam; common medium distinct yellowish red (5YR 5/8) and few medium distinct gray (10YR 6/1) mottles; weak medium and coarse subangular blocky structure; friable; few faint clay films on faces of peds; few medium and coarse roots; about 5 percent gravel and 5 percent cobbles; few fine flakes of mica; very strongly acid; gradual wavy boundary.
- Bt3—28 to 37 inches; brownish yellow (10YR 6/6) loam; few fine faint light brownish gray (10YR 6/2) mottles; weak medium and coarse subangular blocky structure; friable; few faint clay films on faces of peds; about 5 percent gravel and 5 percent cobbles; few fine flakes of mica; very strongly acid; gradual wavy boundary.
- C—37 to 60 inches; mottled strong brown (7.5YR 5/8), brownish yellow (10YR 6/6), and light brownish gray (10YR 6/2) fine sandy loam; massive; friable; about 5 percent gravel and 5 percent cobbles; few fine and medium flakes of mica; very strongly acid.

The thickness of the solum ranges from 30 to 60 inches. The depth to bedrock is more than 72 inches. Reaction ranges from very strongly acid to moderately acid, except where the surface layer has been limed. The number of mica flakes is few or common. The content of rock fragments ranges from 0 to 15 percent. The rock fragments are dominantly gravel and cobbles.

The A horizon has hue of 7.5YR or 10YR, value of 2 or 3, and chroma of 1 to 3.

The Bt horizon has hue of 7.5YR or 10YR, value of 4 to 7, and chroma of 3 to 8. Mottles with chroma of 2 or less are within the upper 24 inches of the horizon. The texture is fine sandy loam, loam, sandy clay loam, or clay loam.

The BC horizon, if it occurs, has hue of 7.5YR or 10YR, value of 4 to 7, and chroma of 3 to 8. It is sandy loam, fine sandy loam, or loam.

The C horizon has hue of 7.5YR or 10YR, value of 4

to 7, and chroma of 3 to 8 and is mottled with chroma of 2 or less. It is sandy loam, fine sandy loam, or loam. Some pedons have a 2C horizon. It is multicolored, loamy saprolite that weathered from high-grade, metamorphic or igneous, felsic to mafic crystalline rock.

The Cg horizon, if it occurs, has hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 or 2. It is sandy loam, fine sandy loam, or loam.



# Formation of the Soils

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Soils are formed by processes of the environment acting upon geologic agents, such as high-grade, metamorphic and metasedimentary rocks and the colluvium and alluvium derived from those rocks. The characteristics of a soil are determined by the combined influence of parent material, climate, plant and animal life, relief, and time. These five factors are responsible for the profile development and chemical properties that differentiate soils (4).

## Parent Material

Parent material is the unconsolidated mass in which a soil forms. The character of this mass affects the kind of profile that develops and the degree of development. In Macon County, parent material is a major factor affecting what kind of soil forms and it can be correlated to some degree to geologic formations. The general soil map is an approximate guide to the geology of the county.

The soils in the Hayesville-Braddock, Evard-Cowee-Saunook, Edneyville-Plott-Chestnut-Cullasaja, and Fannin-Chandler general soil map units formed in material weathered from high-grade metamorphic rocks, such as mica gneiss and mica schist. The soils in the Brasstown-Junaluska, Soco-Stecoah-Cheoah-Spivey, and Cataska-Sylco-Cheoah-Spivey general soil map units formed in material weathered from metasedimentary rocks, such as metasandstone, phyllite, and slate.

## Climate

Climatic factors, particularly precipitation and temperature, affect the physical, chemical, and biological relationships in soil. They influence the rates 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 speed of chemical and physical reactions in the soil.

In Macon County, the climate varies greatly in relationship to elevation and landscape position. For example, annual rainfall varies significantly in the county. It averages about 52 inches near the town of Franklin and about 85 inches near the town of Highlands. Localized microclimates are important to the soil forming processes in the county. The climate at any single place is influenced by elevation, aspect, and location relative to the moisture rich winds from the Gulf of Mexico.

The effects of climate are evident in the soils of the county. The high rainfall and cool temperatures in the high mountains produce brown, medium textured soils that have a high content of organic matter in the surface layer. The warmer temperatures in the low mountains and low rolling hills produce soils that are redder than those in the high mountains and that contain more clay in the subsoil.

## Plant and Animal life

Plants and animals influence the formation and differentiation of soil horizons. 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 and amounts of organic matter that enter a soil under normal conditions and how the organic matter is added. They also affect base status and the leaching process through the nutrient cycle.

Generally, the soils in the county formed under hardwood forest. 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 acted upon by organisms and undergoes chemical reactions. In Macon County, plants do not bring enough bases to the surface layer to counteract the effects of leaching.

Animals convert complex compounds into simpler

forms, add organic matter to the soil, and modify certain chemical and physical properties of the soil. In Macon County, most of the organic material accumulates on the surface. It is acted upon by micro-organisms, fungi, earthworms, and other forms of life and by direct chemical reaction. It is then mixed with the uppermost mineral part of the soil by the activities of earthworms and other small invertebrates.

Generally, organic matter decomposes rapidly in the soils in low mountains that have moderate temperatures and direct sunlight. It accumulates at a slow rate in the surface layer of these soils. Soils in the high mountains or on aspects that are shaded from direct sunlight can accumulate a high content of organic matter in the surface layer.

## Relief

Relief influences drainage, surface runoff, soil temperature, and the extent of geologic erosion. In Macon County, relief varies greatly. Slopes range from 0 to 95 percent in the county.

Relief affects the percolation of water through a soil profile. Water movement is important to soil formation because it aids chemical and biological reactions and is necessary for leaching.

Relief can affect drainage. For example, a high water table generally is related to nearly level or gently sloping soils.

Alluvial and colluvial soils commonly are less sloping than soils in the upland positions. They receive runoff from the surrounding uplands. Examples are Dellwood and Saunook soils.

Soil creep is an important factor affecting soil formation in mountainous areas. Generally, the upper

part of most of the soils on side slopes formed in material that crept 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 residual, or formed in place. Generally, soil depth increases down slope, especially on concave surfaces. Maximum soil thickness is in colluvial landscape positions in coves and along toe slopes.

## Time

The length of time that soil material has been exposed to the soil-forming processes accounts for differences in the genetic development of soils. 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 Macon County vary considerably in age. The length of the 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. In Macon County, the effects of time as a soil forming factor are more apparent in the older soils, such as Braddock soils, which are on the broader parts of high stream terraces. Young soils are along streams, have more sand, and may be underlain by strata of sand, gravel, and cobbles. Examples are Rosman and Reddies soils, which formed in recent alluvium. Other soils in the county are considered young because of their landscape position. For example, Cullasaja soils are not well developed because they are on strongly sloping to steep landscapes and are receiving material from geologic erosion.

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# Glossary

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**Access road.** A road constructed to facilitate the use and management of the land. Access roads are designed for limited traffic and typically consist of a cut slope, a roadbed, and an outslope of fill material.

**Aeration, soil.** The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

**Aggregate, soil.** Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

**Alluvium.** Material, such as sand, silt, or clay, deposited on land by streams.

**Aquifer.** A water-bearing bed or stratum of permeable rock, sand, or gravel capable of fielding considerable quantities of water to wells or springs.

**Area reclaim (in tables).** An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

**Aspect.** The direction in which a slope faces. Generally, cool aspects are north- to east-facing and warm aspects are south- to west-facing.

**Atterberg limits.** Atterberg limits are measured for soil materials passing the No. 40 sieve. They include the liquid limit (LL), which is the moisture content at which the soil passes from a plastic to a liquid state, and the plasticity index (PI), which is the water content corresponding to an arbitrary limit between the plastic and semisolid states of consistency of a soil.

**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

**Bald.** A grass and shrub covered summit or other elevated area that is naturally bare of forest.

**Balled and burlapped.** A method of harvesting nursery plants in which burlap is wrapped around a ball of soil that is attached to the root system.

**Basal area.** The cross-sectional area of a tree bole measured at 4.5 feet above ground level. It is usually expressed in square feet of cross-sectional area per acre.

**Base saturation.** The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, K), expressed as a percentage of the total cation-exchange capacity.

**Bedrock.** The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

**Biotite.** A common rock-forming mineral consisting primarily of ferromagnesian silicate minerals. Color ranges from dark brown to green in thin section. Biotite is commonly referred to as "black mica" because of the natural black color.

**Bottom land.** The normal flood plain of a stream, subject to flooding.

**Boulders.** Rock fragments larger than 2 feet (60 centimeters) in diameter.

**Cable yarding.** A method of moving felled trees to a nearby central area for transport to a processing facility. Most cable yarding systems involve use of a drum, a pole, and wire cables in an arrangement similar to that of a rod and reel used for fishing. Generally, friction and soil disturbance are minimized by reeling in felled trees with one end lifted or the entire log suspended.

**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.

**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.

**Channel flow.** Water from roads, roofs, parking lots, and other impervious surfaces flowing into intermittent drainageways during and after heavy rainfall.

**Channery soil.** A soil that is, by volume, more than 15 percent thin, flat fragments of metasandstone, slate, or phyllite as much as 6 inches along the longest axis. A single piece is called a fragment.

**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.

**Clayey.** A general textural term that includes sandy clay, silty clay, and clay. According to family level criteria in the soil taxonomic system, a specific textural name referring to fine earth (particles less than 2 millimeters in size) containing 35 percent or more clay, by weight, within the control section. The content of rock fragments is less than 35 percent, by volume.

**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 vegetation.** 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.

**Clod.** See Aggregate, soil.

**Coarse fragments.** If round, mineral or rock particles 2 millimeters to 25 centimeters (10 inches) in diameter; if flat, mineral or rock particles (flagstone) 15 to 38 centimeters (6 to 15 inches) long.

**Coarse-loamy.** According to family level criteria in the soil taxonomic system, soil containing less than 18 percent, by weight, clay and 15 percent or more fine sand or coarser material.

**Coarse textured soil.** Sand or loamy sand.

**Cobblestone (or cobble).** A rounded or partly rounded

fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

**Colluvium.** Soil material, rock fragments, or both moved by creep, slide, or local wash and deposited at the base of steep slopes.

**Complex slope.** Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

**Complex, soil.** A map unit of two or more kinds of soil 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 are somewhat similar in all areas.

**Concretions.** Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

**Conservation tillage.** A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

**Consistence, soil.** The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are:

*Loose.*—Noncoherent when dry or moist; does not hold together in a mass.

*Friable.*—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

*Firm.*—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

*Plastic.*—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

*Sticky.*—When wet, adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.

*Hard.*—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

*Soft.*—When dry, breaks into powder or individual grains under very slight pressure.

*Cemented.*—Hard; little affected by moistening.

**Contour stripcropping.** Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

**Control section.** The part of the soil on which classification is based. The thickness varies

among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

**Cove.** A wide, gently sloping to steep, concave colluvial area. Commonly at the head of or along drainageways in mountainous areas.

**Cover crop.** A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

**Crop residue management.** Use of that portion of the plant or crop left in the field after harvest for protection or improvement of the soil.

**Crust.** A thin, hard layer of soil material that forms on the surface in cultivated areas as the result of fine soil material settling out of ponding.

**Cutbanks cave** (in tables). The walls of excavations tend to cave in or slough.

**Dbh (diameter at breast height).** The diameter of a tree at 4.5 feet above the ground level on the uphill side.

**Deferred grazing.** Postponing grazing or resting grazing land for a prescribed period.

**Delineation.** The process of drawing or plotting features on a map with lines and symbols.

**Denitrification.** The biochemical reduction of nitrate or nitrite to gaseous nitrogen either as molecular nitrogen or as an oxide of nitrogen.

**Depth class.** Refers to the depth to a root-restricting layer. Unless otherwise stated, this layer is understood to be consolidated bedrock. The depth classes in this survey are:

Very shallow . . . . .	less than 10 inches
Shallow . . . . .	10 to 20 inches
Moderately deep . . . . .	20 to 40 inches
Deep . . . . .	40 to 60 inches
Very deep . . . . .	more than 60 inches

**Depth to rock** (in tables). Bedrock is too near the surface for the specified use.

**Diversion (or diversion terrace).** A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

**Drainage class** (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

*Excessively drained.*—Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow.

Some are steep. All are free of the mottling related to wetness.

*Somewhat excessively drained.*—Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious.

Some are shallow. Some are so steep that much of the water they receive is lost as runoff. All are free of the mottling related to wetness.

*Well drained.*—Water is removed from the soil readily, but not rapidly. It is available to plants throughout most of the growing season, and wetness does not inhibit growth of roots for significant periods during most growing seasons. Well drained soils are commonly medium textured. They are mainly free of mottling.

*Moderately well drained.*—Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically they are wet long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum or periodically receive high rainfall, or both.

*Somewhat poorly drained.*—Water is removed slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of mesophytic crops unless artificial drainage is provided. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.

*Poorly drained.*—Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. Free water is commonly at or near the surface for long enough during the growing season that most mesophytic crops cannot be grown unless the soil is artificially drained. The soil is not continuously saturated in layers directly below plow depth. Poor drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.

*Very poorly drained.*—Water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season. Unless the soil is artificially drained, most mesophytic crops cannot be grown. Very poorly drained soils are commonly level or depressed and are frequently ponded. Yet, where rainfall is high and nearly continuous, they can have moderate or high slope gradients.

**Drainage, surface.** Runoff, or surface flow of water, from an area.

**Drainageway.** A narrow, gently sloping to very steep, concave colluvial area along an intermittent or perennial stream.

**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.

**Engineering index test data.** Laboratory test and mechanical analysis of selected soils in the county.

**Erosion.** The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

*Erosion (geologic)*—Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

*Erosion (accelerated)*—Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as fire, that exposes the surface.

**Erosion classes.** Classes based on estimates of past erosion. The classes are as follows:

*Class 1.*—Soils that have lost some of the original A horizon but on the average less than 25 percent of the original A horizon or of the uppermost 8 inches (if the original A horizon was less than 8 inches thick). Throughout most of the area, the thickness of the surface layer is within the normal range of variability of the uneroded soil. Class 1 erosion typically is not designated in the name of the map unit or in the map symbol.

*Class 2.*—Soils that have lost an average of 25 to 75 percent of the original A horizon or of the uppermost 8 inches (if the original A horizon was less than 8 inches thick). Throughout most cultivated areas of class 2 erosion, the surface layer consists of a mixture of the original A horizon and material from below. Some areas may have intricate patterns ranging from uneroded spots to spots where all of the original A horizon has been removed.

*Class 3.*—Soils that have lost an average of 75 percent or more of the original A horizon or of the uppermost 8 inches (if the original A horizon was less than 8 inches thick). In most cultivated areas of class 3 erosion, material that was below the original A horizon is exposed. The plow layer consists entirely or largely of this material.

*Class 4.*—Soils that have lost all of the original A horizon or of the uppermost 8 inches (if the original A horizon was less than 8 inches thick) plus some or all of the deeper horizons throughout most of the area. The original soil can be identified only in spots. Some areas may be smooth, but most have an intricate pattern of gullies.

**Erosion hazard.** Terms describing the potential for future erosion, inherent in the soil itself, in inadequately protected areas. The following definitions are based on estimated annual soil loss in tons per acre (values determined by the Universal Soil Loss Equation assuming bare soil conditions and using rainfall and climate factors for North Carolina):

0 tons per acre . . . . .	none
Less than 1 ton per acre . . . . .	slight
1 to 5 tons per acre . . . . .	moderate
5 to 10 tons per acre . . . . .	severe
More than 10 tons per acre . . . . .	very severe

**Evapotranspiration.** The combined loss of water from a given area through surface evaporation and through transpiration by plants during a specified period.

**Excess fines** (in tables). Excess silt and clay in the soil. The soil is not a source of gravel or sand for construction purposes.

**Fault.** A surface of rock rupture along which there has been differential movement.

**Felsic rock.** A general term for light colored igneous rock and some metamorphic crystalline rock.

**Fertility, soil.** The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

**Field moisture capacity.** The moisture content of a soil, expressed as a percentage of the oven-dry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity*, *normal moisture capacity*, or *capillary capacity*.

**Fill slope.** A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.

**Fine-loamy.** According to family level criteria in the soil taxonomic system, soil containing 18 to 35 percent, by weight, clay and 15 percent or more fine sand or coarser material.

**Fine textured soil.** Sandy clay, silty clay, or clay.

**Firebreak.** Area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and

equipment. Designated roads also serve as firebreaks.

**First bottom.** The normal flood plain of a stream, subject to frequent or occasional flooding.

**Flagstone.** A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist, 6 to 15 inches (15 to 37.5 centimeters) long.

**Flooding.** The temporary covering of the soil surface by flowing water from any source, such as overflowing streams, runoff from adjacent or surrounding slopes, and inflow from high tides. The frequency of flooding generally is expressed as none, rare, occasional, or frequent. *None* means that flooding is not probable. *Rare* means that flooding is unlikely but possible under unusual weather conditions (the chance of flooding is nearly 0 percent to 5 percent in any year). *Occasional* means that flooding occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year). *Frequent* means that flooding occurs often under normal weather conditions (the chance of flooding is more than 50 percent in any year). The duration of flooding is expressed as *very brief* (less than 2 days), *brief* (2 to 7 days), *long* (7 days to 1 month), and *very long* (more than 1 month).

**Flood plain.** A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

**Foot slope.** The inclined surface at the base of a hill.

**Forb.** Any herbaceous plant that is not a grass or a sedge.

**Forest type.** A classification of forest land based on the species forming the majority of live-tree stocking.

**Fragile** (in tables). The soil is easily damaged by use or disturbance.

**Frost action** (in tables). Freezing and thawing of soil moisture can damage roads, buildings and other structures, and plant roots.

**Genesis, soil.** The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

**Gleyed soil.** Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors and mottles.

**Gneiss.** A coarse grained metamorphic rock in which bands rich in granular minerals alternate with bands in which schistose minerals predominate. It is commonly formed by the metamorphism of granite.

**Graded stripcropping.** Growing crops in strips that grade toward a protected waterway.

**Granite.** A coarse grained igneous rock dominated by light colored minerals, consisting of about 50 percent orthoclase and 25 percent quartz with the balance being plagioclase feldspars and ferromagnesian silicates. Granites and granodiorites comprise 95 percent of all intrusive rocks.

**Grassed waterway.** A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

**Gravel.** Rounded or angular fragments of rock up to 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

**Gravelly soil material.** Material that is 15 to 50 percent, by volume, rounded or angular rock fragments, not prominently flattened, up to 3 inches (7.6 centimeters) in diameter.

**Green manure crop** (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

**Ground water** (geology). 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.

**High-grade metamorphic rocks.** Highly metamorphosed rocks, such as gneiss and schist.

**High mountains.** The part of the landscape that is above an elevation of about 4,600 feet. It is dominated by frigid soil temperatures.

**High rainfall.** Rainfall is high enough to compensate for droughty soils. Annual rainfall is normally more than 60 inches and is evenly distributed throughout the year.

**High stream terrace.** A terrace, commonly 20 feet or higher in elevation than the adjacent flood plain, that is no longer subject to flooding.

**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 at the surface of a mineral soil.

*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 O, A, or E horizon. The B horizon is, in part, a layer of transition from the overlying horizon to the underlying C horizon. The B horizon also has distinctive characteristics, such as accumulation of clay, sesquioxides, humus, or a combination of these; prismatic or blocky structure; redder or browner colors than those in the A horizon; or a combination of these. The combined A and B horizons are generally called the solum, or true soil. If a soil does not have a B horizon, the A horizon alone is the solum.

*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 A or B horizon. 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 rock (unweathered bedrock) beneath the soil. The bedrock commonly underlies a C horizon but can be directly below an A or a B horizon.

**Hornblende.** A rock-forming ferromagnesian silicate mineral of the amphibole group.

**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-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff. Soils are assigned to four groups. In group A are soils having a high infiltration rate when thoroughly wet and having a low runoff potential. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a permanent

high water table, or are shallow over nearly impervious bedrock or other material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

**Hydroseeding.** A method of applying seed, fertilizer, and mulch to steep areas by mixing those ingredients with water and spraying the slurry under pressure from a truck.

**Igneous rock.** Rock formed by solidification from a molten or partially molten state, generally crystalline in nature.

**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. This contrasts with percolation, which is movement of water through soil layers or material.

**Infiltration capacity.** The maximum rate at which water can infiltrate into a soil under a given set of conditions.

**Infiltration rate.** The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

**Intake rate.** The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2 .....	very low
0.2 to 0.4 .....	low
0.4 to 0.75 .....	moderately low
0.75 to 1.25 .....	moderate
1.25 to 1.75 .....	moderately high
1.75 to 2.5 .....	high
More than 2.5 .....	very high

**Intermediate mountains.** The part of the landscape that ranges from about 3,000 to 4,800 feet in elevation. It is dominated by mesic soil temperatures.

**Intermediate rock.** Igneous or metamorphic crystalline rock that is intermediate in composition between mafic and felsic rock.

**Irrigation.** Application of water to soils to assist in production of crops. Methods of irrigation are:  
*Border.*—Water is applied at the upper end of a

strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

*Drip (or trickle).*—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

*Furrow.*—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

*Sprinkler.*—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

**Knoll.** A small, low, rounded hill rising above adjacent landforms.

**Landscape.** A section or portion of the land. Examples are high, intermediate, and low mountains; low rolling hills; and flood plains. Parts of a landscape include side slopes, back slopes, toe slopes, foot slopes, ridgetops, ridge noses, and spur or finger ridges.

**Landscape position.** A particular location on a landscape. Examples are summit of a ridge, shoulder of a ridge, ridge nose, side slope, back slope, foot slope, toe slope, 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.

**Large stones** (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

**Leaching.** The removal of soluble material from soil or other material by percolating water.

**Liquid limit.** The moisture content at which the soil passes from a plastic to a liquid state.

**Loam.** Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

**Loamy.** A general textural term that includes coarse sandy loam, sandy loam, fine sandy loam, very fine sandy loam, loam, silt loam, silt, clay loam, sandy clay loam, and silty clay loam. According to family level criteria in the soil taxonomic system, a specific textural name referring to fine earth (particles less than 2 millimeters in size) of loamy very fine sand or finer textured material that contains less than 35 percent clay, by weight, within the control section. The content of rock fragments is less than 35 percent, by volume.

**Low mountains.** The part of the landscape that ranges from about 2,500 to 3,500 feet in elevation. It is dominated by mesic soil temperatures.

**Low rainfall.** Rainfall so low that the droughty nature of some soils is apparent. Annual rainfall is normally less than 40 inches.

**Low rolling hills.** The part of the landscape that ranges from about 1,900 to 2,500 feet in elevation. It is dominated by mesic soils and has broad ridges and short side slopes.

**Low stream terrace.** A terrace in an area that floods, commonly 3 to 10 feet higher in elevation than the adjacent flood plain.

**Low strength.** The soil is not strong enough to support loads.

**Mafic rock.** A dark rock composed predominantly of magnesium silicates. It contains little quartz, feldspar, or muscovite mica.

**Mean annual increment.** The average yearly volume of a stand of trees from the year of origin to the age under consideration.

**Medium textured soil.** Very fine sandy loam, loam, silt loam, or silt.

**Metamorphic rock.** Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement.

**Metasedimentary rock.** Metamorphosed sedimentary rocks, such as phyllite, metasandstone, and conglomerate.

**Metasediments.** Parent material derived from metasedimentary rocks.

**Micas.** A group of silicate minerals characterized by sheet or scale cleavage. Biotite is the ferromagnesian black mica. Muscovite is the potassic white mica.

**Microrelief.** The concave to convex changes in the land surface occurring over a relatively short distance or small area, such as one acre.

**Mineral soil.** Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

**Minimum tillage.** Only the tillage essential to crop production and prevention of soil damage.

**Miscellaneous area.** An area that has little or no natural soil and supports little or no vegetation.

**Moderately coarse textured soil.** Coarse sandy loam, sandy loam, or fine sandy loam.

**Moderately fine textured soil.** Clay loam, sandy clay loam, or silty clay loam.

**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. Mottling generally

indicates poor aeration and impeded drainage. 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).

**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.

**Muscovite.** A nonferromagnesian rock-forming silicate mineral with its tetrahedra arranged in sheets. It is commonly called “white mica” and sometimes called “potassic mica.”

**Natural soil.** Soil material or saprolite that is in place and is not fill.

**Neutral soil.** A soil having a pH value between 6.6 and 7.3. (See Reaction, soil.)

**No-till planting.** A method of planting crops in which there is virtually no seedbed preparation. A thin slice of the soil is opened, and the seed is planted at the desired depth.

**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.

**Overstory.** The portion of the trees in a forest stand forming the upper crown cover.

**Organic matter.** Plant and animal residue in the soil in various stages of decomposition.

**Parent material.** The unconsolidated organic and mineral material in which soil forms.

**Ped.** An individual natural soil aggregate, such as a granule, a prism, or a block.

**Pedon.** The smallest volume that can be called “a soil.” A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

**Pegmatite.** A small pluton of exceptionally coarse texture, commonly formed at the margin of a batholith characterized by graphic structure. Nearly 90 percent of all pegmatites are simple pegmatites of quartz, orthoclase, and unimportant percentages of micas.

**Percolation.** The downward movement of water through the soil.

**Percs slowly** (in tables). The slow movement of water through the soil adversely affects the specified use.

**Permeability.** The quality of the soil that enables water to move through the profile. Permeability is measured as the number of inches per hour that water moves through the saturated soil. Terms describing permeability are:

Very slow .....	less than 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 thickness.

**pH value.** A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

**Piping** (in tables). Subsurface tunnels or pipelike cavities are formed by water moving through the soil.

**Plasticity index.** The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

**Plastic limit.** The moisture content at which a soil changes from semisolid to plastic.

**Ponding.** Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

**Poor filter** (in tables). Because of rapid permeability, the soil may not adequately filter effluent from a waste disposal system.

**Poorly graded.** Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

**Potential natural plant community.** The total plant community that is best adapted to the combination of environmental factors and is in dynamic equilibrium with the environment.

**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.

**Reaction, soil.** A measure of the 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.....	below 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
Mildly 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

**Reforestation.** The process in which tree seedlings are planted or become naturally established in an area that was once forested.

**Relief.** The elevations or inequalities of a land surface, considered collectively.

**Residuum (residual soil material).** Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

**Ridge.** See Ridgetop.

**Ridge nose.** The landscape position that is the terminal point of a ridge or a spur ridge.

**Ridgetop.** The landscape position that is the crest of a hill or mountain.

**Rill.** A steep-sided channel resulting from accelerated erosion. A rill is generally a few inches deep and not wide enough to be an obstacle to farm machinery.

**Rippable.** Rippable bedrock or hardpan can be excavated using a single-tooth ripping attachment mounted on a tractor with a 200-300 drawbar horsepower rating.

**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.

**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 groundwater runoff or seepage flow from ground water.

**Runoff class (surface).** Refers to the rate at which water flows away from the soil over the surface without infiltrating. Six classes of rate of runoff are recognized:

*Ponded.*—Little of the precipitation and water that

runs onto the soil escapes as runoff, and free water stands on the surface for significant periods. The amount of water that is removed from ponded areas by movement through the soil, by plants, or by evaporation is usually greater than the total rainfall. Ponding normally occurs on level and nearly level soils in depressions. The water depth may fluctuate greatly.

*Very slow.*—Surface water flows away slowly, and free water stands on the surface for long periods or immediately enters the soil. Most of the water passes through the soil, is used by plants, or evaporates. The soils are commonly level or nearly level or are very porous.

*Slow.*—Surface water flows away so slowly that free water stands on the surface for moderate periods or enters the soil rapidly. Most of the water passes through the soil, is used by plants, or evaporates. The soils are nearly level or very gently sloping, or they are steeper but absorb precipitation very rapidly.

*Medium.*—Surface water flows away so rapidly that free water stands on the surface for only short periods. Part of the precipitation enters the soil and is used by plants, is lost by evaporation, or moves into underground channels. The soils are nearly level or gently sloping and absorb precipitation at a moderate rate, or they are steeper but absorb water rapidly.

*Rapid.*—Surface water flows away so rapidly that the period of concentration is brief and free water does not stand on the surface. Only a small part of the water enters the soil. The soils are mainly moderately steep or steep and have moderate or slow rates of absorption.

*Very rapid.*—Surface water flows away so rapidly that the period of concentration is very brief and free water does not stand on the surface. Only a small part of the water enters the soil. The soils are mainly steep or very steep and absorb precipitation slowly.

**Sand.** As a soil separate, individual rock or mineral fragments 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.

**Sandy.** A general textural term that includes coarse sand, sand, fine sand, very fine sand, loamy coarse sand, loamy sand, loamy fine sand, and loamy very fine sand. According to family level criteria in the soil taxonomic system, a specific textural name referring to fine earth (particles less than 2 millimeters in size) of sand or loamy sand that contains less than 50 percent very fine sand,

by weight, within the control section. The content of rock fragments is less than 35 percent, by volume.

**Saprolite** (soil science). Unconsolidated, residual material underlying the soil and grading to hard bedrock below.

**Schist**. A metamorphic rock dominated by fibrous or platy minerals. It has schistose cleavage and is a product of regional metamorphism.

**Seasonal high water table**. The highest level of a saturated zone (the apparent or perched water table) over a continuous period of more than 2 weeks in most years, but not a permanent water table.

**Seep**. A small area on the landscape where water oozes through the soil and causes the surface to remain wet. The water does not flow on the surface.

**Seepage** (in tables). The movement of water through the soil adversely affects the specified use.

**Series, soil**. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer or of the underlying material. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

**Sheet erosion**. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

**Shoulder**. The landscape position, parallel to the summit, that is just below the ridgetop and just above the side slope.

**Shrink-swell**. The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

**Side slope**. The landscape position that is just below the shoulder and just above the toe slope, occupying most of the mountainside or hillside.

**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.

**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 feet.

**Skidding**. A method of moving felled trees to a nearby central area for transport to a processing facility. Most systems involve pulling the trees with wire cables attached to a bulldozer or rubber-tired

tractor. Generally, felled trees are skidded or pulled with one end lifted to reduce friction and soil disturbance.

**Skid trails**. The paths left from skidding logs and the bulldozer or tractor used to pull them.

**Slate**. A fine grained metamorphic rock with well developed slaty cleavage. Formed by the low-grade regional metamorphism of shale.

**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 area slope classes are as follows:

Nearly level.....	0 to 3 percent
Gently sloping .....	1 to 8 percent
Strongly sloping.....	8 to 15 percent
Moderately steep .....	15 to 30 percent
Steep .....	30 to 50 percent
Very steep .....	50 to 95 percent

**Slope** (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

**Small stones** (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

**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 compaction**. An alteration of soil structure that ultimately can affect the biological and chemical properties of the soil. Compaction decreases the extent of voids and increases bulk density.

**Soil map unit**. A kind of soil or miscellaneous area or a combination of two or more soils or one or more soils and one or more miscellaneous areas that can be shown at the scale of mapping for the defined purposes and objectives of the soil survey. They are generally designed to reflect significant differences in use and management.

**Soil puddling**. This condition occurs in certain soils when they are driven over while they are wet. Exertion of mechanical force destroys the soil structure by compressing and shearing and results in the rearrangement of the soil particles to a massive or nonstructural state.

**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

**Soil strength.** Load supporting capacity of a soil at specific moisture and density conditions.

**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 underlying material. The living roots and plant and animal activities are largely confined to the solum.

**Spring.** A small area on the landscape where water flows naturally through the soil onto the surface.

**Spur ridge.** A landscape position that is a sharply convex portion of a mountain side slope extending from the main ridge to some point of lower elevation.

**Stand density.** The degree to which an area is covered with living trees. It is usually expressed in units of basal areas per acre, number of trees per acre, or the percentage of ground covered by the tree canopy as viewed from above.

**Stone line.** A concentration of coarse fragments in a soil. Generally, it is indicative of an old weathered surface. In a cross section, thickness of the line can be one fragment or more. It generally overlies material that weathered in place, and it 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.

**Stripcropping.** Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to soil blowing and water erosion.

**Structure, soil.** The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

**Stubble mulch.** Stubble or other crop residue left on

the soil or partly worked into the soil. It protects the soil from soil blowing and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

**Subsoil.** Technically, the B horizon; roughly, the part of the solum below plow depth.

**Subsoiling.** Breaking up a compact subsoil by pulling a special chisel through the soil.

**Subsurface layer.** Technically, the E horizon. Generally refers to a leached horizon lighter in color and lower in organic matter content than the overlying surface layer.

**Suitability ratings.** Ratings for the degree of suitability of soils for pasture, crops, woodland, and engineering uses. The ratings and the general criteria used for their selection are as follows:  
*Well suited.*—The intended use may be initiated and maintained by using only the standard materials and methods typically required for that use. Good results can be expected.

*Suited or moderately suited.*—The limitations affecting the intended use make special planning, design, or maintenance necessary.

*Poorly suited.*—The intended use is difficult or costly to initiate and maintain because of certain soil properties, such as steep slopes, a high hazard of erosion, a high water table, low fertility, and a hazard of flooding. Major soil reclamation, special design, or intensive management practices are needed.

*Very poorly suited, not suited, or unsuited.*—The intended use is very difficult or costly to initiate and maintain, and thus it generally should not be undertaken.

**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.”

**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.

**Terrace.** An embankment, or ridge, constructed on the contour or at a slight angle to the contour across sloping soils. The terrace intercepts surface runoff, so that water soaks into the soil or flows slowly to a prepared outlet.

**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." The textural classes are defined as follows:

*Sands (coarse sand, sand, fine sand, and very fine sand).*—Soil material in which the content of sand is 85 percent or more and the percentage of silt plus 1½ times the percentage of clay does not exceed 15.

*Loamy sands (loamy coarse sand, loamy sand, loamy fine sand, and loamy very fine sand).*—Soil material in which, at the upper limit, the content of sand is 85 to 90 percent and the percentage of silt plus 1½ times the percentage of clay is not less than 15; at the lower limit, the content of sand is 70 to 85 percent and the percentage of silt plus twice the percentage of clay does not exceed 30.

*Sandy loams (coarse sandy loam, sandy loam, fine sandy loam, and very fine sandy loam).*—Soil material in which the content of clay is 20 percent or less, the percentage of silt plus twice the percentage of clay exceeds 30, and the content of sand is 52 percent or more or soil material in which the content of clay is less than 7 percent, the content of silt is less than 50 percent, and the content of sand is 43 to 52 percent.

*Loam.*—Soil material that contains 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand.

*Silt loam.*—Soil material that contains 50 or more percent silt and 12 to 27 percent clay or 50 to 80 percent silt and less than 12 percent clay.

*Silt.*—Soil material that contains 80 or more percent silt and less than 12 percent clay.

*Sandy clay loam.*—Soil material that contains 20 to 35 percent clay, less than 28 percent silt, and 45 or more percent sand.

*Clay loam.*—Soil material that contains 27 to 40 percent clay and 20 to 45 percent sand.

*Silty clay loam.*—Soil material that contains 27 to 40 percent clay and less than 20 percent sand.

*Sandy clay.*—Soil material that contains 35 or more percent clay and 45 or more percent sand.

*Silty clay.*—Soil material that contains 40 or more percent clay and 40 or more percent silt.

*Clay.*—Soil material that contains 40 or more percent clay, less than 45 percent sand, and less than 40 percent silt.

**Thin layer** (in tables). A layer of otherwise suitable soil material that is too thin for the specified use.

**Tilth, soil.** The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

**Toe slope.** The outermost inclined surface at the base of a hill; part of a foot slope.

**Topography.** The relative positions and elevations of the natural or manmade features of an area that describe the configuration of its surface.

**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, such as zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

**Ultra acid, sulfur-bearing rock.** Rock rich in pyrite (iron disulfide).

**Underlying material.** Technically the C horizon; the part of the soil below the biologically altered A and B horizons.

**Understory.** The trees and other woody species growing under a more or less continuous cover of branches and foliage formed collectively by the upper portions of adjacent trees and other woody growth.

**Universal soil loss equation.** An equation used to design water erosion control systems. The equation is  $A=RKLSPC$  wherein A is the average annual soil loss in tons per acre per year, R is the rainfall factor, K is the soil erodibility factor, L is the length of slope, S is the steepness of slope, P is the conservation practice factor, and C is the cropping and management factor.

**Upland** (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

**Water table (apparent).** A thick zone of free water in the soil. The apparent water table is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil.

**Water table (perched).** A saturated zone of water in the soil standing above an unsaturated zone.

**Water table (seasonal high).** The highest level of a saturated zone in the soil (the apparent or perched water table) over a continuous period of more than 2 weeks in most years, but not a permanent water table.

**Weathering.** All physical and chemical changes produced by atmospheric agents in rocks or other deposits at or near the earth's surface. 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.

**Wetness.** A general term applied to soils that hold water at or near the surface long enough to be a common management problem.

**Windthrow.** The uprooting and tipping over of trees by the wind.

**Wilting point (or permanent wilting point).** The moisture content of soil, on an oven-dry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

**Yarding paths.** The paths left from cable-yarded logs as they are pulled uphill or downhill to a nearby central area.



# Tables

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TABLE 1.--TEMPERATURE AND PRECIPITATION

(Recorded in the period 1951-81 at Franklin, North Carolina)

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average daily	2 years in 10 will have--		Average number of growing degree days*	Average	2 years in 10 will have--		Average number of days with 0.10 inch or more	Average snowfall
				Maximum temperature higher than--	Minimum temperature lower than--			Less than--	More than--		
<u>°</u> <u>F</u>	<u>°</u> <u>F</u>	<u>°</u> <u>F</u>	<u>°</u> <u>F</u>	<u>°</u> <u>F</u>	<u>Units</u>	<u>In</u>	<u>In</u>	<u>In</u>		<u>In</u>	
January-----	50.0	25.1	37.6	71	-2	26	4.60	2.82	6.20	9	2.2
February-----	53.3	26.5	39.9	74	3	25	4.69	2.42	6.66	8	2.5
March-----	60.6	33.2	46.9	81	10	75	5.99	3.88	7.89	10	1.1
April-----	70.9	41.0	56.0	87	22	194	4.36	2.57	5.95	8	.0
May-----	77.6	48.9	63.3	89	29	412	4.15	2.14	5.91	8	.0
June-----	83.0	57.0	70.0	93	39	600	4.32	2.59	5.86	9	.0
July-----	85.5	61.3	73.4	94	48	725	4.25	2.49	5.81	9	.0
August-----	85.2	60.9	73.1	93	49	716	4.25	2.31	5.95	8	.0
September---	80.4	55.2	67.8	92	35	534	4.01	1.89	5.83	6	.0
October-----	71.7	41.8	56.8	85	19	222	3.27	1.26	4.97	6	.0
November-----	61.1	32.0	46.6	79	10	41	3.52	2.19	4.70	6	.3
December-----	52.4	26.7	39.6	72	3	19	4.58	2.33	6.53	8	1.4
Yearly:											
Average---	69.3	42.5	55.9	---	---	---	---	---	---	---	---
Extreme---	---	---	---	96	-3	---	---	---	---	---	---
Total-----	---	---	---	---	---	3,589	51.99	45.73	58.03	95	7.5

\* 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 (50 degrees F).

TABLE 2.--FREEZE DATES IN SPRING AND FALL  
(Recorded in the period 1951-81 at Franklin, North Carolina)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	Apr. 20	May 4	May 19
2 years in 10 later than--	Apr. 15	Apr. 29	May 14
5 years in 10 later than--	Apr. 4	Apr. 20	May 4
First freezing temperature in fall:			
1 year in 10 earlier than--	Oct. 17	Oct. 6	Oct. 1
2 years in 10 earlier than--	Oct. 21	Oct. 11	Oct. 4
5 years in 10 earlier than--	Oct. 30	Oct. 20	Oct. 11

TABLE 3.--GROWING SEASON  
(Recorded in the period 1951-81 at Franklin, North Carolina)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
9 years in 10	187	162	142
8 years in 10	195	169	148
5 years in 10	209	183	160
2 years in 10	223	196	171
1 year in 10	230	203	177

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
ArA	Arkaqua loam, 0 to 2 percent slopes, frequently flooded-----	575	0.2
BeA	Biltmore sandy loam, 0 to 3 percent slopes, frequently flooded-----	214	0.1
BkB2	Braddock clay loam, 2 to 8 percent slopes, eroded-----	206	0.1
BkC2	Braddock clay loam, 8 to 15 percent slopes, eroded-----	1,405	0.4
BrC	Braddock-Urban land complex, 2 to 15 percent slopes-----	611	0.2
BrD	Braddock-Urban land complex, 15 to 30 percent slopes-----	148	*
BsC	Brasstown-Junaluska complex, 8 to 15 percent slopes-----	91	*
BsD	Brasstown-Junaluska complex, 15 to 30 percent slopes-----	1,159	0.3
BsE	Brasstown-Junaluska complex, 30 to 50 percent slopes-----	2,902	0.9
BsF	Brasstown-Junaluska complex, 50 to 95 percent slopes-----	546	0.2
BuD	Burton-Craggey-Rock outcrop complex, windswept, 15 to 30 percent slopes, stony-----	340	0.1
BuF	Burton-Craggey-Rock outcrop complex, windswept, 30 to 95 percent slopes, stony-----	355	0.1
CaE	Cashiers gravelly fine sandy loam, 30 to 50 percent slopes-----	833	0.3
CaF	Cashiers gravelly fine sandy loam, 50 to 95 percent slopes-----	687	0.2
CcF	Cataska-Sylco complex, 50 to 95 percent slopes-----	3,560	1.1
CdD	Chandler gravelly fine sandy loam, 15 to 30 percent slopes-----	1,141	0.3
CdE	Chandler gravelly fine sandy loam, 30 to 50 percent slopes-----	4,157	1.4
CdF	Chandler gravelly fine sandy loam, 50 to 95 percent slopes-----	2,115	0.6
ChE	Cheoah channery loam, 30 to 50 percent slopes-----	1,660	0.5
ChF	Cheoah channery loam, 50 to 95 percent slopes-----	6,505	2.0
CnC	Chestnut-Edneyville complex, windswept, 8 to 15 percent slopes, stony-----	97	*
CnD	Chestnut-Edneyville complex, windswept, 15 to 30 percent slopes, stony-----	507	0.2
CnE	Chestnut-Edneyville complex, windswept, 30 to 50 percent slopes, stony-----	638	0.2
CpD	Cleveland-Chestnut-Rock outcrop complex, windswept, 15 to 30 percent slopes-----	1,176	0.3
CpE	Cleveland-Chestnut-Rock outcrop complex, windswept, 30 to 50 percent slopes-----	2,062	0.6
CpF	Cleveland-Chestnut-Rock outcrop complex, windswept, 50 to 95 percent slopes-----	5,086	1.5
CsD	Cullasaja very cobbly fine sandy loam, 15 to 30 percent slopes, extremely bouldery-----	307	0.1
CsE	Cullasaja very cobbly fine sandy loam, 30 to 50 percent slopes, extremely bouldery-----	670	0.2
CuD	Cullasaja-Tuckasegee complex, 15 to 30 percent slopes, stony-----	18,847	5.7
CuE	Cullasaja-Tuckasegee complex, 30 to 50 percent slopes, stony-----	8,623	2.6
CuF	Cullasaja-Tuckasegee complex, 50 to 95 percent slopes, stony-----	144	*
DgB	Dellwood gravelly fine sandy loam, 0 to 5 percent slopes, frequently flooded-----	518	0.2
DrB	Dillard loam, 1 to 5 percent slopes, rarely flooded-----	238	0.1
DsB	Dillsboro loam, 2 to 8 percent slopes-----	545	0.2
DsC	Dillsboro loam, 8 to 15 percent slopes-----	130	*
EdB	Edneyville-Chestnut complex, 2 to 8 percent slopes, stony-----	1,109	0.3
EdC	Edneyville-Chestnut complex, 8 to 15 percent slopes, stony-----	3,464	1.0
EdD	Edneyville-Chestnut complex, 15 to 30 percent slopes, stony-----	9,805	2.9
EdE	Edneyville-Chestnut complex, 30 to 50 percent slopes, stony-----	21,163	6.4
EdF	Edneyville-Chestnut complex, 50 to 95 percent slopes, stony-----	15,732	4.7
EeC	Edneyville-Chestnut-Urban land complex, 2 to 15 percent slopes-----	430	0.1
EeD	Edneyville-Chestnut-Urban land complex, 15 to 30 percent slopes-----	373	0.1
EvB	Evard-Cowee complex, 2 to 8 percent slopes-----	79	*
EvC	Evard-Cowee complex, 8 to 15 percent slopes-----	5,155	1.5
EvD	Evard-Cowee complex, 15 to 30 percent slopes-----	28,506	8.6
EvE	Evard-Cowee complex, 30 to 50 percent slopes-----	43,406	13.0
EvF	Evard-Cowee complex, 50 to 95 percent slopes-----	17,888	5.4
ExC	Evard-Cowee-Urban land complex, 8 to 15 percent slopes-----	274	0.1
ExD	Evard-Cowee-Urban land complex, 15 to 30 percent slopes-----	376	0.1
FaC	Fannin fine sandy loam, 8 to 15 percent slopes-----	215	0.1
FaD	Fannin fine sandy loam, 15 to 30 percent slopes-----	2,854	0.8
FaE	Fannin fine sandy loam, 30 to 50 percent slopes-----	4,024	1.2
FaF	Fannin fine sandy loam, 50 to 95 percent slopes-----	562	0.2
HaB2	Hayesville clay loam, 2 to 8 percent slopes, eroded-----	173	0.1
HaC2	Hayesville clay loam, 8 to 15 percent slopes, eroded-----	1,526	0.5
HaD2	Hayesville clay loam, 15 to 30 percent slopes, eroded-----	2,526	0.7
HmA	Hemphill loam, 0 to 3 percent slopes, rarely flooded-----	232	0.1
NkA	Nikwasi fine sandy loam, 0 to 2 percent slopes, frequently flooded-----	1,263	0.4
OwE	Oconaluftee channery loam, windswept, 30 to 50 percent slopes-----	183	0.1
PwC	Plott fine sandy loam, 8 to 15 percent slopes, stony-----	98	*
PwD	Plott fine sandy loam, 15 to 30 percent slopes, stony-----	1,075	0.3
PwE	Plott fine sandy loam, 30 to 50 percent slopes, stony-----	8,415	2.5

See footnote at end of table.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Acres	Percent
PwF	Plott fine sandy loam, 50 to 95 percent slopes, stony-----	14,214	4.3
ReA	Reddies fine sandy loam, 0 to 3 percent slopes, frequently flooded-----	2,290	0.7
RhF	Rock outcrop-Cataska complex, 30 to 95 percent slopes-----	639	0.2
RkF	Rock outcrop-Cleveland complex, 30 to 95 percent slopes-----	4,964	1.5
RSA	Rosman fine sandy loam, 0 to 2 percent slopes, frequently flooded-----	2,554	0.8
SbC	Saunook gravelly loam, 8 to 15 percent slopes, stony-----	1,415	0.4
SbD	Saunook gravelly loam, 15 to 30 percent slopes, stony-----	10,041	3.0
SbE	Saunook gravelly loam, 30 to 50 percent slopes, stony-----	2,218	0.7
ScB	Saunook loam, 2 to 8 percent slopes-----	1,678	0.5
ScC	Saunook loam, 8 to 15 percent slopes-----	5,976	1.8
SoD	Soco-Stecoah complex, 15 to 30 percent slopes-----	212	0.1
SoE	Soco-Stecoah complex, 30 to 50 percent slopes-----	7,360	2.2
SoF	Soco-Stecoah complex, 50 to 95 percent slopes-----	9,823	2.9
SrC	Spivey-Santeetlah complex, 8 to 15 percent slopes, stony-----	871	0.3
SrD	Spivey-Santeetlah complex, 15 to 30 percent slopes, stony-----	3,519	1.0
SrE	Spivey-Santeetlah complex, 30 to 50 percent slopes, stony-----	5,462	1.6
StB	Statler fine sandy loam, 1 to 5 percent slopes, rarely flooded-----	669	0.2
SxE	Sylco-Cataska complex, 30 to 50 percent slopes-----	1,262	0.4
SyA	Sylva-Whiteside complex, 0 to 3 percent slopes-----	235	0.1
ToA	Toxaway loam, 0 to 2 percent slopes, frequently flooded-----	1,093	0.3
TrE	Trimont gravelly loam, 30 to 50 percent slopes, stony-----	2,272	0.7
TrF	Trimont gravelly loam, 50 to 95 percent slopes, stony-----	3,112	0.9
TsC	Tuckasegee-Cullasaja complex, 8 to 15 percent slopes, stony-----	1,681	0.5
TwB	Tuckasegee-Whiteside complex, 2 to 8 percent slopes-----	548	0.2
TwC	Tuckasegee-Whiteside complex, 8 to 15 percent slopes-----	2,133	0.6
Ud	Udorthents, loamy-----	2,401	0.7
UfB	Udorthents-Urban land complex, 0 to 5 percent slopes, rarely flooded-----	507	0.2
WeC	Wayah sandy loam, windswept, 8 to 15 percent slopes, stony-----	92	*
WeD	Wayah sandy loam, windswept, 15 to 30 percent slopes, stony-----	558	0.2
WeE	Wayah sandy loam, windswept, 30 to 50 percent slopes, stony-----	524	0.2
WeF	Wayah sandy loam, windswept, 50 to 95 percent slopes, stony-----	161	*
	Water-----	2,279	0.7
	Total-----	332,467	100.0

\* Less than 0.1 percent.

TABLE 5.--PRIME FARMLAND

(Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland. If a soil is prime farmland only under certain conditions, the conditions are specified in parentheses after the soil name)

Map symbol	Soil name
ArA	Arkaqua loam, 0 to 2 percent slopes, frequently flooded (where drained and either protected from flooding or not frequently flooded during the growing season)
BkB2	Braddock clay loam, 2 to 8 percent slopes, eroded
DrB	Dillard loam, 1 to 5 percent slopes, rarely flooded
DsB	Dillsboro loam, 2 to 8 percent slopes
HaB2	Hayesville clay loam, 2 to 8 percent slopes, eroded
ReA	Reddies fine sandy loam, 0 to 3 percent slopes, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
RsA	Rosman fine sandy loam, 0 to 2 percent slopes, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
ScB	Saunook loam, 2 to 8 percent slopes
StB	Statler fine sandy loam, 1 to 5 percent slopes, rarely flooded
SyA	Sylva-Whiteside complex, 0 to 3 percent slopes (where drained)
ToA	Toxaway loam, 0 to 2 percent slopes, frequently flooded (where drained and either protected from flooding or not frequently flooded during the growing season)
TwB	Tuckasegee-Whiteside complex, 2 to 8 percent slopes

TABLE 6.--LAND CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE

(Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)

Soil name and map symbol	Land capability	Corn	Corn silage	Cabbage	Tobacco	Cool-season grass	Alfalfa hay	Tomatoes
		Bu	Tons	Crates	Lbs	AUM*	Tons	Tons
ArA----- Arkaqua	IIIw	135	25	525	---	10.0	3.5	26
BeA----- Biltmore	IVw	90	17	400	2,400	5.5	---	26
BkB2----- Braddock	IIIe	100	19	---	2,400	8.5	6.0	18
BkC2----- Braddock	IVe	85	16	---	---	7.0	5.5	---
BrC**: Braddock-----	IVe	---	---	---	---	---	---	---
Urban land----	VIIIIs	---	---	---	---	---	---	---
BrD**: Braddock-----	VIe	---	---	---	---	---	---	---
Urban land----	VIIIIs	---	---	---	---	---	---	---
BsC: Brasstown-----	IVe	---	---	---	---	6.0	---	---
Junaluska-----	IVe	---	---	---	---	5.0	---	---
BsD: Brasstown-----	VIe	---	---	---	---	6.0	---	---
Junaluska-----	VIe	---	---	---	---	5.0	---	---
BsE: Brasstown-----	VIIe	---	---	---	---	5.5	---	---
Junaluska-----	VIIe	---	---	---	---	4.5	---	---
BsF: Brasstown-----	VIIe	---	---	---	---	---	---	---
Junaluska-----	VIIe	---	---	---	---	---	---	---
BuD**: Burton-----	VIe	---	---	---	---	5.0	---	---
Craggey-----	VIIIs	---	---	---	---	3.0	---	---
Rock outcrop----	VIIIIs	---	---	---	---	---	---	---
BuF**: Burton-----	VIIe	---	---	---	---	---	---	---
Craggey-----	VIIIs	---	---	---	---	---	---	---
Rock outcrop----	VIIIIs	---	---	---	---	---	---	---

See footnotes at end of table.

TABLE 6.--LAND CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Land capability	Corn	Corn silage	Cabbage	Tobacco	Cool-season grass	Alfalfa hay	Tomatoes
		Bu	Tons	Crates	Lbs	AUM*	Tons	Tons
CaE----- Cashiers	VIIe	---	---	---	---	6.0	---	---
CaF----- Cashiers	VIIe	---	---	---	---	---	---	---
CcF: Cataska-----	VIIIs	---	---	---	---	---	---	---
Sylco-----	VIIIs	---	---	---	---	---	---	---
CdD----- Chandler	VIe	---	---	---	---	7.0	---	---
CdE----- Chandler	VIIe	---	---	---	---	6.0	---	---
CdF----- Chandler	VIIe	---	---	---	---	---	---	---
ChE----- Cheoah	VIIe	---	---	---	---	6.0	---	---
ChF----- Cheoah	VIIe	---	---	---	---	---	---	---
CnC: Chestnut-----	IVe	---	---	---	---	6.0	---	---
Edneyville----	IVe	---	---	---	---	6.0	---	---
CnD: Chestnut-----	VIe	---	---	---	---	5.5	---	---
Edneyville----	VIe	---	---	---	---	6.5	---	---
CnE: Chestnut-----	VIIe	---	---	---	---	4.5	---	---
Edneyville----	VIIe	---	---	---	---	5.5	---	---
CpD**: Cleveland-----	VIIe	---	---	---	---	---	---	---
Chestnut-----	VIe	---	---	---	---	---	---	---
Rock outcrop---	VIIIs	---	---	---	---	---	---	---
CpE**, CpF**: Cleveland-----	VIIe	---	---	---	---	---	---	---
Chestnut-----	VIIe	---	---	---	---	4.0	---	---
Rock outcrop---	VIIIs	---	---	---	---	---	---	---
CsD, CsE----- Cullasaja	VIIIs	---	---	---	---	---	---	---
CuD: Cullasaja-----	VIIIs	---	---	---	---	8.0	---	---

See footnotes at end of table.

TABLE 6.--LAND CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Land capability	Corn	Corn silage	Cabbage	Tobacco	Cool-season grass	Alfalfa hay	Tomatoes
		Bu	Tons	Crates	Lbs	AUM*	Tons	Tons
CuD: Tuckasegee-----	VIe	---	---	---	---	7.0	3.0	---
CuE: Cullasaja-----	VIIIs	---	---	---	---	7.0	---	---
Tuckasegee-----	VIIe	---	---	---	---	6.0	---	---
CuF: Cullasaja-----	VIIIs	---	---	---	---	---	---	---
Tuckasegee-----	VIIe	---	---	---	---	---	---	---
DgB----- Dellwood	Vw	100	19	---	2,400	8.0	---	22
DrB----- Dillard	IIw	135	25	500	2,800	10.0	4.5	28
DsB----- Dillsboro	IIe	120	22	500	2,800	9.0	6.5	26
DsC----- Dillsboro	IIIe	110	20	450	2,600	8.5	6.0	22
EdB: Edneyville-----	IIe	---	---	475	2,400	7.5	---	---
Chestnut-----	IIIe	---	---	425	---	6.5	---	---
EdC: Edneyville-----	IVe	---	---	475	2,100	7.5	---	---
Chestnut-----	IVe	---	---	425	---	6.5	---	---
EdD: Edneyville-----	VIe	---	---	---	---	7.0	---	---
Chestnut-----	VIe	---	---	---	---	6.0	---	---
EdE: Edneyville-----	VIIe	---	---	---	---	6.5	---	---
Chestnut-----	VIIe	---	---	---	---	5.5	---	---
EdF: Edneyville-----	VIIe	---	---	---	---	---	---	---
Chestnut-----	VIIe	---	---	---	---	---	---	---
EeC**: Edneyville-----	IVe	80	---	---	2,300	6.5	---	---
Chestnut-----	IVe	70	---	400	---	5.5	---	---
Urban land-----	VIIIIs	---	---	---	---	---	---	---
EeD**: Edneyville-----	VIe	---	---	---	---	5.5	---	---
Chestnut-----	VIe	---	---	---	---	4.5	---	---

See footnotes at end of table.

TABLE 6.--LAND CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Land capability	Corn	Corn silage	Cabbage	Tobacco	Cool-season grass	Alfalfa hay	Tomatoes
		Bu	Tons	Crates	Lbs	AUM*	Tons	Tons
EeD**: Urban land-----	VIIIIs	---	---	---	---	---	---	---
EvB: Evard-----	IIe	110	20	---	2,500	8.5	6.0	---
Cowee-----	IIIe	90	18	---	2,300	8.0	5.0	---
EvC: Evard-----	IVe	90	17	---	2,300	8.0	5.5	---
Cowee-----	IVe	80	15	---	2,100	5.0	4.5	---
EvD: Evard-----	VIe	---	---	---	---	6.5	---	---
Cowee-----	VIe	---	---	---	---	6.0	---	---
EvE: Evard-----	VIIe	---	---	---	---	6.0	---	---
Cowee-----	VIIe	---	---	---	---	5.5	---	---
EvF: Evard-----	VIIe	---	---	---	---	---	---	---
Cowee-----	VIIe	---	---	---	---	---	---	---
ExC**: Evard-----	IVe	---	---	---	---	---	---	---
Cowee-----	IVe	---	---	---	---	---	---	---
Urban land-----	VIIIIs	---	---	---	---	---	---	---
ExD**: Evard-----	VIe	---	---	---	---	---	---	---
Cowee-----	VIe	---	---	---	---	---	---	---
Urban land-----	VIIIIs	---	---	---	---	---	---	---
FaC----- Fannin	VIe	---	---	---	2,200	7.0	5.0	---
FaD, FaE----- Fannin	VIIe	---	---	---	---	6.0	---	---
FaF----- Fannin	VIIe	---	---	---	---	---	---	---
HaB2----- Hayesville	IIIe	100	19	---	2,400	8.0	6.0	18
HaC2----- Hayesville	IVe	85	16	---	2,200	7.0	5.0	---
HaD2----- Hayesville	VIe	---	---	---	---	6.5	---	---

See footnotes at end of table.

TABLE 6.--LAND CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Land capability	Corn	Corn silage	Cabbage	Tobacco	Cool-season grass	Alfalfa hay	Tomatoes
		Bu	Tons	Crates	Lbs	AUM*	Tons	Tons
HmA***----- Hemphill	IVw	120	22	---	---	9.5	---	26
NkA----- Nikwasi	VIw	---	---	---	---	5.0	---	---
OwE----- Oconaluftee	VIIe	---	---	---	---	---	---	---
PwC----- Plott	IVe	---	---	---	---	7.0	---	---
PwD----- Plott	VIe	---	---	---	---	7.0	---	---
PwE----- Plott	VIIe	---	---	---	---	6.0	---	---
PwF----- Plott	VIIe	---	---	---	---	---	---	---
ReA----- Reddies	IIIw	120	22	450	2,800	9.0	4.5	28
RhF**: Rock outcrop---	VIIIIs	---	---	---	---	---	---	---
Cataska-----	VIIe	---	---	---	---	---	---	---
RkF**: Rock outcrop---	VIIIIs	---	---	---	---	---	---	---
Cleveland-----	VIIe	---	---	---	---	---	---	---
RsA----- Rosman	IIIw	135	25	450	3,000	10.0	4.5	30
SbC----- Saunook	IVe	120	22	450	2,800	9.0	5.5	28
SbD----- Saunook	VIe	---	---	---	---	8.0	---	---
SbE----- Saunook	VIIe	---	---	---	---	6.0	---	---
ScB----- Saunook	IIe	135	25	450	3,000	10.0	6.5	30
ScC----- Saunook	IVe	120	22	450	2,800	9.0	5.5	28
SoD: Soco-----	VIe	---	---	---	---	4.5	---	---
Stecoah-----	VIe	---	---	---	---	5.5	---	---
SoE: Soco-----	VIIe	---	---	---	---	3.5	---	---
Stecoah-----	VIIe	---	---	---	---	4.5	---	---

See footnotes at end of table.

TABLE 6.--LAND CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Land capability	Corn	Corn silage	Cabbage	Tobacco	Cool-season grass	Alfalfa hay	Tomatoes
		Bu	Tons	Crates	Lbs	AUM*	Tons	Tons
SoF:								
Soco-----	VIIe	---	---	---	---	---	---	---
Stecoah-----	VIIe	---	---	---	---	---	---	---
SrC:								
Spivey-----	VIIIs	110	20	425	2,300	8.5	4.5	25
Santeetlah-----	IVe	130	24	475	2,800	10.0	5.5	30
SrD:								
Spivey-----	VIIIs	---	---	---	---	7.5	---	---
Santeetlah-----	VIe	---	---	---	---	8.5	---	---
SrE:								
Spivey-----	VIIIs	---	---	---	---	5.5	---	---
Santeetlah-----	VIIe	---	---	---	---	6.5	---	---
StB-----	IIe	135	25	400	3,000	10.0	6.5	30
Statler								
SxE:								
Sylco-----	VIIIs	---	---	---	---	---	---	---
Cataska-----	VIIIs	---	---	---	---	---	---	---
SyA:								
Sylva-----	IIIw	---	---	---	---	---	---	---
Whiteside-----	IIw	---	---	---	---	---	---	---
ToA-----	IIIw	120	22	450	---	9.5	---	---
Toxaway								
TrE-----	VIIe	---	---	---	---	6.0	---	---
Trimont								
TrF-----	VIIe	---	---	---	---	---	---	---
Trimont								
TsC:								
Tuckasegee-----	IIIe	130	24	---	3,000	10.0	5.5	30
Cullasaja-----	VIIIs	---	---	---	---	9.0	---	---
TwB:								
Tuckasegee-----	IIe	---	---	525	---	9.0	---	---
Whiteside-----	IIe	---	---	475	---	7.5	---	---
TwC:								
Tuckasegee-----	IIIe	---	---	525	---	8.5	5.0	---
Whiteside-----	IIIe	---	---	475	---	7.0	---	---
Ud-----	VIIe	---	---	---	---	---	---	---
Udorthents								

See footnotes at end of table.

TABLE 6.--LAND CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Land capability	Corn	Corn silage	Cabbage	Tobacco	Cool-season grass	Alfalfa hay	Tomatoes
		<u>Bu</u>	<u>Tons</u>	<u>Crates</u>	<u>Lbs</u>	<u>AUM*</u>	<u>Tons</u>	<u>Tons</u>
UFB**:								
Udorthents-----	VIIIs	---	---	---	---	---	---	---
Urban land-----	VIIIIs	---	---	---	---	---	---	---
WeC-----	IVe	---	---	---	---	6.0	---	---
Wayah								
WeD-----	VIe	---	---	---	---	6.0	---	---
Wayah								
WeE-----	VIIe	---	---	---	---	5.5	---	---
Wayah								
WeF-----	VIIe	---	---	---	---	---	---	---
Wayah								

\* Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

\*\* See description of the map unit for composition and behavior characteristics of the map unit.

\*\*\* Yields are for drained conditions.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY

(Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available)

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity			Trees to plant
		Erosion hazard	Equipment limitation	Wind-throw hazard	Plant competition	Common trees	Site index	Volume <sup>1</sup>	
ArA----- Arkaqua	12W	Slight	Moderate	Slight	Severe	Eastern white pine-- Black walnut----- Yellow-poplar----- Shortleaf pine----- Virginia pine----- River birch----- Black cherry----- American sycamore---	90 100 100 75 80 --- --- ---	166 --- 107 120 122 --- --- ---	Eastern white pine, shortleaf pine, Virginia pine, black walnut, yellow-poplar, northern red oak.
BeA----- Biltmore	8A	Slight	Slight	Slight	Moderate	Yellow-poplar----- Eastern white pine-- Northern red oak---- White oak----- American sycamore--- White ash----- River birch----- Black cherry----- Black walnut-----	106 --- --- --- --- --- --- --- ---	117 --- --- --- --- --- --- --- ---	Yellow-poplar, eastern white pine, American sycamore, black walnut.
BkB2, BkC2----- Braddock	4C	Slight	Moderate	Slight	Moderate	Northern red oak---- Yellow-poplar----- Eastern white pine--	80 90 95	62 90 176	Eastern white pine.
BsC <sup>2</sup> : Brasstown-----	4A	Slight	Slight	Slight	Moderate	Scarlet oak----- White oak----- Eastern white pine-- Shortleaf pine----- Virginia pine----- Pitch pine----- Northern red oak---- Black oak----- Chestnut oak----- Hickory----- Black locust----- Red maple-----	80 80 91 71 74 --- --- --- --- --- --- ---	62 62 168 112 114 --- --- --- --- --- --- ---	Eastern white pine.
Junaluska-----	3D	Slight	Slight	Moderate	Moderate	Scarlet oak----- Chestnut oak----- White oak----- Shortleaf pine----- Virginia pine----- Eastern white pine-- Pitch pine----- Northern red oak---- Black oak----- Hickory----- Red maple----- Blackgum----- Black locust-----	65 56 61 68 65 86 --- --- --- --- --- --- ---	48 39 44 106 100 157 --- --- --- --- --- --- ---	Eastern white pine.

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordi-nation symbol	Management concerns				Potential productivity			Trees to plant
		Erosion hazard	Equip-ment limita-tion	Wind-throw hazard	Plant competi-tion	Common trees	Site index	Volume <sup>1</sup>	
BsD <sup>2</sup> :									
Brasstown-----	4R	Moderate	Moderate	Slight	Moderate	Scarlet oak-----	80	62	Eastern white pine.
						White oak-----	80	62	
						Eastern white pine--	91	168	
						Shortleaf pine-----	71	112	
						Virginia pine-----	74	114	
						Pitch pine-----	---	---	
						Northern red oak---	---	---	
						Black oak-----	---	---	
						Chestnut oak-----	---	---	
						Hickory-----	---	---	
						Black locust-----	---	---	
						Red maple-----	---	---	
Junaluska-----	3R	Moderate	Moderate	Moderate	Moderate	Scarlet oak-----	65	48	Eastern white pine.
						Chestnut oak-----	56	39	
						White oak-----	61	44	
						Shortleaf pine-----	68	106	
						Virginia pine-----	65	100	
						Eastern white pine--	86	157	
						Pitch pine-----	---	---	
						Northern red oak---	---	---	
						Black oak-----	---	---	
						Hickory-----	---	---	
						Red maple-----	---	---	
						Blackgum-----	---	---	
						Black locust-----	---	---	
BsE <sup>2</sup> , BsF <sup>2</sup> :									
Brasstown-----	4R	Severe	Severe	Slight	Moderate	Scarlet oak-----	80	62	Eastern white pine.
						White oak-----	80	62	
						Eastern white pine--	91	168	
						Shortleaf pine-----	71	112	
						Virginia pine-----	74	114	
						Pitch pine-----	---	---	
						Northern red oak---	---	---	
						Black oak-----	---	---	
						Chestnut oak-----	---	---	
						Hickory-----	---	---	
						Black locust-----	---	---	
						Red maple-----	---	---	
Junaluska-----	3R	Severe	Severe	Moderate	Moderate	Scarlet oak-----	65	48	Eastern white pine.
						Chestnut oak-----	56	39	
						White oak-----	61	44	
						Shortleaf pine-----	68	106	
						Virginia pine-----	65	100	
						Eastern white pine--	86	157	
						Pitch pine-----	---	---	
						Northern red oak---	---	---	
						Black oak-----	---	---	
						Hickory-----	---	---	
						Red maple-----	---	---	
						Blackgum-----	---	---	
						Black locust-----	---	---	

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordi-nation symbol	Management concerns				Potential productivity			Trees to plant
		Erosion hazard	Equip-ment limita-tion	Wind-throw hazard	Plant competi-tion	Common trees	Site index	Volume <sup>1</sup>	
BuD <sup>2</sup> : Burton-----	2R	Moderate	Moderate	Moderate	Slight	Northern red oak----	40	26	
						Red spruce-----	---	---	
						Fraser fir-----	---	---	
						Yellow birch-----	---	---	
						Sugar maple-----	---	---	
						Sweet birch-----	---	---	
Craggey-----	2D	Moderate	Moderate	Severe	Slight	Northern red oak----	40	26	
						Red spruce-----	---	---	
						Fraser fir-----	---	---	
						Yellow birch-----	---	---	
						Sugar maple-----	---	---	
						Sweet birch-----	---	---	
Rock outcrop.									
BuF <sup>2</sup> : Burton-----	2R	Severe	Severe	Moderate	Slight	Northern red oak----	40	26	
						Red spruce-----	---	---	
						Fraser fir-----	---	---	
						Yellow birch-----	---	---	
						Sugar maple-----	---	---	
						Sweet birch-----	---	---	
Craggey-----	2R	Severe	Severe	Severe	Slight	Northern red oak----	40	2	
						Red spruce-----	---	---	
						Fraser fir-----	---	---	
						Yellow birch-----	---	---	
						Sugar maple-----	---	---	
						Sweet birch-----	---	---	
Rock outcrop.									
CaE, CaF----- Cashiers	7R	Severe	Severe	Slight	Moderate	Yellow-poplar-----	93	95	Yellow-poplar, eastern white pine, Fraser fir <sup>3</sup> .
						Eastern white pine--	91	168	
						Northern red oak----	84	66	
						Eastern hemlock-----	---	---	
						Yellow buckeye-----	---	---	
						American beech-----	---	---	
						White ash-----	---	---	
						Red maple-----	---	---	
						Eastern hemlock-----	---	---	
						Black cherry-----	---	---	
						Sweet birch-----	---	---	
						Sugar maple-----	---	---	
						Hickory-----	---	---	
						Scarlet oak-----	---	---	
						White oak-----	---	---	
						Black oak-----	---	---	
CcF <sup>2</sup> : Cataska-----	2R	Moderate	Severe	Severe	Moderate	Chestnut oak-----	40	26	Virginia pine.
						Scarlet oak-----	40	26	
						Pitch pine-----	40	---	
						Virginia pine-----	---	---	
						Eastern white pine--	---	---	
						Hickory-----	---	---	
						Black oak-----	---	---	
						White oak-----	---	---	
						Shortleaf pine-----	---	---	

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordi-nation symbol	Management concerns				Potential productivity			Trees to plant
		Erosion hazard	Equip-ment limita-tion	Wind-throw hazard	Plant competi-tion	Common trees	Site index	Volume <sup>1</sup>	
CcF <sup>2</sup> : Sylco-----	5R	Moderate	Severe	Moderate	Moderate	Shortleaf pine----- Virginia pine----- Eastern white pine-- Hickory----- Black oak----- White oak----- Shortleaf pine-----	50 50 --- --- --- --- ---	68 68 --- --- --- --- ---	Virginia pine.
CdD----- Chandler	3R	Moderate	Moderate	Slight	Moderate	Chestnut oak----- Eastern white pine-- Shortleaf pine----- Virginia pine----- Pitch pine----- Northern red oak---- Scarlet oak----- Hickory----- Yellow-poplar----- White oak----- Red maple----- Black oak-----	67 88 72 74 --- --- --- --- --- 67 --- ---	49 162 114 114 --- --- --- --- --- --- --- ---	Eastern white pine.
CdE, CdF----- Chandler	3R	Severe	Severe	Slight	Moderate	Chestnut oak----- Eastern white pine-- Shortleaf pine----- Virginia pine----- Pitch pine----- Northern red oak---- Scarlet oak----- Hickory----- Yellow-poplar----- White oak----- Red maple----- Black oak-----	67 88 72 74 --- --- --- --- --- 67 --- ---	49 162 114 114 --- --- --- --- --- --- --- ---	Eastern white pine.
ChE, ChF----- Cheoah	4R	Severe	Severe	Slight	Moderate	Northern red oak---- Yellow-poplar----- American beech----- Black cherry----- Eastern hemlock----- Black oak----- Yellow birch----- Sugar maple----- Red maple----- Yellow buckeye----- Black birch----- Scarlet oak----- White oak----- Hickory-----	83 103 80 --- --- --- --- --- --- --- --- --- --- --- ---	65 112 --- --- --- --- --- --- --- --- --- --- --- --- ---	Fraser fir <sup>3</sup> , northern red oak, yellow-poplar.
CnC <sup>2</sup> : Chestnut-----	2D	Slight	Slight	Moderate	Slight	Northern red oak---- Scarlet oak----- Eastern white pine-- Virginia pine----- Hickory----- Chestnut oak----- Pitch pine-----	45 --- --- --- --- --- ---	30 --- --- --- --- --- ---	

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity			Trees to plant
		Erosion hazard	Equipment limitation	Wind-throw hazard	Plant competition	Common trees	Site index	Volume <sup>1</sup>	
CnC <sup>2</sup> : Edneyville-----	2A	Slight	Slight	Slight	Slight	Northern red oak---- Scarlet oak----- Eastern white pine-- Virginia pine----- Hickory----- Chestnut oak----- Pitch pine-----	45 --- --- --- --- --- ---	30 --- --- --- --- --- ---	
CnD <sup>2</sup> : Chestnut-----	2R	Moderate	Moderate	Moderate	Slight	Northern red oak---- Scarlet oak----- Eastern white pine-- Virginia pine----- Hickory----- Chestnut oak----- Pitch pine-----	45 --- --- --- --- --- ---	30 --- --- --- --- --- ---	
Edneyville-----	2R	Moderate	Moderate	Slight	Slight	Northern red oak---- Scarlet oak----- Eastern white pine-- Virginia pine----- Hickory----- Chestnut oak----- Pitch pine-----	45 --- --- --- --- --- ---	30 --- --- --- --- --- ---	
CnE <sup>2</sup> : Chestnut-----	2R	Severe	Severe	Moderate	Slight	Northern red oak---- Scarlet oak----- Eastern white pine-- Virginia pine----- Hickory----- Chestnut oak----- Pitch pine-----	45 --- --- --- --- --- ---	30 --- --- --- --- --- ---	
Edneyville-----	2R	Severe	Severe	Slight	Slight	Northern red oak---- Scarlet oak----- Eastern white pine-- Virginia pine----- Hickory----- Chestnut oak----- Pitch pine-----	45 --- --- --- --- --- ---	30 --- --- --- --- --- ---	
CpD <sup>2</sup> : Cleveland-----	2D	Moderate	Moderate	Severe	Slight	Chestnut oak----- Scarlet oak----- Northern red oak---- Eastern white pine-- Virginia pine----- Pitch pine----- Hickory-----	40 --- --- --- --- --- ---	26 --- --- --- --- --- ---	
Chestnut-----	2R	Moderate	Moderate	Moderate	Slight	Northern red oak---- Scarlet oak----- Eastern white pine--	45 --- ---	30 --- ---	
Rock outcrop.									

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordi-nation symbol	Management concerns				Potential productivity			Trees to plant
		Erosion hazard	Equip-ment limita-tion	Wind-throw hazard	Plant competi-tion	Common trees	Site index	Volume <sup>1</sup>	
CpE <sup>2</sup> , CpF <sup>2</sup> : Cleveland-----	2R	Severe	Severe	Severe	Slight	Chestnut oak----- Scarlet oak----- Northern red oak---- Eastern white pine-- Virginia pine----- Hickory----- Pitch pine-----	40	26	
Chestnut-----	2R	Severe	Severe	Moderate	Slight	Northern red oak---- Scarlet oak----- Eastern white pine-- Virginia pine----- Hickory----- Chestnut oak----- Pitch pine-----	45	30	
Rock outcrop. CsD----- Cullasaja	8X	Moderate	Severe	Slight	Severe	Yellow-poplar----- Black cherry----- Yellow birch----- Northern red oak---- American beech----- Yellow buckeye----- Eastern hemlock----- Eastern white pine-- Sweet birch----- Sugar maple-----	109	122	Fraser fir <sup>3</sup> .
CsE----- Cullasaja	8R	Severe	Severe	Slight	Severe	Yellow-poplar----- Black cherry----- Yellow birch----- Northern red oak---- American beech----- Yellow buckeye----- Eastern hemlock----- Eastern white pine-- Sweet birch----- Sugar maple-----	109	122	Fraser fir <sup>3</sup> .
CuD <sup>2</sup> : Cullasaja-----	8R	Moderate	Moderate	Slight	Severe	Yellow-poplar----- Black cherry----- Northern red oak---- Yellow birch----- American beech----- Eastern hemlock----- Yellow buckeye----- Eastern white pine-- Sweet birch----- Sugar maple-----	109	122	Fraser fir <sup>3</sup> .

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordi-nation symbol	Management concerns				Potential productivity			Trees to plant
		Erosion hazard	Equip-ment limita-tion	Wind-throw hazard	Plant competi-tion	Common trees	Site index	Volume <sup>1</sup>	
CuD <sup>2</sup> : Tuckasegee-----	8R	Moderate	Moderate	Slight	Severe	Yellow-poplar----- Eastern white pine-- Northern red oak---- Black cherry----- Eastern hemlock----- White oak----- Yellow birch----- American beech----- White ash----- Black locust----- Yellow buckeye----- Sugar maple----- Red maple----- Sweet birch-----	109 98 --- --- --- --- --- --- --- --- --- --- --- ---	122 182 --- --- --- --- --- --- --- --- --- --- --- ---	Yellow-poplar, eastern white pine, northern red oak, black cherry, Fraser fir <sup>3</sup> .
CuE <sup>2</sup> , CuF <sup>2</sup> : Cullasaja-----	8R	Severe	Severe	Slight	Severe	Yellow-poplar----- Black cherry----- Northern red oak---- Yellow birch----- American beech----- Eastern hemlock----- Yellow buckeye----- Eastern white pine-- Sweet birch----- Sugar maple-----	109 --- --- --- --- --- --- --- --- ---	122 --- --- --- --- --- --- --- --- ---	Fraser fir <sup>3</sup> .
Tuckasegee-----	8R	Severe	Severe	Slight	Severe	Yellow-poplar----- Eastern white pine-- Northern red oak---- Black cherry----- Eastern hemlock----- White oak----- Yellow birch----- American beech----- White ash----- Black locust----- Yellow buckeye----- Sugar maple----- Red maple----- Sweet birch-----	109 98 --- --- --- --- --- --- --- --- --- --- --- ---	122 182 --- --- --- --- --- --- --- --- --- --- --- ---	Yellow-poplar, eastern white pine, northern red oak, black cherry, Fraser fir <sup>3</sup> .
DgB----- Dellwood	8F	Slight	Slight	Slight	Moderate	Yellow-poplar----- Eastern white pine-- Red maple----- River birch----- American sycamore--- Eastern hemlock----- Sweet birch----- Black cherry-----	100 91 --- --- --- --- --- ---	107 168 --- --- --- --- --- ---	Yellow-poplar, eastern white pine.
DrB----- Dillard	7A	Slight	Slight	Slight	Moderate	Yellow poplar----- Eastern white pine-- Shortleaf pine----- Virginia pine----- American sycamore--- Sweet birch----- Black cherry----- American beech-----	95 90 75 80 --- --- --- ---	98 166 120 112 --- --- --- ---	Eastern white pine, eastern eastern white pine, black walnut, yellow- poplar.

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordi-nation symbol	Management concerns				Potential productivity			Trees to plant
		Erosion hazard	Equip-ment limita-tion	Wind-throw hazard	Plant competi-tion	Common trees	Site index	Volume <sup>1</sup>	
DsB, DsC----- Dillsboro	7A	Slight	Slight	Slight	Moderate	Yellow-poplar----- Eastern white pine-- Shortleaf pine----- Virginia pine----- White oak----- Scarlet oak----- Northern red oak----- Black cherry----- American beech-----	95 --- --- --- --- --- --- --- ---	98 --- --- --- --- --- --- --- ---	Yellow-poplar, eastern white pine, Fraser fir <sup>3</sup> , black walnut.
EdB <sup>2</sup> , EdC <sup>2</sup> : Edneyville <sup>4</sup> ----	4A	Slight	Slight	Slight	Moderate	Northern red oak---- Shortleaf pine----- Virginia pine----- Eastern white pine-- Yellow-poplar----- Chestnut oak----- Scarlet oak----- Black oak----- Pitch pine----- White oak----- Hickory-----	80 64 66 90 98 --- --- --- --- --- ---	62 97 102 --- --- --- --- --- --- --- ---	Eastern white pine, yellow- poplar, Fraser fir <sup>3</sup> .
Chestnut-----	4D	Slight	Slight	Moderate	Moderate	Northern red oak---- Eastern white pine-- Yellow-poplar----- Scarlet oak----- White oak----- Black oak----- Chestnut oak----- Shortleaf pine----- Pitch pine-----	76 78 97 68 70 71 69 --- ---	58 139 102 50 52 53 51 --- ---	Eastern white pine, yellow- poplar, Fraser fir <sup>3</sup> .
EdD <sup>2</sup> : Edneyville-----	4R	Moderate	Moderate	Slight	Moderate	Northern red oak---- Shortleaf pine----- Virginia pine----- Eastern white pine-- Yellow-poplar----- Chestnut oak----- Scarlet oak----- Black oak----- Pitch pine----- White oak----- Hickory-----	80 64 66 90 98 --- --- --- --- --- ---	62 97 102 166 104 --- --- --- --- --- ---	Eastern white pine, yellow- poplar, Fraser fir <sup>3</sup> .
Chestnut-----	4R	Moderate	Moderate	Moderate	Moderate	Northern red oak---- Eastern white pine-- Yellow-poplar----- Scarlet oak----- White oak----- Black oak----- Chestnut oak----- Shortleaf pine----- Pitch pine----- Hickory-----	76 78 97 68 70 71 69 --- --- ---	58 139 102 50 52 53 51 --- --- ---	Eastern white pine, yellow- poplar, Fraser fir <sup>3</sup> .

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordi-nation symbol	Management concerns				Potential productivity			Trees to plant
		Erosion hazard	Equip-ment limita-tion	Wind-throw hazard	Plant competi-tion	Common trees	Site index	Volume <sup>1</sup>	
EdE <sup>2</sup> , EdF <sup>2</sup> : Edneyville-----	4R	Severe	Severe	Slight	Moderate	Northern red oak----	80	62	Eastern white pine, yellow-poplar, Fraser fir <sup>3</sup> .
						Shortleaf pine-----	64	97	
						Virginia pine-----	66	102	
						Eastern white pine--	90	106	
						Yellow-poplar-----	98	104	
						Chestnut oak-----	---	---	
						Scarlet oak-----	---	---	
						Black oak-----	---	---	
						Pitch pine-----	---	---	
						White oak-----	---	---	
Hickory-----	---	---							
Chestnut-----	4R	Severe	Severe	Moderate	Moderate	Northern red oak----	76	58	Eastern white pine, yellow-poplar, Fraser fir <sup>3</sup> .
						Eastern white pine--	78	139	
						Yellow-poplar-----	97	102	
						Scarlet oak-----	68	50	
						White oak-----	70	52	
						Black oak-----	71	53	
						Chestnut oak-----	69	51	
						Shortleaf pine-----	---	---	
						Pitch pine-----	---	---	
						Hickory-----	---	---	
EvB <sup>2</sup> , EvC <sup>2</sup> : Evard <sup>5</sup> -----	4A	Slight	Slight	Slight	Moderate	Chestnut oak-----	68	50	Eastern white pine.
						Shortleaf pine-----	73	116	
						Pitch pine-----	77	---	
						Virginia pine-----	69	107	
						Eastern white pine--	93	172	
						Yellow-poplar-----	95	97	
						White oak-----	95	---	
						Southern red oak----	75	---	
						Northern red oak----	---	---	
						Hickory-----	---	---	
						Scarlet oak-----	---	---	
						Black oak-----	---	---	
						Red maple-----	---	---	
Cowee-----	3D	Slight	Slight	Moderate	Moderate	Chestnut oak-----	55	---	Eastern white pine, shortleaf pine, Scotch pine.
						Virginia pine-----	63	---	
						Scarlet oak-----	54	---	
						Shortleaf pine-----	78	---	
						Eastern white pine--	78	---	
						Yellow-poplar-----	80	---	
						Pitch pine-----	---	---	
						Northern red oak----	---	---	
						Black oak-----	---	---	
						White oak-----	---	---	
						Hickory-----	---	---	
						Red maple-----	---	---	
						Blackgum-----	---	---	

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordi- nation symbol	Management concerns				Potential productivity			Trees to plant
		Erosion hazard	Equip- ment limita- tion	Wind- throw hazard	Plant competi- tion	Common trees	Site index	Volume <sup>1</sup>	
EvD <sup>2</sup> : Evad <sup>5</sup> -----	4R	Moderate	Moderate	Slight	Moderate	Chestnut oak----- Shortleaf pine----- Pitch pine----- Virginia pine----- Eastern white pine-- Yellow-poplar----- White oak----- Southern red oak---- Northern red oak---- Hickory----- Scarlet oak----- Black oak----- Red maple-----	68 73 77 69 93 95 --- --- --- --- --- --- ---	50 116 --- 107 172 92 --- --- --- --- --- --- ---	Eastern white pine, yellow- poplar.
Cowee-----	3R	Moderate	Moderate	Moderate	Moderate	Chestnut oak----- Virginia pine----- Scarlet oak----- Shortleaf pine----- Eastern white pine-- Yellow-poplar----- Pitch pine----- Northern red oak---- Black oak----- White oak----- Hickory----- Red maple----- Blackgum-----	55 63 54 78 78 80 --- --- --- --- --- --- ---	38 96 38 126 139 71 --- --- --- --- --- --- ---	Eastern white pine.
EvE <sup>2</sup> , EvF <sup>2</sup> : Evad <sup>5</sup> -----	4R	Severe	Severe	Slight	Moderate	Chestnut oak----- Shortleaf pine----- Pitch pine----- Virginia pine----- Eastern white pine-- Yellow-poplar----- White oak----- Southern red oak---- Northern red oak---- Hickory----- Scarlet oak----- Black oak----- Red maple-----	68 73 77 79 93 95 --- --- --- --- --- --- ---	54 116 --- 107 172 92 57 57 --- --- --- --- ---	Eastern white pine, yellow- poplar.
Cowee-----	3R	Severe	Severe	Moderate	Moderate	Chestnut oak----- Virginia pine----- Scarlet oak----- Shortleaf pine----- Eastern white pine-- Yellow-poplar----- Pitch pine----- Northern red oak---- Black oak----- White oak----- Hickory----- Red maple----- Blackgum-----	55 63 54 78 78 80 --- --- --- --- --- --- ---	38 96 38 126 139 71 --- --- --- --- --- --- ---	Eastern white pine.

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordi-nation symbol	Management concerns				Potential productivity			Trees to plant
		Erosion hazard	Equip-ment limita-tion	Wind-throw hazard	Plant competi-tion	Common trees	Site index	Volume <sup>1</sup>	
FaC----- Fannin	7A	Slight	Slight	Slight	Moderate	Yellow-poplar-----	96	100	Eastern white pine, Fraser fir <sup>3</sup> .
						Northern red oak----	---	---	
						Eastern white pine--	89	164	
						Pitch pine-----	---	---	
						Shortleaf pine-----	---	---	
						Virginia pine-----	---	---	
						Scarlet oak-----	---	---	
						Chestnut oak-----	---	---	
						White oak-----	---	---	
						Red maple-----	---	---	
						Black oak-----	---	---	
Hickory-----	---	---							
FaD----- Fannin	7R	Moderate	Moderate	Slight	Moderate	Yellow-poplar-----	96	100	Eastern white pine, Fraser fir <sup>3</sup> .
						Northern red oak----	---	---	
						Eastern white pine--	89	164	
						Pitch pine-----	---	---	
						Shortleaf pine-----	---	---	
						Virginia pine-----	---	---	
						Scarlet oak-----	---	---	
						Chestnut oak-----	---	---	
						White oak-----	---	---	
						Red maple-----	---	---	
						Black oak-----	---	---	
Hickory-----	---	---							
FaE, FaF----- Fannin	7R	Severe	Severe	Slight	Moderate	Yellow-poplar-----	96	100	Eastern white pine, Fraser fir <sup>3</sup> .
						Northern red oak----	---	---	
						Eastern white pine--	89	164	
						Pitch pine-----	---	---	
						Shortleaf pine-----	---	---	
						Virginia pine-----	---	---	
						Scarlet oak-----	---	---	
						Chestnut oak-----	---	---	
						White oak-----	---	---	
						Red maple-----	---	---	
						Black oak-----	---	---	
Hickory-----	---	---							
HaB2, HaC2----- Hayesville	6C	Slight	Moderate	Slight	Moderate	Yellow-poplar-----	85	81	Eastern white pine.
						Eastern white pine--	77	137	
						Northern red oak----	---	---	
						Pitch pine-----	---	---	
						Shortleaf pine-----	68	106	
						Virginia pine-----	70	109	
						Northern red oak----	---	---	
						Scarlet oak-----	---	---	
						Chestnut oak-----	---	---	
						Black oak-----	---	---	
						White oak-----	---	---	
Hickory-----	---	---							

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordi-nation symbol	Management concerns				Potential productivity			Trees to plant
		Erosion hazard	Equip-ment limita-tion	Wind-throw hazard	Plant competi-tion	Common trees	Site index	Volume <sup>1</sup>	
HaD2----- Hayesville	6R	Moderate	Moderate	Slight	Moderate	Yellow-poplar-----	85	81	Eastern white pine.
						Eastern white pine--	77	137	
						Northern red oak----	---	---	
						Pitch pine-----	---	---	
						Shortleaf pine-----	68	106	
						Virginia pine-----	70	109	
						Northern red oak----	---	---	
						Scarlet oak-----	---	---	
						Chestnut oak-----	---	---	
						Black oak-----	---	---	
White oak-----	---	---							
Hickory-----	---	---							
HmA----- Hemphill <sup>6</sup>	6W	Slight	Severe	Slight	Severe	Yellow-poplar-----	88	86	Eastern white pine.
						Red maple-----	---	---	
						Yellow birch-----	---	---	
						Eastern hemlock-----	---	---	
						Eastern white pine--	---	---	
NkA----- Nikwasi	6W	Slight	Severe	Slight	Severe	Yellow-poplar-----	88	86	Eastern white pine.
						Eastern white pine--	86	157	
						American sycamore----	---	---	
						Red maple-----	---	---	
						Yellow birch-----	---	---	
						Eastern hemlock-----	---	---	
OwE----- Oconaluftee	2R	Severe	Severe	Slight	Slight	Northern red oak----	40	26	
						Red spruce-----	---	---	
						Fraser fir-----	---	---	
						Sweet birch-----	---	---	
						Yellow birch-----	---	---	
PwC----- Plott	5A	Slight	Slight	Slight	Moderate	Northern red oak----	85	67	Fraser fir <sup>3</sup> , northern red oak, yellow-poplar, black cherry.
						Yellow-poplar-----	113	128	
						Black cherry-----	---	---	
						American beech-----	---	---	
						Sugar maple-----	---	---	
						Eastern hemlock-----	---	---	
						Black oak-----	---	---	
						Yellow birch-----	---	---	
						Black locust-----	---	---	
						Sweet birch-----	---	---	
						Scarlet oak-----	---	---	
						White oak-----	---	---	
						Hickory-----	---	---	
						PwD----- Plott	5R	Moderate	
Yellow-poplar-----	113	128							
Black cherry-----	---	---							
American beech-----	---	---							
Sugar maple-----	---	---							
Eastern hemlock-----	---	---							
Black oak-----	---	---							
Yellow birch-----	---	---							
Black locust-----	---	---							
Sweet birch-----	---	---							
Scarlet oak-----	---	---							
White oak-----	---	---							
Hickory-----	---	---							

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordi- nation symbol	Management concerns				Potential productivity			Trees to plant
		Erosion hazard	Equip- ment limita- tion	Wind- throw hazard	Plant competi- tion	Common trees	Site index	Volume <sup>1</sup>	
PwE, PwF----- Plott	5R	Severe	Severe	Slight	Moderate	Northern red oak----	85	67	Fraser fir <sup>3</sup> , northern red oak, yellow- poplar, black cherry.
						Yellow-poplar-----	113	128	
						Black cherry-----	---	---	
						American beech-----	---	---	
						Sugar maple-----	---	---	
						Eastern hemlock-----	---	---	
						Black oak-----	---	---	
						Yellow birch-----	---	---	
						Black locust-----	---	---	
						Sweet birch-----	---	---	
ReA----- Reddies	8A	Slight	Slight	Moderate	Severe	Yellow-poplar-----	105	115	Yellow-poplar, eastern white pine, black walnut.
						American sycamore---	---	---	
						Red maple-----	---	---	
						Eastern white pine--	---	---	
						River birch-----	---	---	
						Black birch-----	---	---	
RhF <sup>2</sup> : Rock outcrop.	2R	Moderate	Severe	Severe	Moderate	Chestnut oak-----	40	26	Virginia pine.
						Scarlet oak-----	40	26	
RkF <sup>2</sup> : Rock outcrop.	2R	Severe	Severe	Severe	Slight	Chestnut oak-----	40	26	
						Scarlet oak-----	---	---	
						Northern red oak----	---	---	
						Eastern white pine--	---	---	
						Eastern hemlock-----	---	---	
						Pitch pine-----	---	---	
						Virginia pine-----	---	---	
						Hickory-----	---	---	
RsA----- Rosman	8A	Slight	Slight	Slight	Severe	Yellow-poplar-----	105	115	Yellow-poplar, eastern white pine, black walnut.
						Eastern white pine--	100	186	
						Northern red oak----	---	---	
						American sycamore---	---	---	
						Black walnut-----	---	---	
						Red maple-----	---	---	
River birch-----	---	---							
Black cherry-----	---	---							

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordi-nation symbol	Management concerns				Potential productivity			Trees to plant
		Erosion hazard	Equip-ment limita-tion	Wind-throw hazard	Plant competi-tion	Common trees	Site index	Volume <sup>1</sup>	
SbC----- Saunook	8A	Slight	Slight	Slight	Moderate	Yellow-poplar----- Eastern white pine-- Northern red oak---- White oak----- Scarlet oak----- Eastern hemlock---- Red maple----- Black cherry----- American beech----- Sweet birch----- Sugar maple----- Yellow buckeye-----	107	119	Yellow-poplar, eastern white pine, northern red oak, Fraser fir <sup>3</sup> .
SbD----- Saunook	8R	Moderate	Moderate	Slight	Moderate	Yellow-poplar----- Eastern white pine-- Northern red oak---- White oak----- Scarlet oak----- Eastern hemlock---- Red maple-----	107	---	Yellow-poplar, eastern white pine, northern red oak, Fraser fir <sup>3</sup> .
SbE----- Saunook	8R	Severe	Severe	Slight	Moderate	Yellow-poplar----- Eastern white pine-- Northern red oak---- White oak----- Scarlet oak----- Eastern hemlock---- Red maple----- Black cherry----- American beech----- Sweet birch----- Sugar maple----- Yellow buckeye-----	107	119	Yellow-poplar, eastern white pine, northern red oak, Fraser fir <sup>3</sup> .
ScB, ScC----- Saunook	8A	Slight	Slight	Slight	Moderate	Yellow-poplar----- Eastern white pine-- Northern red oak---- White oak----- Scarlet oak----- Eastern hemlock---- Red maple----- Black cherry----- American beech----- Sweet birch----- Sugar maple----- Yellow buckeye-----	107	119	Yellow-poplar, eastern white pine, northern red oak, Fraser fir <sup>3</sup> .
SoD <sup>2</sup> : Soco-----	11R	Moderate	Moderate	Moderate	Moderate	Eastern white pine-- Shortleaf pine----- Pitch pine----- Virginia pine----- Chestnut oak----- Scarlet oak----- Northern red oak---- White oak----- Black oak----- Yellow-poplar----- Scarlet oak----- Hickory-----	85 61 --- --- 68 76 --- --- --- --- --- ---	155 90 --- --- 50 58 --- --- --- --- --- ---	Eastern white pine.

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordi-nation symbol	Management concerns				Potential productivity			Trees to plant
		Erosion hazard	Equip-ment limita-tion	Wind-throw hazard	Plant competi-tion	Common trees	Site index	Volume <sup>1</sup>	
SoD <sup>2</sup> : Stecoah-----	12R	Moderate	Moderate	Slight	Moderate	Eastern white pine-- Shortleaf pine----- Scarlet oak----- White oak----- Yellow-poplar----- Chestnut oak----- Virginia pine----- Hickory----- Black oak----- Northern red oak---- Pitch pine-----	91 --- --- 82 --- --- --- --- --- --- ---	168 --- --- 164 --- --- --- --- --- --- ---	Eastern white pine.
SoE <sup>2</sup> , SoF <sup>2</sup> : Soco-----	11R	Severe	Severe	Moderate	Moderate	Eastern white pine-- Shortleaf pine----- Pitch pine----- Virginia pine----- Chestnut oak----- Scarlet oak----- Northern red oak---- White oak----- Black oak----- Yellow-poplar----- Scarlet oak----- Hickory-----	85 61 --- --- 68 76 --- --- --- --- --- ---	155 90 --- --- 50 58 --- --- --- --- --- ---	Eastern white pine.
Stecoah-----	12R	Severe	Severe	Slight	Moderate	Eastern white pine-- Shortleaf pine----- Scarlet oak----- White oak----- Yellow-poplar----- Chestnut oak----- Virginia pine----- Hickory----- Black oak----- Northern red oak---- Pitch pine-----	91 --- --- 82 --- --- --- --- --- --- ---	168 --- --- 64 --- --- --- --- --- --- ---	Eastern white pine, Fraser fir <sup>3</sup> .
SrC <sup>2</sup> : Spivey-----	8F	Slight	Slight	Slight	Severe	Yellow-poplar----- Northern red oak---- Eastern white pine-- Black cherry----- American beech----- Sweet birch----- Sugar maple----- Yellow buckeye----- Eastern hemlock----	100 80 90 --- --- --- --- --- ---	102 62 166 --- --- --- --- --- ---	Yellow-poplar, eastern white pine.
Santeetlah-----	8A	Slight	Slight	Slight	Severe	Yellow-poplar----- Black cherry----- Sugar maple----- Eastern hemlock---- Yellow buckeye----- Yellow birch----- Northern red oak---- Black oak----- White oak----- American beech----- Sweet birch-----	108 --- --- --- --- --- --- --- --- --- ---	121 --- --- --- --- --- --- --- --- --- ---	Northern red oak, black cherry, sugar maple, Fraser fir <sup>3</sup> .

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordi-nation symbol	Management concerns				Potential productivity			Trees to plant
		Erosion hazard	Equip-ment limita-tion	Wind-throw hazard	Plant competi-tion	Common trees	Site index	Volume <sup>1</sup>	
SrD <sup>2</sup> : Spivey-----	8R	Moderate	Moderate	Slight	Severe	Yellow-poplar----- Northern red oak---- Eastern white pine-- Black cherry----- American beech----- Sweet birch----- Sugar maple----- Yellow buckeye----- Eastern hemlock----	100 80 90 --- --- --- --- --- ---	102 62 66 --- --- --- --- --- ---	Yellow-poplar, eastern white pine.
Santeetlah-----	8R	Moderate	Moderate	Slight	Severe	Yellow-poplar----- Black cherry----- Sugar maple----- Eastern hemlock---- Yellow buckeye----- Yellow birch----- Northern red oak---- Black oak----- White oak----- American beech----- Sweet birch-----	108 --- --- --- --- --- --- --- --- --- ---	121 --- --- --- --- --- --- --- --- --- ---	Northern red oak, black cherry, sugar maple, Fraser fir <sup>3</sup> .
SrE <sup>2</sup> : Spivey-----	8R	Severe	Severe	Slight	Severe	Yellow-poplar----- Northern red oak---- Eastern white pine-- Black cherry----- American birch----- Black birch----- Sugar maple----- Yellow buckeye----- Eastern hemlock----	100 80 90 --- --- --- --- --- ---	107 66 166 --- --- --- --- --- ---	Yellow-poplar, eastern white pine.
Santeetlah-----	8R	Severe	Severe	Slight	Severe	Yellow-poplar----- Black cherry----- Sugar maple----- Eastern hemlock---- Yellow buckeye----- Yellow birch----- Northern red oak---- Black oak----- White oak----- American birch----- Sweet birch-----	108 --- --- --- --- --- --- --- --- --- ---	121 --- --- --- --- --- --- --- --- --- ---	Northern red oak, black cherry, sugar maple, Fraser fir <sup>3</sup> .
StB----- Statler	8A	Slight	Slight	Slight	Severe	Yellow-poplar----- White oak----- Eastern white pine-- Red maple----- Northern red oak---- Hickory----- Black cherry----- American beech----- Sweet birch----- Yellow buckeye-----	100 80 90 --- --- --- --- --- --- ---	107 62 166 --- --- --- --- --- --- ---	Yellow-poplar, black walnut, eastern white pine.

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordi- nation symbol	Management concerns				Potential productivity			Trees to plant
		Erosion hazard	Equip- ment limita- tion	Wind- throw hazard	Plant competi- tion	Common trees	Site index	Volume <sup>1</sup>	
SxE <sup>2</sup> : Sylco-----	5R	Moderate	Severe	Moderate	Moderate	Shortleaf pine----- Virginia pine----- Scarlet oak----- Chestnut oak----- Black oak----- White oak----- Eastern white pine-- Pitch pine----- Hickory-----	50 50 --- --- --- --- --- --- ---	68 68 --- --- --- --- --- --- ---	Virginia pine.
Cataska-----	2R	Moderate	Severe	Severe	Moderate	Chestnut oak----- Scarlet oak----- Pitch pine----- Virginia pine----- Hickory----- Black oak----- White oak----- Eastern white pine-- Shortleaf pine-----	40 40 40 --- --- --- --- --- ---	26 26 --- --- --- --- --- --- ---	Virginia pine.
SyA <sup>2</sup> : Sylva-----	8W	Slight	Severe	Slight	Severe	Yellow-poplar----- Eastern white pine-- White oak----- Red maple----- Eastern hemlock----- Sweet birch----- Basswood-----	100 --- --- --- --- --- ---	107 --- --- --- --- --- ---	Yellow-poplar, eastern white pine.
Whiteside-----	12A	Slight	Slight	Slight	Severe	Eastern white pine-- Yellow-poplar----- Black cherry----- Eastern hemlock----- Sugar maple----- Red maple----- White oak----- Yellow birch----- Sweet birch----- Black locust----- Basswood-----	90 95 --- --- --- --- --- --- --- --- ---	166 98 --- --- --- --- --- --- --- --- ---	Eastern white pine, yellow- poplar, black cherry.
ToA----- Toxaway	6W	Slight	Severe	Slight	Severe	Yellow-poplar----- Eastern white pine-- Virginia pine----- Northern red oak---- Shortleaf pine----- American sycamore--- Red maple----- Yellow birch----- Sweet birch----- Eastern hemlock-----	85 94 --- --- --- --- --- --- --- --- ---	95 172 --- --- --- --- --- --- --- --- ---	Yellow-poplar, eastern white pine, northern red oak.

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordi-nation symbol	Management concerns				Potential productivity			Trees to plant
		Erosion hazard	Equip-ment limita-tion	Wind-throw hazard	Plant competi-tion	Common trees	Site index	Volume <sup>1</sup>	
TrE, TrF----- Trimont	8R	Severe	Severe	Slight	Moderate	Yellow-poplar----- Northern red oak---- Black oak----- White oak----- American beech----- Black locust----- Red maple----- Black cherry----- Sweet birch----- Scarlet oak----- Hickory-----	102	110	Yellow-poplar, northern red oak, black oak, white oak.
TsC <sup>2</sup> : Tuckasegee-----	8A	Slight	Slight	Slight	Severe	Yellow-poplar----- Eastern white pine-- Northern red oak---- Black cherry----- Eastern hemlock----- White oak----- Yellow birch----- American beech----- White ash----- Black locust----- Yellow buckeye----- Sugar maple----- Red maple----- Sweet birch-----	109 98	122 182	Yellow-poplar, eastern white pine, northern red oak, black cherry, Fraser fir <sup>3</sup> .
Cullasaja-----	8A	Slight	Slight	Slight	Severe	Yellow-poplar----- Black cherry----- Northern red oak---- Yellow birch----- Eastern white pine-- Yellow buckeye----- Eastern hemlock----- American birch----- Sweet birch----- Sugar maple-----	109	122	Fraser fir <sup>3</sup> .
TwB <sup>2</sup> , TwC <sup>2</sup> : Tuckasegee-----	8A	Slight	Slight	Slight	Severe	Yellow-poplar----- Eastern white pine-- Northern red oak---- Black cherry----- Eastern hemlock----- White oak----- Yellow birch----- American beech----- White ash----- Black locust----- Yellow buckeye----- Sugar maple----- Red maple----- Sweet birch-----	109 98	122 182	Yellow-poplar, eastern white pine, northern red oak, black cherry, Fraser fir <sup>3</sup> .

See footnotes at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity			Trees to plant
		Erosion hazard	Equipment limitation	Wind-throw hazard	Plant competition	Common trees	Site index	Volume <sup>1</sup>	
TwB <sup>2</sup> , TwC <sup>2</sup> : Whiteside-----	12A	Slight	Slight	Slight	Severe	Eastern white pine--	90	166	Eastern white pine, yellow-poplar, black cherry.
						Yellow-poplar-----	95	98	
						Black cherry-----	---	---	
						Eastern hemlock-----	---	---	
						Sugar maple-----	---	---	
						Red maple-----	---	---	
						White oak-----	---	---	
						Yellow birch-----	---	---	
						Sweet birch-----	---	---	
						Black locust-----	---	---	
						American beech-----	---	---	
						Northern red oak-----	---	---	
Yellow buckeye-----	---	---							
WeC----- Wayah	2A	Slight	Slight	Slight	Slight	Northern red oak----	43	28	
						Red spruce-----	---	---	
						Fraser fir-----	---	---	
						Yellow birch-----	---	---	
						Sugar maple-----	---	---	
WeD----- Wayah	2R	Moderate	Moderate	Slight	Slight	Northern red oak----	43	28	
						Red spruce-----	---	---	
						Fraser fir-----	---	---	
						Yellow birch-----	---	---	
						Sugar maple-----	---	---	
WeE, WeF----- Wayah	2R	Severe	Severe	Slight	Slight	Northern red oak----	40	26	
						Red spruce-----	---	---	
						Fraser fir-----	---	---	
						Yellow birch-----	---	---	
						Sugar maple-----	---	---	
Sweet birch-----	---	---							

<sup>1</sup> Volume is the yield in cubic feet per acre per year calculated at the age of culmination of mean annual increment for fully stocked natural stands.

<sup>2</sup> See description of the map unit for composition and behavior characteristics of the map unit.

<sup>3</sup> Species is used for Christmas trees.

<sup>4</sup> Site index for this soil is estimated from data for Chestnut soils.

<sup>5</sup> Site index for this soil is estimated from data for Cowee soils.

<sup>6</sup> Site index for this soil is estimated from data for Nikwasi soils.

TABLE 8.--RECREATIONAL DEVELOPMENT

(Some terms that describe restrictive soil features are defined in the "Glossary." See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated)

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
ArA----- Arkaqua	Severe: flooding.	Moderate: flooding, wetness.	Severe: flooding.	Moderate: wetness, flooding.	Severe: flooding.
BeA----- Biltmore	Severe: flooding.	Moderate: flooding.	Severe: flooding.	Moderate: flooding.	Severe: flooding.
BkB2----- Braddock	Slight-----	Slight-----	Moderate: slope, small stones.	Slight-----	Slight.
BkC2----- Braddock	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight-----	Moderate: slope.
BrC*: Braddock-----	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight-----	Moderate: slope.
Urban land.					
BrD*: Braddock-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Urban land.					
BsC*: Brasstown-----	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight-----	Moderate: slope.
Junaluska-----	Moderate: slope.	Moderate: slope.	Severe: slope, small stones.	Slight-----	Moderate: small stones, slope, depth to rock.
BsD*: Brasstown-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Junaluska-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope.	Severe: slope.
BsE*, BsF*: Brasstown-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Junaluska-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
BuD*: Burton-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.

See footnote at end of table.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
BuD*: Craggey-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, depth to rock, slope.	Severe: fragile.	Severe: slope, depth to rock.
Rock outcrop.					
BuF*: Burton-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Craggey-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, depth to rock, slope.	Severe: slope, fragile.	Severe: slope, depth to rock.
Rock outcrop.					
CaE, CaF----- Cashiers	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
CcF*: Cataska-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope.	Severe: small stones, slope.
Sylco-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: small stones, slope.
CdD----- Chandler	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope.	Severe: slope.
CdE, CdF----- Chandler	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
ChE, ChF----- Cheoah	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
CnC*: Chestnut-----	Moderate: slope, small stones.	Moderate: slope, small stones.	Severe: slope, small stones.	Slight-----	Moderate: small stones, droughty, slope.
Edneyville-----	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight-----	Moderate: droughty, slope.
CnD*: Chestnut-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope.	Severe: slope.

See footnote at end of table.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
CnD*: Edneyville-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
CnE*: Chestnut-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Edneyville-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
CpD*: Cleveland-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Moderate: slope.	Severe: slope, depth to rock.
Chestnut-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope.	Severe: slope.
Rock outcrop.					
CpE*, CpF*: Cleveland-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.
Chestnut-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Rock outcrop.					
CsD----- Cullasaja	Severe: slope, large stones.	Severe: slope, large stones.	Severe: large stones, slope, small stones.	Severe: large stones.	Severe: small stones, large stones, slope.
CsE----- Cullasaja	Severe: slope, large stones.	Severe: slope, large stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope.	Severe: small stones, large stones, slope.
CuD*: Cullasaja-----	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Moderate: large stones, slope.	Severe: large stones, slope.
Tuckasegee-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
CuE*, CuF*: Cullasaja-----	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: large stones, slope.
Tuckasegee-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.

See footnote at end of table.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
DgB----- Dellwood	Severe: flooding.	Moderate: flooding, wetness.	Severe: small stones, flooding.	Moderate: flooding.	Severe: droughty, flooding.
DrB----- Dillard	Severe: flooding.	Slight-----	Moderate: slope, wetness, percs slowly.	Slight-----	Slight.
DsB----- Dillsboro	Slight-----	Slight-----	Moderate: slope, small stones.	Slight-----	Moderate: large stones.
DsC----- Dillsboro	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight-----	Moderate: large stones, slope.
EdB*: Edneyville-----	Slight-----	Slight-----	Moderate: slope, small stones.	Slight-----	Moderate: droughty.
Chestnut-----	Moderate: small stones.	Moderate: small stones.	Severe: small stones.	Slight-----	Moderate: small stones, droughty, depth to rock.
EdC*: Edneyville-----	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight-----	Moderate: droughty, slope.
Chestnut-----	Moderate: slope, small stones.	Moderate: slope, small stones.	Severe: slope, small stones.	Slight-----	Moderate: small stones, droughty, slope.
EdD*: Edneyville-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Chestnut-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope.	Severe: slope.
EdE*, EdF*: Edneyville-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Chestnut-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
EeC*: Edneyville-----	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight-----	Moderate: droughty, slope.

See footnote at end of table.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
EeC*: Chestnut-----	Moderate: slope, small stones.	Moderate: slope, small stones.	Severe: slope, small stones.	Slight-----	Moderate: small stones, droughty, slope.
Urban land.					
EeD*: Edneyville-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Chestnut-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope.	Severe: slope.
Urban land.					
EvB*: Evard-----	Slight-----	Slight-----	Moderate: slope, small stones.	Slight-----	Slight.
Cowee-----	Slight-----	Slight-----	Moderate: slope, small stones, depth to rock.	Slight-----	Moderate: small stones, depth to rock.
EvC*: Evard-----	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight-----	Moderate: slope.
Cowee-----	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight-----	Moderate: small stones, slope, depth to rock.
EvD*: Evard-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Cowee-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
EvE*, EvF*: Evard-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Cowee-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
ExC*: Evard-----	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight-----	Moderate: slope.
Cowee-----	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight-----	Moderate: small stones, slope, depth to rock.
Urban land.					

See footnote at end of table.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
ExD*:					
Evard-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Cowee-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Urban land.					
FaC-----	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight-----	Moderate: small stones, slope.
Fannin					
FaD-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Fannin					
FaE, FaF-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Fannin					
HaB2-----	Slight-----	Slight-----	Moderate: slope, small stones.	Slight-----	Slight.
Hayesville					
HaC2-----	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight-----	Moderate: slope.
Hayesville					
HaD2-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Hayesville					
HmA-----	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Hemphill					
NkA-----	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
Nikwasi					
OwE-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Oconaluftee					
PwC-----	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight-----	Moderate: slope.
Plott					
PwD-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Plott					
PwE, PwF-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Plott					
ReA-----	Severe: flooding.	Moderate: flooding, wetness.	Severe: flooding.	Moderate: flooding.	Severe: flooding.
Reddies					
RhF*:					
Rock outcrop.					
Cataska-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope.	Severe: small stones, slope.

See footnote at end of table.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
RkF*: Rock outcrop.					
Cleveland-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.
RsaA----- Rosman	Severe: flooding.	Moderate: flooding.	Severe: flooding.	Moderate: flooding.	Severe: flooding.
SbC----- Saunook	Moderate: slope.	Moderate: slope.	Severe: slope, small stones.	Slight-----	Moderate: small stones, slope.
SbD----- Saunook	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope.	Severe: slope.
SbE----- Saunook	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
ScB----- Saunook	Slight-----	Slight-----	Moderate: slope, small stones.	Slight-----	Slight.
ScC----- Saunook	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight-----	Moderate: slope.
SoD*: Soco-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope.	Severe: slope.
Stecoah-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope.	Severe: slope.
SoE*, SoF*: Soco-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
Stecoah-----	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
SrC*: Spivey-----	Severe: small stones.	Severe: small stones.	Severe: large stones, slope, small stones.	Moderate: large stones.	Severe: small stones.
Santeetlah-----	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight-----	Moderate: slope.
SrD*: Spivey-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Moderate: large stones, slope.	Severe: small stones, slope.

See footnote at end of table.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
SrD*: Santeetlah-----	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
SrE*: Spivey-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: small stones, slope.
Santeetlah-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
StB----- Statler	Severe: flooding.	Slight-----	Moderate: slope.	Slight-----	Slight.
SxE*: Sylco-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: small stones, slope.
Cataska-----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope.	Severe: small stones, slope.
SyA*: Sylva-----	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Whiteside-----	Moderate: wetness.	Moderate: wetness.	Moderate: slope, small stones, wetness.	Moderate: wetness.	Moderate: wetness.
ToA----- Toxaway	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
TrE, TrF----- Trimont	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
TsC*: Tuckasegee-----	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight-----	Moderate: large stones, slope.
Cullasaja-----	Moderate: slope, small stones.	Moderate: slope, small stones.	Severe: large stones, slope, small stones.	Moderate: large stones.	Severe: large stones.
TwB*: Tuckasegee-----	Slight-----	Slight-----	Moderate: slope, small stones.	Slight-----	Moderate: large stones.

See footnote at end of table.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
TwB*: Whiteside-----	Moderate: wetness.	Moderate: wetness.	Moderate: slope, small stones, wetness.	Moderate: wetness.	Moderate: wetness.
TwC*: Tuckasegee-----	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight-----	Moderate: large stones, slope.
Whiteside-----	Moderate: slope, wetness.	Moderate: slope, wetness.	Severe: slope.	Moderate: wetness.	Moderate: wetness.
Ud. Udorthents					
UfB*: Udorthents.					
Urban land.					
WeC----- Wayah	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight-----	Moderate: slope.
WeD----- Wayah	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
WeE, WeF----- Wayah	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.

\* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 9.--WILDLIFE HABITAT

(See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated)

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hardwood trees	Conif- erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
ArA----- Arkaqua	Poor	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
BeA----- Biltmore	Poor	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
BkB2----- Braddock	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
BkC2----- Braddock	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
BrC*: Braddock-----	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Urban land.										
BrD*: Braddock-----	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Urban land.										
BsC*: Brasstown-----	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Junaluska-----	Fair	Good	Good	Fair	Fair	Very poor.	Very poor.	Good	Fair	Very poor.
BsD*: Brasstown-----	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Junaluska-----	Poor	Fair	Good	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
BsE*, BsF*: Brasstown-----	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
Junaluska-----	Very poor.	Poor	Good	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
BuD*: Burton-----	Poor	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Craggey-----	Very poor.	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Fair	Very poor.
Rock outcrop.										

See footnote at end of table.

TABLE 9.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hardwood trees	Conif- erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
BuF*:										
Burton-----	Very poor.	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Craggey-----	Very poor.	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Fair	Very poor.
Rock outcrop.										
CaE, CaF-----	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Cashiers										
CcF*:										
Cataska-----	Very poor.	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Very poor.
Sylco-----	Very poor.	Poor	Good	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
CdD-----	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
Chandler										
CdE, CdF-----	Very poor.	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Chandler										
ChE, ChF-----	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Cheoah										
CnC*:										
Chestnut-----	Fair	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
Edneyville-----	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
CnD*:										
Chestnut-----	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
Edneyville-----	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
CnE*:										
Chestnut-----	Very poor.	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Edneyville-----	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
CpD*:										
Cleveland-----	Very poor.	Very poor.	Poor	Fair	Fair	Very poor.	Very poor.	Very poor.	Poor	Very poor.
Chestnut-----	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
Rock outcrop.										

See footnote at end of table.

TABLE 9.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hardwood trees	Conif- erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
CpE*, CpF*: Cleveland-----	Very poor.	Very poor.	Poor	Fair	Fair	Very poor.	Very poor.	Very poor.	Poor	Very poor.
Chestnut-----	Very poor.	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Rock outcrop.										
CsD, CsE----- Cullasaja	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
CuD*: Cullasaja-----	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Tuckasegee-----	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
CuE*, CuF*: Cullasaja-----	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
Tuckasegee-----	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
DgB----- Dellwood	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
DrB----- Dillard	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
DsB----- Dillsboro	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
DsC----- Dillsboro	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
EdB*, EdC*: Edneyville-----	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Chestnut-----	Fair	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
EdD*: Edneyville-----	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Chestnut-----	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
EdE*, EdF*: Edneyville-----	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Chestnut-----	Very poor.	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.

See footnote at end of table.

TABLE 9.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hardwood trees	Conif- erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
EeC*:										
Edneyville-----	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Chestnut-----	Fair	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
Urban land.										
EeD*:										
Edneyville-----	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Chestnut-----	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
Urban land.										
EvB*, EvC*:										
Evard-----	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Cowee-----	Fair	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
EvD*:										
Evard-----	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Cowee-----	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
EvE*, EvF*:										
Evard-----	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Cowee-----	Very poor.	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
ExC*:										
Evard-----	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Cowee-----	Fair	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
Urban land.										
ExD*:										
Evard-----	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Cowee-----	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
Urban land.										
FaC-----	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Fannin										

See footnote at end of table.

TABLE 9.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hardwood trees	Conif- erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
FaD----- Fannin	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
FaE, FaF----- Fannin	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
HaB2----- Hayesville	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
HaC2----- Hayesville	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
HaD2----- Hayesville	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
HmA----- Hemphill	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
NkA----- Nikwasi	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
OwE----- Oconaluftee	Very poor.	Poor	Good	Very poor.	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
PwC----- Plott	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
PwD----- Plott	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
PwE, PwF----- Plott	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
ReA----- Reddies	Poor	Fair	Fair	Good	Good	Poor	Poor	Fair	Good	Poor.
RhF*: Rock outcrop.										
Cataska----- Cataska	Very poor.	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Very poor.
RkF*: Rock outcrop.										
Cleveland----- Cleveland	Very poor.	Very poor.	Poor	Fair	Fair	Very poor.	Very poor.	Very poor.	Poor	Very poor.
RsA----- Rosman	Good	Good	Good	Good	Good	Fair	Very poor.	Good	Good	Very poor.
SbC----- Saunook	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
SbD----- Saunook	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Fair	Very poor.
SbE----- Saunook	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.

See footnote at end of table.

TABLE 9.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hardwood trees	Conif- erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
ScB----- Saunook	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
ScC----- Saunook	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
SoD*: Soco-----	Poor	Fair	Good	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
Stecoah-----	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
SoE*, SoF*: Soco-----	Very poor.	Poor	Good	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Stecoah-----	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
SrC*: Spivey-----	Very poor.	Very poor.	Fair	Good	Poor	Very poor.	Very poor.	Poor	Fair	Very poor.
Santeetlah-----	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
SrD*: Spivey-----	Very poor.	Very poor.	Fair	Good	Poor	Very poor.	Very poor.	Poor	Fair	Very poor.
Santeetlah-----	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Fair	Very poor.
SrE*: Spivey-----	Very poor.	Very poor.	Fair	Good	Poor	Very poor.	Very poor.	Poor	Fair	Very poor.
Santeetlah-----	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
StB----- Statler	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
SxE*: Sylco-----	Very poor.	Poor	Good	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Cataska-----	Very poor.	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Very poor.
SyA*: Sylva-----	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
Whiteside-----	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
ToA----- Toxaway	Fair	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.

See footnote at end of table.

TABLE 9.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hardwood trees	Conif- erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
TrE, TrF----- Trimont	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
TsC*: Tuckasegee-----	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Cullasaja-----	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
TwB*: Tuckasegee-----	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Whiteside-----	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
TwC*: Tuckasegee-----	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Whiteside-----	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Ud. Udorthents										
UfB*: Udorthents.										
Urban land.										
WeC----- Wayah	Fair	Good	Good	Very poor.	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.
WeD----- Wayah	Poor	Fair	Good	Very poor.	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.
WeE, WeF----- Wayah	Very poor.	Poor	Good	Very poor.	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.

\* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 10.--BUILDING SITE DEVELOPMENT

(Some terms that describe restrictive soil features are defined in the "Glossary." See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
ArA----- Arkaqua	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: low strength, flooding.	Severe: flooding.
BeA----- Biltmore	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.
BkB2----- Braddock	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.	Slight.
BkC2----- Braddock	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: shrink-swell, slope.	Severe: slope.	Severe: low strength.	Moderate: slope.
BrC*: Braddock-----	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: shrink-swell, slope.	Severe: slope.	Severe: low strength.	Moderate: slope.
Urban land.						
BrD*: Braddock-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
Urban land.						
BsC*: Brasstown-----	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: low strength, slope, frost action.	Moderate: slope.
Junaluska-----	Moderate: depth to rock, slope.	Moderate: slope.	Moderate: depth to rock, slope.	Severe: slope.	Moderate: low strength, slope, frost action.	Moderate: small stones, slope, depth to rock.
BsD*, BsE*, BsF*: Brasstown-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Junaluska-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
BuD*, BuF*: Burton-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
Craggey-----	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
BuD*, BuF*: Rock outcrop.						
CaE, CaF----- Cashiers	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, low strength.	Severe: slope.
CcF*: Cataska-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: small stones, slope.
Sylco-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: small stones, slope.
CdD, CdE, CdF----- Chandler	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, low strength.	Severe: slope.
ChE, ChF----- Cheoah	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
CnC*: Chestnut-----	Moderate: depth to rock, slope.	Moderate: slope.	Moderate: depth to rock, slope.	Severe: slope.	Moderate: slope, frost action.	Moderate: small stones, droughty, slope.
Edneyville-----	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope, frost action.	Moderate: droughty, slope.
CnD*, CnE*: Chestnut-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Edneyville-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
CpD*, CpE*, CpF*: Cleveland-----	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.
Chestnut-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Rock outcrop.						
CsD, CsE----- Cullasaja	Severe: cutbanks cave, large stones, slope.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: small stones, large stones, slope.
CuD*, CuE*, CuF*: Cullasaja-----	Severe: cutbanks cave, large stones, slope.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: large stones, slope.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
CuD*, CuE*, CuF*: Tuckasegee-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
DgB----- Dellwood	Severe: cutbanks cave, wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding.	Severe: droughty, flooding.
DrB----- Dillard	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Moderate: low strength, wetness.	Slight.
DsB----- Dillsboro	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.	Moderate: large stones.
DsC----- Dillsboro	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: large stones, slope.
EdB*: Edneyville-----	Slight-----	Slight-----	Slight-----	Moderate: slope.	Moderate: frost action.	Moderate: droughty.
Chestnut-----	Moderate: depth to rock.	Slight-----	Moderate: depth to rock.	Moderate: slope.	Moderate: frost action.	Moderate: small stones, droughty, depth to rock.
EdC*: Edneyville-----	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope, frost action.	Moderate: droughty, slope.
Chestnut-----	Moderate: depth to rock, slope.	Moderate: slope.	Moderate: depth to rock, slope.	Severe: slope.	Moderate: slope, frost action.	Moderate: small stones, droughty, slope.
EdD*, EdE*, EdF*: Edneyville-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Chestnut-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
EeC*: Edneyville-----	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope, frost action.	Moderate: droughty, slope.
Chestnut-----	Moderate: depth to rock, slope.	Moderate: slope.	Moderate: depth to rock, slope.	Severe: slope.	Moderate: slope, frost action.	Moderate: small stones, droughty, slope.
Urban land.						
EeD*: Edneyville-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
EeD*: Chestnut-----  Urban land.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
EvB*: Evard-----  Cowee-----	Severe: cutbanks cave.	Slight-----	Slight-----	Moderate: slope.	Moderate: frost action.	Slight.
EvC*: Evard-----  Cowee-----	Moderate: depth to rock.	Slight-----	Moderate: depth to rock.	Moderate: slope.	Moderate: frost action.	Moderate: small stones, depth to rock.
EvD*, EvE*, EvF*: Evard-----  Cowee-----	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope, frost action.	Moderate: slope.
EvD*, EvE*, EvF*: Evard-----  Cowee-----	Moderate: depth to rock, slope.	Moderate: slope.	Moderate: depth to rock, slope.	Severe: slope.	Moderate: slope, frost action.	Moderate: small stones, slope, depth to rock.
EvD*, EvE*, EvF*: Evard-----  Cowee-----	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
EvD*, EvE*, EvF*: Evard-----  Cowee-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
ExC*: Evard-----  Cowee-----  Urban land.	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope, frost action.	Moderate: slope.
ExC*: Evard-----  Cowee-----  Urban land.	Moderate: depth to rock, slope.	Moderate: slope.	Moderate: depth to rock, slope.	Severe: slope.	Moderate: slope, frost action.	Moderate: small stones, slope, depth to rock.
ExD*: Evard-----  Cowee-----  Urban land.	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
ExD*: Evard-----  Cowee-----  Urban land.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
FaC----- Fannin	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: low strength.	Moderate: small stones, slope.
FaD, FaE, FaF----- Fannin	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
HaB2----- Hayesville	Moderate: too clayey.	Slight-----	Slight-----	Moderate: slope.	Moderate: low strength, frost action.	Slight.
HaC2----- Hayesville	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: low strength, slope, frost action.	Moderate: slope.
HaD2----- Hayesville	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
HmA----- Hemphill	Severe: wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: shrink-swell, low strength, wetness.	Severe: wetness.
NkA----- Nikwasi	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness, flooding.
OwE----- Oconaluftee	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
PwC----- Plott	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope, frost action.	Moderate: slope.
PwD, PwE, PwF----- Plott	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
ReA----- Reddies	Severe: cutbanks cave, wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding.	Severe: flooding.
RhF*: Rock outcrop.						
Cataska----- Rock outcrop.	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: small stones, slope.
RkF*: Rock outcrop.						
Cleveland----- Rock outcrop.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.
RsA----- Rosman	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.
SbC----- Saunook	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: low strength, slope, frost action.	Moderate: small stones, slope.
SbD, SbE----- Saunook	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
ScB----- Saunook	Slight-----	Slight-----	Slight-----	Moderate: slope.	Moderate: low strength, frost action.	Slight.
ScC----- Saunook	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: low strength, slope, frost action.	Moderate: slope.
SoD*, SoE*, SoF*: Soco-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Stecoah-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
SrC*: Spivey-----	Severe: large stones.	Severe: large stones.	Severe: large stones.	Severe: slope, large stones.	Moderate: large stones.	Severe: large stones.
Santeetlah-----	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope, frost action.	Moderate: slope.
SrD*, SrE*: Spivey-----	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: large stones, slope.
Santeetlah-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
StB----- Statler	Slight-----	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.	Slight.
SxE*: Sylco-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: small stones, slope.
Cataska-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: small stones, slope.
SyA*: Sylva-----	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, frost action.	Severe: wetness.
Whiteside-----	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness, frost action.	Moderate: wetness.
ToA----- Toxaway	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness, flooding.
TrE, TrF----- Trimont	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
TsC*: Tuckasegee-----	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope, frost action.	Moderate: large stones, slope.
Cullasaja-----	Severe: cutbanks cave, large stones.	Severe: large stones.	Severe: large stones.	Severe: slope, large stones.	Severe: large stones.	Severe: large stones.
TwB*: Tuckasegee-----	Slight-----	Slight-----	Slight-----	Moderate: slope.	Moderate: frost action.	Moderate: large stones.
Whiteside-----	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, slope.	Moderate: wetness, frost action.	Moderate: wetness.
TwC*: Tuckasegee-----	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope, frost action.	Moderate: large stones, slope.
Whiteside-----	Severe: cutbanks cave, wetness.	Moderate: wetness, slope.	Severe: wetness.	Severe: slope.	Moderate: wetness, slope, frost action.	Moderate: wetness.
Ud. Udorthents						
UfB*: Udorthents.						
Urban land.						
WeC----- Wayah	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope, frost action.	Moderate: slope.
WeD, WeE, WeF----- Wayah	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.

\* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 11.--SANITARY FACILITIES

(Some terms that describe restrictive soil features are defined in the "Glossary." See text for definitions of "slight," "poor," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
ArA----- Arkaqua	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Fair: wetness.
BeA----- Biltmore	Severe: flooding, wetness, poor filter.	Severe: seepage, flooding.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage.	Poor: seepage, too sandy.
BkB2----- Braddock	Moderate: percs slowly.	Severe: seepage.	Severe: seepage, too clayey.	Slight-----	Poor: too clayey, hard to pack.
BkC2----- Braddock	Moderate: percs slowly, slope.	Severe: seepage, slope.	Severe: seepage, too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
BrC*: Braddock-----  Urban land.	Moderate: percs slowly, slope.	Severe: seepage, slope.	Severe: seepage, too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
BrD*: Braddock-----  Urban land.	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
BsC*: Brasstown-----  Junaluska-----	Moderate: depth to rock, percs slowly, slope.	Severe: slope.	Severe: depth to rock.	Moderate: depth to rock, slope.	Fair: depth to rock, small stones, slope.
BsD*, BsE*, BsF*: Brasstown-----  Junaluska-----	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Poor: depth to rock, small stones.
	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: depth to rock, small stones, slope.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
BuD*, BuF*: Burton-----	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: depth to rock, slope.
Craggy-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, slope.	Poor: depth to rock, small stones, slope.
Rock outcrop.					
CaE, CaF----- Cashiers	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
CcF*: Cataska-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope, seepage.	Poor: depth to rock, seepage, small stones.
Sylco-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, small stones, slope.
CdD, CdE, CdF----- Chandler	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: hard to pack, slope.
ChE, ChF----- Checah	Severe: slope.	Severe: seepage, slope.	Severe: depth to rock, seepage, slope.	Severe: seepage, slope.	Poor: slope.
CnC*: Chestnut-----	Severe: depth to rock.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Poor: depth to rock, small stones.
Edneyville-----	Moderate: slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: small stones, slope.
CnD*, CnE*: Chestnut-----	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: depth to rock, small stones, slope.
Edneyville-----	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
CpD*, CpE*, CpF*: Cleveland-----	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
Chestnut-----	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: depth to rock, small stones, slope.
Rock outcrop.					
CsD, CsE----- Cullasaja	Severe: slope, large stones.	Severe: seepage, slope, large stones.	Severe: seepage, slope, large stones.	Severe: seepage, slope.	Poor: seepage, large stones, slope.
CuD*, CuE*, CuF*: Cullasaja-----	Severe: slope, large stones.	Severe: seepage, slope, large stones.	Severe: seepage, slope, large stones.	Severe: seepage, slope.	Poor: seepage, large stones, slope.
Tuckasegee-----	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: slope, seepage.	Poor: large stones, slope.
DgB----- Dellwood	Severe: flooding, wetness, poor filter.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Poor: seepage, too sandy, small stones.
DrB----- Dillard	Severe: wetness, percs slowly.	Severe: wetness, flooding.	Severe: wetness, too clayey.	Severe: wetness.	Fair: too clayey.
DsB----- Dillsboro	Moderate: percs slowly.	Moderate: seepage, slope.	Severe: too clayey.	Slight-----	Poor: too clayey, hard to pack.
DsC----- Dillsboro	Moderate: percs slowly, slope.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
EdB*: Edneyville-----	Slight-----	Severe: seepage.	Severe: seepage.	Severe: seepage.	Fair: small stones.
Chestnut-----	Severe: depth to rock.	Severe: seepage, depth to rock.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Poor: depth to rock, small stones.
EdC*: Edneyville-----	Moderate: slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: small stones, slope.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
EdC*: Chestnut-----	Severe: depth to rock.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Poor: depth to rock, small stones.
EeD*, EeE*, EeF*: Edneyville-----	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
Chestnut-----	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: depth to rock, small stones, slope.
EeC*: Edneyville-----	Moderate: slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: small stones, slope.
Chestnut-----	Severe: depth to rock.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Poor: depth to rock, small stones.
Urban land.					
EeD*: Edneyville-----	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
Chestnut-----	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: depth to rock, small stones, slope.
Urban land.					
EvB*: Evard-----	Slight-----	Moderate: seepage, slope.	Moderate: too sandy.	Slight-----	Fair: too sandy, small stones.
Cowee-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock.
EvC*: Evard-----	Moderate: slope.	Severe: slope.	Moderate: slope, too sandy.	Moderate: slope.	Fair: too sandy, small stones, slope.
Cowee-----	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock.
EvD*, EvE*, EvF*: Evard-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
EvD*, EvE*, EvF*: Cowee-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
ExC*: Evard-----	Moderate: slope.	Severe: slope.	Moderate: slope, too sandy.	Moderate: slope.	Fair: too sandy, small stones, slope.
Cowee-----	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock.
Urban land.					
ExD*: Evard-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Cowee-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
Urban land.					
FaC----- Fannin	Moderate: slope, percs slowly.	Severe: slope.	Moderate: slope.	Moderate: slope.	Fair: small stones, slope.
FaD, FaE, FaF----- Fannin	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
HaB2----- Hayesville	Moderate: percs slowly.	Severe: seepage.	Severe: seepage.	Slight-----	Fair: too clayey, hard to pack.
HaC2----- Hayesville	Moderate: percs slowly, slope.	Severe: seepage, slope.	Severe: seepage.	Moderate: slope.	Fair: too clayey, hard to pack, slope.
HaD2----- Hayesville	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: slope.	Poor: slope.
HmA----- Hemphill	Severe: wetness, percs slowly.	Moderate: seepage.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
NkA----- Nikwasi	Severe: flooding, wetness, poor filter.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Poor: seepage, too sandy, small stones.
OwE----- Oconaluftee	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: small stones, slope.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
PwC----- Plott	Moderate: slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: slope, thin layer.
PwD, PwE, PwF----- Plott	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
ReA----- Reddies	Severe: flooding, wetness, poor filter.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Poor: seepage, too sandy, small stones.
RhF*: Rock outcrop.					
Cataska----- Rock outcrop.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope, seepage.	Severe: depth to rock, slope, seepage.	Poor: depth to rock, seepage, small stones.
RkF*: Rock outcrop.					
Cleveland----- Rock outcrop.	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
RsA----- Rosman	Severe: flooding, wetness.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Fair: wetness.
SbC----- Saunook	Moderate: percs slowly, slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Poor: small stones.
SbD, SbE----- Saunook	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: small stones, slope.
ScB----- Saunook	Moderate: percs slowly.	Severe: seepage.	Severe: seepage.	Severe: seepage.	Poor: small stones.
ScC----- Saunook	Moderate: percs slowly, slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Poor: small stones.
SoD*, SoE*, SoF*: Soco-----	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: depth to rock, slope.
Stecoah-----	Severe: slope.	Severe: seepage, slope.	Severe: depth to rock, seepage, slope.	Severe: seepage, slope.	Poor: small stones, slope.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
SrC*: Spivey-----	Severe: large stones.	Severe: seepage, slope, large stones.	Severe: seepage, large stones.	Severe: seepage.	Poor: seepage, small stones.
Santeetlah-----	Moderate: slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: slope.
SrD*, SrE*: Spivey-----	Severe: slope, large stones.	Severe: seepage, slope, large stones.	Severe: seepage, slope, large stones.	Severe: seepage, slope.	Poor: seepage, large stones, slope.
Santeetlah-----	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
StB----- Statler	Moderate: flooding, percs slowly.	Severe: seepage.	Severe: seepage.	Moderate: flooding.	Good.
SxE*: Sylco-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, small stones, slope.
Cataska-----	Severe: depth to rock, slope.	Severe: depth to rock, slope, seepage.	Severe: depth to rock, slope, seepage.	Severe: depth to rock, slope, seepage.	Poor: depth to rock, seepage, small stones.
SyA*: Sylva-----	Severe: wetness.	Severe: seepage, wetness.	Severe: seepage, wetness.	Severe: seepage, wetness.	Poor: wetness.
Whiteside-----	Severe: wetness.	Severe: seepage, wetness.	Severe: seepage, wetness.	Severe: wetness.	Fair: wetness.
ToA----- Toxaway	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: hard to pack, wetness.
TrE, TrF----- Trimont	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
TsC*: Tuckasegee-----	Moderate: slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Poor: large stones.
Cullasaja-----	Severe: large stones.	Severe: seepage, slope, large stones.	Severe: seepage, large stones.	Severe: seepage.	Poor: seepage, large stones.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
TwB*: Tuckasegee-----	Slight-----	Severe: seepage.	Severe: seepage.	Severe: seepage.	Poor: large stones.
Whiteside-----	Severe: wetness.	Severe: seepage, wetness.	Severe: seepage, wetness.	Severe: wetness.	Fair: wetness.
TwC*: Tuckasegee-----	Moderate: slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Poor: large stones.
Whiteside-----	Severe: wetness.	Severe: seepage, slope, wetness.	Severe: seepage, wetness.	Severe: wetness.	Fair: slope, wetness.
Ud. Udorthents					
UfB*: Udorthents.					
Urban land.					
WeC----- Wayah	Moderate: slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Poor: small stones.
WeD, WeE, WeF----- Wayah	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: small stones, slope.

\* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 12.--CONSTRUCTION MATERIALS

(Some terms that describe restrictive soil features are defined in the "Glossary." See text for definitions of "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
ArA----- Arkaqua	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
BeA----- Biltmore	Good-----	Probable-----	Improbable: too sandy.	Poor: too sandy.
BkB2, BkC2----- Braddock	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, area reclaim, small stones.
BrC*: Braddock-----	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, area reclaim, small stones.
Urban land.				
BrD*: Braddock-----	Fair: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, area reclaim, small stones.
Urban land.				
BsC*: Brasstown-----	Fair: depth to rock, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
Junaluska-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
BsD*: Brasstown-----	Fair: depth to rock, low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Junaluska-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
BsE*, BsF*: Brasstown-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Junaluska-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
BuD*: Burton-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Craggy-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, large stones, slope.
Rock outcrop.				
BuF*: Burton-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Craggy-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, large stones, slope.
Rock outcrop.				
CaE, CaF----- Cashiers	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
CcF*: Cataska-----	Poor: depth to rock, slope.	Improbable: small stones.	Improbable: thin layer.	Poor: depth to rock, small stones, slope.
Sylco-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
CdD----- Chandler	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
CdE, CdF----- Chandler	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
ChE, ChF----- Cheoah	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
CnC*: Chestnut-----	Poor: depth to rock.	Improbable: excess fines, thin layer.	Improbable: excess fines, thin layer.	Poor: small stones.
Edneyville-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
CnD*: Chestnut-----	Poor: depth to rock.	Improbable: excess fines, thin layer.	Improbable: excess fines, thin layer.	Poor: small stones, slope.
Edneyville-----	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
CnE*: Chestnut-----	Poor: depth to rock, slope.	Improbable: excess fines, thin layer.	Improbable: excess fines, thin layer.	Poor: small stones, slope.
Edneyville-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
CpD*: Cleveland-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
Chestnut-----	Poor: depth to rock.	Improbable: excess fines, thin layer.	Improbable: excess fines, thin layer.	Poor: small stones, slope.
Rock outcrop.				
CpE*, CpF*: Cleveland-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
Chestnut-----	Poor: depth to rock, slope.	Improbable: excess fines, thin layer.	Improbable: excess fines, thin layer.	Poor: small stones, slope.
Rock outcrop.				
CsD----- Cullasaja	Poor: large stones.	Improbable: large stones.	Improbable: large stones.	Poor: large stones, area reclaim, slope.
CsE----- Cullasaja	Poor: large stones, slope.	Improbable: large stones.	Improbable: large stones.	Poor: large stones, area reclaim, slope.
CuD*: Cullasaja-----	Poor: large stones.	Improbable: large stones.	Improbable: large stones.	Poor: large stones, area reclaim, slope.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
CuD*: Tuckasegee-----	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
CuE*, CuF*: Cullasaja-----	Poor: large stones, slope.	Improbable: large stones.	Improbable: large stones.	Poor: large stones, area reclaim, slope.
Tuckasegee-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
DgB----- Dellwood	Fair: large stones, wetness.	Probable-----	Probable-----	Poor: too sandy, small stones, area reclaim.
DrB----- Dillard	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
DsB, DsC----- Dillsboro	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, area reclaim.
EdB*, EdC*: Edneyville-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
Chestnut-----	Poor: depth to rock.	Improbable: excess fines, thin layer.	Improbable: excess fines, thin layer.	Poor: small stones.
EdD*: Edneyville-----	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Chestnut-----	Poor: depth to rock.	Improbable: excess fines, thin layer.	Improbable: excess fines, thin layer.	Poor: small stones, slope.
EdE*, EdF*: Edneyville-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Chestnut-----	Poor: depth to rock, slope.	Improbable: excess fines, thin layer.	Improbable: excess fines, thin layer.	Poor: small stones, slope.
EeC*: Edneyville-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
EeC*: Chestnut-----	Poor: depth to rock.	Improbable: excess fines, thin layer.	Improbable: excess fines, thin layer.	Poor: small stones.
Urban land.				
EeD*: Edneyville-----	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Chestnut-----	Poor: depth to rock.	Improbable: excess fines, thin layer.	Improbable: excess fines, thin layer.	Poor: small stones, slope.
Urban land.				
EvB*: Evard-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones.
Cowee-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
EvC*: Evard-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones, slope.
Cowee-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
EvD*: Evard-----	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Cowee-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
EvE*, EvF*: Evard-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Cowee-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
ExC*: Evard-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones, slope.
Cowee-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
Urban land.				

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
ExD*:				
Evard-----	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Cowee-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Urban land.				
FaC----- Fannin	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones.
FaD----- Fannin	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
FaE, FaF----- Fannin	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
HaB2, HaC2----- Hayesville	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
HaD2----- Hayesville	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.
HmA----- Hemphill	Poor: shrink-swell, low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
NkA----- Nikwasi	Poor: wetness.	Probable-----	Probable-----	Poor: small stones, area reclaim, wetness.
OwE----- Oconaluftee	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
PwC----- Plott	Good-----	Probable-----	Probable-----	Fair: small stones, area reclaim, slope.
PwD----- Plott	Fair: slope.	Probable-----	Probable-----	Poor: slope.
PwE, PwF----- Plott	Poor: slope.	Probable-----	Probable-----	Poor: slope.
ReA----- Reddies	Fair: wetness.	Probable-----	Probable-----	Poor: small stones, area reclaim.
RhF*: Rock outcrop.				

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
RhF*: Cataska-----	Poor: depth to rock, slope.	Improbable: small stones.	Improbable: thin layer.	Poor: depth to rock, small stones, slope.
RkF*: Rock outcrop.				
Cleveland-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
RsA----- Rosman	Fair: wetness.	Probable-----	Probable-----	Fair: small stones, area reclaim.
SbC----- Saunook	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
SbD----- Saunook	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
SbE----- Saunook	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
ScB, ScC----- Saunook	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
SoD*: Soco-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Stecoah-----	Fair: depth to rock, thin layer, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
SoE*, SoF*: Soco-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Stecoah-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
SrC*: Spivey-----	Fair: large stones.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
SrC*: Santeetlah-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
SrD*: Spivey-----	Poor: large stones.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: large stones, area reclaim, slope.
Santeetlah-----	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
SrE*: Spivey-----	Poor: slope, large stones.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: small stones, area reclaim, slope.
Santeetlah-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
StB----- Statler	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
SxE*: Sylco-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Cataska-----	Poor: depth to rock, slope.	Improbable: small stones, thin layer.	Improbable: thin layer.	Poor: depth to rock, small stones, slope.
SyA*: Sylva-----	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Whiteside-----	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones.
ToA----- Toxaway	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
TrE, TrF----- Trimont	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
TsC*: Tuckasegee-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
TsC*: Cullasaja-----	Poor: large stones.	Improbable: large stones.	Improbable: large stones.	Poor: large stones, area reclaim.
TwB*: Tuckasegee-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
Whiteside-----	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones.
TwC*: Tuckasegee-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
Whiteside-----	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones, slope.
Ud. Udorthents				
UfB*: Udorthents.				
Urban land.				
WeC----- Wayah	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
WeD----- Wayah	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
WeE, WeF----- Wayah	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.

\* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 13.--WATER MANAGEMENT

(Some terms that describe restrictive soil features are defined in the "Glossary." See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
ArA----- Arkaqua	Moderate: seepage.	Severe: wetness.	Flooding-----	Wetness, flooding.	Wetness-----	Favorable.
BeA----- Biltmore	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, soil blowing, flooding.	Too sandy, soil blowing.	Droughty.
BkB2----- Braddock	Severe: seepage.	Moderate: hard to pack.	Deep to water	Slope-----	Favorable-----	Favorable.
BkC2----- Braddock	Severe: seepage, slope.	Moderate: hard to pack.	Deep to water	Slope-----	Slope-----	Slope.
BrC*, BrD*: Braddock-----	Severe: seepage, slope.	Moderate: hard to pack.	Deep to water	Slope-----	Slope-----	Slope.
Urban land.						
BsC*, BsD*, BsE*, BsF*: Brasstown-----	Severe: slope.	Severe: piping.	Deep to water	Slope-----	Slope-----	Slope.
Junaluska-----	Severe: seepage, slope.	Severe: thin layer.	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
BuD*, BuF*: Burton-----	Severe: seepage, slope.	Severe: piping.	Deep to water	Slope, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, depth to rock.
Craggey-----	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Slope, large stones, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, depth to rock.
Rock outcrop.						
CaE, CaF----- Cashiers	Severe: seepage, slope.	Severe: piping.	Deep to water	Slope, soil blowing.	Slope, soil blowing.	Slope.
CcF*: Cataska-----	Severe: depth to rock, slope.	Severe: seepage, thin layer.	Deep to water	Slope, droughty, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
Sylco-----	Severe: slope.	Severe: piping.	Deep to water	Slope, droughty, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, droughty.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
CdD, CdE, CdF----- Chandler	Severe: seepage, slope.	Severe: piping, hard to pack.	Deep to water	Slope, soil blowing.	Slope, soil blowing.	Slope.
ChE, ChF----- Cheoah	Severe: seepage, slope.	Severe: piping.	Deep to water	Slope-----	Slope-----	Slope.
CnC*, CnD*, CnE*: Chestnut----- Edneyville-----	Severe: seepage, slope.	Severe: piping, thin layer.	Deep to water	Slope, droughty, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, depth to rock.
CpD*, CpE*, CpF*: Cleveland----- Chestnut----- Rock outcrop.	Severe: depth to rock, slope.	Severe: piping.	Deep to water	Slope, droughty.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
CsD, CsE----- Cullasaja	Severe: seepage, slope.	Severe: seepage, large stones.	Deep to water	Slope, large stones, droughty.	Slope, large stones, too sandy.	Large stones, slope, droughty.
CuD*, CuE*, CuF*: Cullasaja----- Tuckasegee-----	Severe: seepage, slope.	Severe: seepage, large stones.	Deep to water	Slope, large stones, droughty.	Slope, large stones, too sandy.	Large stones, slope, droughty.
DgB----- Dellwood	Severe: seepage.	Severe: piping.	Deep to water	Slope, soil blowing.	Slope, large stones, soil blowing.	Large stones, slope.
DrB----- Dillard	Severe: seepage.	Severe: seepage, large stones.	Flooding, large stones.	Large stones, wetness, droughty.	Large stones, wetness, too sandy.	Large stones, droughty.
DsB----- Dillsboro	Slight-----	Moderate: thin layer, wetness.	Slope-----	Slope, wetness, soil blowing.	Wetness, soil blowing.	Favorable.
DsC----- Dillsboro	Moderate: seepage, slope.	Severe: hard to pack.	Deep to water	Slope, soil blowing.	Soil blowing---	Favorable.
EdB*: Edneyville-----	Severe: slope.	Severe: hard to pack.	Deep to water	Slope, soil blowing.	Slope, soil blowing.	Slope.
	Severe: seepage.	Severe: piping.	Deep to water	Slope, droughty.	Favorable-----	Droughty.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
EdB*: Chestnut-----	Severe: seepage.	Severe: piping, thin layer.	Deep to water	Slope, droughty, depth to rock.	Large stones, depth to rock.	Large stones, depth to rock.
EdC*, EdD*, EdE*, EdF*: Edneyville-----	Severe: seepage, slope.	Severe: piping.	Deep to water	Slope, droughty.	Slope-----	Slope, droughty.
Chestnut-----	Severe: seepage, slope.	Severe: piping, thin layer.	Deep to water	Slope, droughty, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, depth to rock.
EeC*, EeD*: Edneyville-----	Severe: seepage, slope.	Severe: piping.	Deep to water	Slope, droughty.	Slope-----	Slope, droughty.
Chestnut-----	Severe: seepage, slope.	Severe: piping, thin layer.	Deep to water	Slope, droughty, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, depth to rock.
Urban land.						
EvB*: Evard-----	Moderate: seepage, slope.	Severe: seepage, piping.	Deep to water	Slope, soil blowing.	Too sandy, soil blowing.	Favorable.
Cowee-----	Moderate: seepage, depth to rock, slope.	Severe: thin layer, piping.	Deep to water	Slope, depth to rock.	Depth to rock	Depth to rock.
EvC*, EvD*, EvE*, EvF*: Evard-----	Severe: slope.	Severe: seepage, piping.	Deep to water	Slope, soil blowing.	Slope, too sandy, soil blowing.	Slope.
Cowee-----	Severe: slope.	Severe: thin layer, piping.	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
ExC*, ExD*: Evard-----	Severe: slope.	Severe: seepage, piping.	Deep to water	Slope, soil blowing.	Slope, too sandy, soil blowing.	Slope.
Cowee-----	Severe: slope.	Severe: thin layer, piping.	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
Urban land.						
FaC, FaD, FaE, FaF----- Fannin	Severe: slope.	Severe: piping.	Deep to water	Slope-----	Slope-----	Slope.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
HaB2----- Hayesville	Severe: seepage.	Severe: hard to pack.	Deep to water	Slope-----	Favorable-----	Favorable.
HaC2, HaD2----- Hayesville	Severe: seepage, slope.	Severe: hard to pack.	Deep to water	Slope-----	Slope-----	Slope.
HmA----- Hemphill	Slight-----	Severe: hard to pack, wetness.	Percs slowly, frost action.	Wetness, percs slowly.	Wetness, percs slowly.	Wetness, percs slowly.
NkA----- Nikwasi	Severe: seepage.	Severe: seepage, wetness.	Flooding, large stones, cutbanks cave.	Wetness, droughty, flooding.	Large stones, wetness, too sandy.	Large stones, wetness, droughty.
OwE----- Oconaluftee	Severe: seepage, slope.	Severe: piping.	Deep to water	Slope-----	Slope-----	Slope.
PwC, PwD, PwE, PwF----- Plott	Severe: seepage, slope.	Severe: piping.	Deep to water	Slope-----	Slope-----	Slope.
ReA----- Reddies	Severe: seepage.	Severe: seepage.	Flooding, large stones, cutbanks cave.	Wetness, droughty.	Large stones, wetness, too sandy.	Large stones, droughty.
RhF*: Rock outcrop.						
Cataska-----	Severe: depth to rock, slope.	Severe: seepage, thin layer.	Deep to water	Slope, droughty, percs slowly.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
RkF*: Rock outcrop.						
Cleveland-----	Severe: depth to rock, slope.	Severe: piping.	Deep to water	Slope, droughty.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
RsA----- Rosman	Severe: seepage.	Severe: piping.	Flooding-----	Wetness, soil blowing, flooding.	Wetness, soil blowing.	Favorable.
SbC, SbD, SbE----- Saunook	Severe: seepage, slope.	Severe: piping.	Deep to water	Slope-----	Slope-----	Slope.
ScB----- Saunook	Severe: seepage.	Severe: piping.	Deep to water	Slope-----	Favorable-----	Favorable.
ScC----- Saunook	Severe: seepage, slope.	Severe: piping.	Deep to water	Slope-----	Slope-----	Slope.
SoD*, SoE*, SoF*: Soco-----	Severe: seepage, slope.	Severe: piping, thin layer.	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
SoD*, SoE*, SoF*: Stecoah-----	Severe: seepage, slope.	Severe: piping.	Deep to water	Slope-----	Slope-----	Slope.
SrC*, SrD*, SrE*: Spivey-----	Severe: seepage, slope.	Severe: seepage, large stones.	Deep to water	Slope, large stones, droughty.	Slope, large stones.	Large stones, slope, droughty.
Santeetlah-----	Severe: seepage, slope.	Severe: piping.	Deep to water	Slope-----	Slope-----	Slope.
StB----- Statler	Severe: seepage.	Severe: piping.	Deep to water	Slope-----	Favorable-----	Favorable.
SxE*: Sylco-----	Severe: slope.	Severe: piping.	Deep to water	Slope, droughty, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
Cataska-----	Severe: depth to rock, slope.	Severe: seepage, thin layer.	Deep to water	Slope, droughty, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
SyA*: Sylva-----	Severe: seepage.	Severe: piping, wetness.	Frost action---	Wetness-----	Wetness-----	Wetness.
Whiteside-----	Severe: seepage.	Severe: piping, wetness.	Favorable-----	Wetness-----	Wetness-----	Favorable.
ToA----- Toxaway	Moderate: seepage.	Severe: piping, hard to pack, wetness.	Flooding, frost action.	Wetness, flooding.	Wetness-----	Wetness.
TrE, TrF----- Trimont	Severe: slope.	Severe: piping.	Deep to water	Slope-----	Slope-----	Slope.
TsC*: Tuckasegee-----	Severe: seepage, slope.	Severe: piping.	Deep to water	Slope, soil blowing.	Slope, large stones, soil blowing.	Large stones, slope.
Cullasaja-----	Severe: seepage, slope.	Severe: seepage, large stones.	Deep to water	Slope, large stones, droughty.	Slope, large stones, too sandy.	Large stones, slope, droughty.
TwB*: Tuckasegee-----	Severe: seepage.	Severe: piping.	Deep to water	Slope, soil blowing.	Large stones, soil blowing.	Large stones.
Whiteside-----	Severe: seepage.	Severe: piping, wetness.	Slope-----	Slope, wetness.	Wetness-----	Favorable.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
TwC*: Tuckasegee-----	Severe: seepage, slope.	Severe: piping.	Deep to water	Slope, soil blowing.	Slope, large stones, soil blowing.	Large stones, slope.
Whiteside-----	Severe: seepage, slope.	Severe: piping, wetness.	Slope-----	Slope, wetness.	Slope, wetness.	Slope.
Ud. Udorthents						
UfB*: Udorthents.						
Urban land.						
WeC, WeD, WeE, WeF----- Wayah	Severe: seepage, slope.	Severe: piping.	Deep to water	Slope-----	Slope-----	Slope.

\* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 14.--ENGINEERING INDEX PROPERTIES

(The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated)

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments >3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
ArA----- Arkaqua	0-10	Loam-----	SM	A-2, A-4	0	98-100	95-100	60-90	30-50	25-35	NP-7
	10-48	Clay loam, loam, fine sandy loam.	ML, MH	A-4, A-5, A-6, A-7	0	96-100	95-100	80-100	51-90	35-55	4-20
	48-60	Variable-----	---	---	---	---	---	---	---	---	---
BeA----- Biltmore	0-12	Sandy loam----	SM	A-2-4, A-4	0-5	95-100	90-100	60-95	20-49	22-30	NP-4
	12-60	Loamy sand, sand, loamy fine sand.	SM, SP-SM	A-2-4	0-8	95-100	85-100	55-96	10-35	<20	NP
BkB2, BkC2---- Braddock	0-11	Clay loam-----	CL	A-6, A-7	0-5	80-100	75-100	65-95	50-85	35-50	15-26
	11-57	Clay loam, gravelly clay, sandy clay.	CH, CL, SC, GC	A-7	0-15	80-100	65-100	55-95	40-90	42-66	15-35
	57-60	Loam, very cobbly sandy clay loam.	SC, CL, GM, MH	A-2, A-4, A-6, A-7	0-50	75-95	30-90	25-85	20-70	25-50	8-28
BrC*, BrD*: Braddock-----	0-11	Clay loam-----	CL	A-6, A-7	0-5	80-100	75-100	65-95	50-85	35-50	15-26
	11-57	Clay loam, gravelly clay, sandy clay.	CH, CL, SC, MH	A-7	0-15	80-100	65-100	55-95	40-90	42-66	15-35
	57-60	Loam, very cobbly sandy clay loam.	SC, CL, GM, GC	A-2, A-4, A-6, A-7	0-50	75-95	30-90	25-85	20-70	25-50	8-28
Urban land.											
BsC*, BsD*, BsE*, BsF*: Brasstown----	0-6	Loam-----	SM, ML, MH	A-4, A-5, A-7-5	0-5	85-100	80-100	65-95	35-60	30-57	NP-14
	6-36	Channery loam, channery clay loam, loam.	CL, ML, SC, SM	A-6, A-7-6	2-15	75-100	70-100	55-97	40-73	35-50	11-20
	36-45	Channery fine sandy loam, channery very fine sandy loam, loam.	SM, GM, ML	A-4	2-15	70-100	70-100	40-96	35-55	25-35	NP-10
	45-60	Weathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments >3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
BsC*, BsD*, BsE*, BsF*: Junaluska---	0-5	Channery fine sandy loam.	SM, ML, MH, GM	A-4, A-5, A-2-4, A-7	5-15	70-96	55-91	40-80	30-55	29-56	NP-14
	5-21	Channery loam, channery clay loam, sandy clay loam.	CL, ML, SC, SM	A-6, A-7	5-15	75-100	60-100	55-95	40-73	29-50	10-20
	21-36	Channery loam, channery fine sandy loam, flaggy fine sandy loam.	SM, ML, GM	A-4	5-15	70-100	55-100	40-91	35-55	25-40	3-10
	36-45	Weathered bedrock.	---	---	---	---	---	---	---	---	---
BuD*, BuF*: Burton-----	0-18	Sandy loam----	SM	A-2, A-4, A-5	0-15	80-100	80-100	60-90	30-49	30-50	NP-7
	18-36	Very cobbly fine sandy loam, stony sandy loam, cobbly sandy loam.	SM, GM, SP-SM, GM-GC	A-2, A-1-b	10-35	45-75	40-65	35-55	10-30	25-35	NP-7
	36	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Craggey-----	0-17	Cobbly sandy loam.	SM, SC-SM	A-2, A-4, A-5	15-35	80-95	75-95	60-90	25-49	<50	NP-7
	17	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
CaE, CaF----- Cashiers	0-8	Gravelly fine sandy loam.	SM, SC-SM	A-2-4, A-4, A-1, A-5	5-15	70-85	60-75	30-65	20-50	<50	NP-7
	8-49	Sandy loam, fine sandy loam, gravelly sandy loam.	SM, ML, SC-SM, CL-ML	A-2-4, A-4	0-5	70-95	60-95	50-85	25-65	<35	NP-7
	49-60	Gravelly sandy loam, gravelly fine sandy loam, sandy loam.	SM, SC-SM	A-2-4, A-4, A-1-b	0-15	70-95	60-95	30-75	20-50	<35	NP-7
CcF*: Cataska-----	0-6	Very channery loam.	GM-GC, GM	A-2, A-4, A-1	15-25	45-75	40-70	35-65	25-50	<30	NP-6
	6-16	Channery silt loam, very channery loam.	GM-GC, GM, GP-GM	A-2, A-1	10-25	15-50	10-45	10-40	10-35	<30	NP-7
	16-30	Weathered bedrock.	---	---	---	---	---	---	---	---	---
	30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments >3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
CcF*: Sylco-----	0-6	Very channery loam.	GC, GM, GM, GM-GC	A-4, A-1-b, A-2-4	0-7	50-75	30-55	25-55	20-50	<30	4-10
	6-22	Very channery silt loam, flaggy loam, very channery silty clay loam.	CL-ML, CL, GC, GM-GC	A-4, A-1-b, A-2-4	8-20	55-85	30-80	25-75	20-70	20-30	5-10
	22-30	Weathered bedrock.									
	30-34	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
CdD, CdE, CdF- Chandler	0-5	Gravelly fine sandy loam.	SM	A-2-4, A-4, A-1, A-5	0-15	70-85	60-75	30-65	20-50	30-50	NP-7
	5-60	Loam, fine sandy loam, sandy loam.	ML, SM, MH	A-4, A-5, A-2-4, A-2-5	0-15	90-100	85-100	60-85	25-65	30-60	NP-7
ChE, ChF----- Cheoah	0-17	Channery loam	SM, GM, ML, MH	A-4, A-7-5, A-5	5-15	70-95	55-90	40-80	36-65	30-64	NP-11
	17-36	Loam, fine sandy loam, silt loam.	SM, SC, ML, CL	A-4	0-5	85-100	80-100	65-90	36-76	25-40	NP-10
	36-47	Channery loam, channery fine sandy loam, channery silt loam.	SM, SC, ML, CL	A-4	5-15	70-95	55-90	40-84	36-65	25-36	NP-10
	47-60	Weathered bedrock.	---	---	---	---	---	---	---	---	---
CnC*, CnD*, CnE*: Chestnut-----	0-10	Gravelly fine sandy loam.	SM, SC-SM	A-4, A-2, A-5	5-15	75-95	65-90	60-85	30-49	<50	NP-7
	10-36	Gravelly loam, gravelly fine sandy loam, cobbly fine sandy loam.	SM, SC-SM	A-4, A-2, A-5	0-25	75-98	65-97	60-85	34-49	<45	NP-10
	36-45	Weathered bedrock.	---	---	---	---	---	---	---	---	---
Edneyville--	0-5	Loam-----	SM, SC-SM, MH, ML	A-2, A-4, A-5	0-5	85-100	80-100	65-95	30-69	25-61	NP-7
	5-43	Fine sandy loam, sandy loam, loam.	SM, SC-SM, ML, CL-ML	A-2, A-4, A-5	0-5	85-100	80-100	65-95	30-68	25-45	NP-10
	43-64	Sandy loam, gravelly sandy loam, fine sandy loam.	SM, SC-SM	A-2, A-4, A-5	0-10	75-100	65-100	60-88	28-49	25-45	NP-10

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments >3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
CpD*, CpE*, CpF*: Cleveland---	0-17	Sandy loam----	SM	A-2, A-4	2-5	80-95	75-90	60-80	20-50	<30	NP-3
	17-21	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Chestnut----	0-10	Gravelly fine sandy loam.	SM, SC-SM	A-4, A-2, A-5	5-15	75-95	65-90	60-85	30-49	<50	NP-7
	10-36	Gravelly loam, gravelly fine sandy loam, cobble fine sandy loam.	SM, SC-SM	A-4, A-2, A-5	0-25	75-98	65-97	60-85	34-49	<45	NP-10
	36-45	Weathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
CsD, CsE----- Cullasaja	0-15	Very cobbly fine sandy loam.	SM, SP-SM, GM, GP-GM	A-1, A-2-5	40-70	45-70	35-50	15-35	10-20	41-70	NP-7
	15-65	Very cobbly loamy sand, extremely cobble sandy loam, very cobble sandy loam.	SM, SP-SM, GM, GP-GM	A-1, A-2-4	40-70	45-70	25-45	10-35	5-20	<40	NP-7
CuD*, CuE*, CuF*: Cullasaja---	0-17	Cobbly sandy clay loam.	SM	A-5, A-2-5, A-5	15-35	70-95	65-85	55-70	25-40	41-70	NP-7
	17-32	Cobbly sandy loam, very cobble fine sandy loam, cobble sandy loam.	SM, GM	A-1-b, A-2-4	30-60	55-85	50-75	35-60	15-30	25-40	NP-7
	32-65	Cobbly loamy sand, very cobble sandy loam, extremely cobble sandy loam.	SM, SP-SM, GM, GP-GM	A-1, A-2-4	40-70	45-70	25-45	10-35	5-20	25-40	NP-7

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth In	USDA texture	Classification		Frag- ments >3 inches Pct	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
CuD*, CuE*, CuF*: Tuckasegee--	0-13	Fine sandy loam.	SM	A-2, A-4, A-5	0-10	85-100	80-100	65-80	30-50	19-50	NP-10
	13-26	Loam, fine sandy loam, sandy loam.	SM, ML	A-4	0-15	85-100	75-100	65-95	36-65	<40	NP-10
	26-47	Sandy clay loam, gravelly fine sandy loam, cobbly sandy loam.	SM	A-2-4, A-4, A-1-b	15-35	75-90	70-85	30-75	20-50	<40	NP-10
	47-65	Cobbly sandy clay loam, very cobbly sandy loam.	SM, SC-SM, GM, GP-GM	A-2-4, A-1-b, A-1-a	25-60	45-85	35-75	25-55	12-35	<40	NP-7
DgB----- Dellwood	0-16	Gravelly fine sandy loam.	SM	A-2-4, A-4, A-1-b	0-15	70-85	60-75	30-65	15-45	<37	NP-4
	16-40	Extremely gravelly sand, very cobbly sand, extremely gravelly coarse sand.	GM, GP-GM, GP, SP	A-1	30-50	13-75	10-40	4-40	1-15	<20	NP
DrB----- Dillard	0-7	Loam-----	ML, CL	A-4	0-2	95-100	90-100	75-95	60-85	<35	NP-10
	7-50	Clay loam, sandy clay loam, loam.	CL, ML, SC	A-4, A-6, A-7	0-2	95-100	85-100	60-95	45-70	30-45	8-22
	50-60	Variable-----	---	---	---	---	---	---	---	---	---
DsB, DsC----- Dillsboro	0-12	Loam-----	SM, SC, CL, ML	A-4, A-6, A-7-6	0-10	90-100	85-100	80-96	40-75	<42	NP-15
	12-50	Clay loam, clay.	CL, CH, ML, MH	A-7	0-5	95-100	90-100	80-96	65-80	40-60	15-35
	50-60	Loam, sandy clay loam, clay loam.	CL, SC, ML, SM	A-4, A-6, A-7-5	0-5	90-100	85-100	75-90	35-75	25-45	7-20
EdB*, EdC*, EdD*, EdE*, EdF*: Edneyville--	0-5	Loam-----	SM, SC-SM, MH, ML	A-2, A-4, A-5	0-5	85-100	80-100	65-95	30-69	25-61	NP-7
	5-43	Fine sandy loam, sandy loam, loam.	SM, SC-SM, ML, CL-ML	A-2, A-4, A-5	0-5	85-100	80-100	65-95	30-68	25-45	NP-10
	43-64	Sandy loam, gravelly sandy loam, fine sandy loam.	SM, SC-SM	A-2, A-4, A-5	0-10	75-100	65-100	60-88	28-49	25-45	NP-10

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments >3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
EdB*, EdC*, EdD*, EdE*, EdF*: Chestnut-----	In				Pct					Pct	
	0-10	Gravelly fine sandy loam.	SM, SC-SM	A-4, A-2, A-5	5-15	75-95	65-90	60-85	30-49	<50	NP-7
	10-36	Gravelly loam, gravelly fine sandy loam, cobbly fine sandy loam.	SM, SC-SM	A-4, A-2, A-5	0-25	75-98	65-97	60-85	34-49	<45	NP-10
	36-45	Weathered bedrock.	---	---	---	---	---	---	---	---	---
EeC*, EeD*: Edneyville----	0-5	Loam-----	SM, SC-SM, MH, ML	A-2, A-4, A-5	0-5	85-100	80-100	65-95	30-69	25-61	NP-7
	5-43	Fine sandy loam, sandy loam, loam.	SM, SC-SM, ML, CL-ML	A-2, A-4, A-5	0-5	85-100	80-100	65-95	30-68	25-45	NP-10
	43-64	Sandy loam, gravelly sandy loam, fine sandy loam.	SM, SC-SM	A-2, A-4, A-5	0-10	75-100	65-100	60-88	28-49	25-45	NP-10
Chestnut-----	0-10	Gravelly fine sandy loam.	SM, SC-SM	A-4, A-2, A-5	5-15	75-95	65-90	60-85	30-49	<50	NP-7
	10-36	Gravelly loam, gravelly fine sandy loam, cobbly fine sandy loam.	SM, SC-SM	A-4, A-2, A-5	0-25	75-98	65-97	60-85	34-49	<45	NP-10
	36-45	Weathered bedrock.	---	---	---	---	---	---	---	---	---
Urban land.											
EvB*, EvC*, EvD*, EvE*, EvF*: Evard-----	0-5	Fine sandy loam.	SM, ML	A-2, A-4	0-5	80-100	75-100	65-90	20-60	<35	NP-9
	5-35	Sandy clay loam, clay loam.	SM, SC, ML, CL	A-2, A-4, A-6, A-7-6	0-2	90-100	85-100	60-95	30-70	25-45	7-18
	35-45	Sandy loam, loam, sandy clay loam.	SM, SC, ML, CL	A-2, A-4	0-5	80-100	75-100	60-95	20-55	<25	NP-9
	45-61	Sandy loam, loam, loamy sand.	SM	A-2, A-4	0-15	75-100	70-100	60-90	15-50	---	NP
	61-66	Weathered bedrock.									

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments >3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
EvB*, EvC*, EvD*, EvE*, EvF*: Cowee-----	0-10	Sandy loam----	SM, SC-SM, ML	A-2-4, A-4, A-5, A-2-5	0-5	90-100	85-100	60-85	30-55	26-41	NP-12
	10-38	Gravelly sandy clay loam, gravelly sandy loam, clay loam.	SC, CL, ML, SM	A-4, A-6, A-7, A-2	0-15	47-99	45-90	32-85	17-60	26-56	5-22
	38-45	Weathered bedrock.	---	---	---	---	---	---	---	---	---
ExC*, ExD*: Evard-----	0-5	Fine sandy loam.	SM, ML	A-2, A-4	0-5	80-100	75-100	65-90	20-60	<35	NP-9
	5-35	Sandy clay loam, clay loam.	SM, SC, ML, CL	A-2, A-4, A-6, A-7-6	0-2	90-100	85-100	60-95	30-70	25-45	7-18
	35-45	Sandy loam, loam, sandy clay loam.	SM, SC, ML, CL	A-2, A-4	0-5	80-100	75-100	60-95	20-55	<25	NP-9
	45-61	Sandy loam, loam, loamy sand.	SM	A-2, A-4	0-15	75-100	70-100	60-90	15-50	---	NP
	61-66	Weathered bedrock.									
Cowee-----	0-10	Sandy loam----	SM, SC-SM, ML	A-2-4, A-4, A-5, A-2-5	0-5	90-100	85-100	60-85	30-55	26-41	NP-12
	10-38	Gravelly sandy clay loam, gravelly sandy loam, clay loam.	SC, CL, ML, SM	A-4, A-6, A-7, A-2	0-15	47-99	45-90	32-85	17-60	26-56	5-22
	38-45	Weathered bedrock.	---	---	---	---	---	---	---	---	---
Urban land.											
FaC, FaD, FaE, FaF----- Fannin	0-7	Fine sandy loam.	ML, SM, MH	A-4, A-2, A-5, A-7-5	0-5	92-100	86-100	60-95	34-85	30-51	NP-18
	7-21	Clay loam, sandy clay loam, loam.	ML, MH, SM	A-4, A-7, A-6	2-10	97-100	90-100	67-95	40-85	30-55	5-23
	21-60	Loam, sandy loam, fine sandy loam.	SM, ML	A-2, A-4, A-5	0-15	75-100	70-98	60-90	15-70	30-51	NP-10

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments >3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
HaB2, HaC2, HaD2----- Hayesville	0-6	Clay loam-----	CL, SC, ML	A-4, A-6, A-7	0-5	90-100	85-100	80-95	45-65	30-50	7-18
	6-33	Clay loam, clay.	ML, MH, CL, CH	A-6, A-7	0-5	90-100	85-100	70-100	55-80	36-66	11-35
	33-45	Sandy clay loam, clay loam, loam.	SM, ML, MH, CL	A-6, A-7	0-5	90-100	90-100	85-95	45-65	36-55	11-25
	45-60	Fine sandy loam, loam, sandy clay loam.	SM, ML, CL, SC	A-4, A-6	5-15	90-100	90-95	65-90	40-55	25-40	NP-12
HmA----- Hemphill	0-8	Loam-----	SM, ML	A-4	0	95-100	93-100	65-100	40-90	25-50	4-16
	8-28	Clay, silty clay, clay loam.	CL, CH, MH, ML	A-6, A-7	0	95-100	95-100	85-100	65-95	30-60	11-29
	28-60	Sandy clay loam, loam, clay loam.	SM, SC-SM, CL-ML, ML	A-4, A-5, A-6, A-7	0	95-100	90-100	65-100	40-90	25-50	NP-16
NkA----- Nikwasi	0-9	Fine sandy loam.	SM, ML	A-2-4, A-4	0-5	90-100	80-99	50-93	17-55	<37	NP-4
	9-25	Loamy sand, sand, sandy loam.	SM, SP-SM	A-2-4, A-1-b	0-10	90-100	80-95	40-80	10-44	<25	NP-4
	25-60	Extremely gravelly coarse sand, very gravelly sand, very cobble loamy sand.	GP-GM, GM, SM, SP-SM	A-1	10-50	25-75	10-55	7-40	1-15	---	NP
OwE----- Oconaluftee	0-12	Channery loam	SM, ML, GM	A-4, A-5	5-15	70-95	55-90	40-80	36-65	30-75	NP-7
	12-44	Channery loam, fine sandy loam, channery fine sandy loam.	SM, SC, ML, CL	A-4, A-5	5-15	70-100	55-100	40-94	36-77	25-45	NP-10
	44-60	Flaggy fine sandy loam, fine sandy loam, channery fine sandy loam.	SM, SC, ML, CL	A-4, A-5	5-15	70-100	55-100	40-91	36-69	25-45	NP-10
PwC, PwD, PwE, PwF----- Plott	0-14	Fine sandy loam.	SM, ML, MH	A-2, A-4, A-5	0-5	90-100	80-99	50-85	25-70	30-67	NP-7
	14-46	Loam, fine sandy loam, sandy loam.	SM, SC-SM, ML, CL-ML	A-2, A-4, A-5	0-5	90-100	80-95	50-85	20-70	25-44	NP-10
	46-62	Gravelly fine sandy loam, cobble sandy loam, loamy sand.	SM, SC-SM, SP-SM, GM	A-2-4, A-1-b	5-15	58-92	56-89	20-72	10-30	25-36	NP-7

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- >3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
ReA----- Reddies	0-12	Fine sandy loam.	SM, ML	A-2-4, A-4	0-5	90-100	80-100	50-95	25-55	25-37	NP-7
	12-35	Fine sandy loam, sandy loam, gravelly sandy loam.	SM, ML	A-2-4, A-4, A-1-b	0-15	70-100	60-95	30-85	15-55	25-35	NP-7
	35-60	Extremely gravelly sand, very gravelly sand, very cobbly sand.	GM, GP-GM, SM, SP-SM	A-1	10-50	13-75	10-55	4-40	1-15	<25	NP
RhF*: Rock outcrop.											
Cataska-----	0-6	Very channery loam.	GM-GC, GM	A-2, A-4, A-1	15-25	45-75	40-70	35-65	25-50	<30	NP-6
	6-16	Channery silt loam, channery silt loam, very channery loam.	GM-GC, GM, GP-GM	A-2, A-1	10-25	15-50	10-45	10-40	10-35	<30	NP-7
	16-30	Weathered bedrock.	---	---	---	---	---	---	---	---	---
	30-34	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
RkF*: Rock outcrop.											
Cleveland-----	0-17	Sandy loam-----	SM	A-2, A-4	2-5	80-95	75-90	60-80	20-50	<30	NP-3
	17	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
RsA----- Rosman	0-16	Fine sandy loam.	ML, SM, SC-SM	A-2-4, A-4, A-2-5	0	95-100	90-100	75-100	30-60	<41	NP-7
	16-60	Loam, fine sandy loam, sandy loam.	ML, SM, SC-SM	A-2-4, A-4	0	95-100	90-100	75-100	30-85	<39	NP-8
SbC, SbD, SbE- Saunook	0-10	Gravelly loam	SM, MH, ML	A-2, A-4, A-1, A-5	5-15	70-85	60-75	30-65	20-55	30-59	NP-14
	10-34	Loam, clay loam, sandy clay loam.	SC, CL, ML, MH	A-4, A-6, A-7-5, A-7-6	0-5	90-100	85-100	75-95	35-75	25-55	7-20
	34-60	Very cobbly fine sandy loam, cobbly fine sandy loam, cobbly sandy loam.	SM, GM	A-4, A-1-b, A-2-4	15-35	55-80	55-80	30-75	20-50	25-40	NP-10

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments >3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
ScB, ScC----- Saunook	0-8	Loam-----	SM, ML, MH	A-2, A-4, A-5, A-7-5	0-5	90-100	85-100	60-90	25-65	30-59	NP-14
	8-50	Loam, clay loam, sandy clay loam.	SC, CL, ML, MH	A-4, A-6, A-7-5, A-7-6	0-5	90-100	85-100	75-95	35-75	25-55	7-20
	50-60	Cobbly sandy clay loam, gravelly loam, fine sandy loam.	SC, CL, ML, GM	A-4, A-6, A-2-4, A-2-6	5-25	55-99	55-97	45-83	30-55	25-45	7-17
SoD*, SoE*, SoF*: Soco-----	0-5	Channery fine sandy loam.	SM, ML, GM, MH	A-4, A-5	5-15	70-96	55-92	40-83	36-65	20-55	NP-7
	5-22	Channery loam, channery fine sandy loam, flaggy fine sandy loam.	SM, SC, ML, CL	A-4, A-6	5-15	70-95	55-91	40-91	35-65	25-40	NP-11
	22-35	Weathered bedrock.	---	---	---	---	---	---	---	---	---
Stecoah-----	0-6	Channery fine sandy loam.	SM, ML, GM, MH	A-4, A-5	5-15	70-96	55-92	40-83	36-65	30-55	NP-7
	6-29	Channery loam, channery fine sandy loam, loam.	SM, SC, ML, CL	A-4, A-6	0-15	70-100	55-100	40-94	36-77	25-40	NP-12
	29-54	Channery loam, channery fine sandy loam, loam.	SM, SC, ML, CL	A-4	5-15	70-100	55-100	40-91	35-69	24-40	NP-10
	54-60	Weathered bedrock.	---	---	---	---	---	---	---	---	---
SrC*, SrD*, SrE*: Spivey-----	0-18	Very flaggy loam.	GM, GC, SM	A-2, A-4, A-5	30-50	55-85	50-75	35-60	25-50	30-70	NP-10
	18-60	Very flaggy loam, flaggy fine sandy loam.	GM, SM	A-1, A-2, A-4	20-60	55-85	40-75	30-60	20-50	25-40	NP-10
Santeetlah--	0-16	Loam-----	SM, ML, MH	A-4, A-5	0-5	85-100	80-100	65-92	36-77	30-74	NP-7
	16-42	Loam, fine sandy loam, silt loam.	SM, ML	A-4, A-6, A-7-6	0-5	85-100	80-100	65-90	36-75	25-41	NP-11
	42-60	Very channery loam, flaggy loam, very channery fine sandy loam.	SM, ML, GM	A-4, A-2-4	15-25	60-95	50-80	35-75	25-55	25-40	NP-10
StB----- Statler	0-10	Fine sandy loam.	ML, CL-ML, CL	A-4, A-6	0	95-100	75-100	70-100	53-75	25-37	3-14
	10-60	Clay loam, sandy clay loam, loam.	CL, CL-ML	A-4, A-6, A-7	0	95-100	75-100	70-100	60-80	25-52	5-27

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments >3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
SxE*: Sylco-----	0-6	Very channery loam.	GC, SC, GM, GM-GC	A-4, A-1-b, A-2-4	0-7	50-75	30-55	25-55	20-50	<30	4-10
	6-22	Very channery silt loam, flaggy loam, very channery silty clay loam.	CL-ML, CL, GC, GM-GC	A-4, A-1-b, A-2-4	6-20	55-85	30-80	25-75	20-70	20-30	5-10
	22-30	Weathered bedrock.									
	30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Cataska-----	0-6	Very channery loam.	GM-GC, GM	A-2, A-4, A-1	15-25	45-75	40-70	35-65	25-50	<30	NP-6
	6-16	Channery silt loam, channery silt loam, very channery loam.	GM-GC, GM, GP-GM	A-2, A-1	10-25	15-50	10-45	10-40	10-35	<30	NP-7
	16-30	Weathered bedrock.	---	---	---	---	---	---	---	---	---
	30-34	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
SyA*: Sylva-----	0-8	Loam-----	SM, ML	A-2, A-4, A-5	0-5	90-100	80-100	50-90	25-55	30-50	NP-10
	8-32	Fine sandy loam, sandy loam, loam.	SM, ML, SC-SM, CL-ML	A-2, A-4	0-5	90-100	80-100	50-90	25-55	25-40	NP-10
	32-53	Loamy sand, sandy loam.	SM, SP-SM	A-2-4, A-1-b	0-5	88-100	80-100	40-75	10-35	<25	NP-4
	53-60	Fine sandy loam, sandy loam, loam.	SM, ML, SC-SM, CL-ML	A-2, A-4	0-5	90-100	80-100	50-90	23-55	25-40	NP-10
Whiteside----	0-11	Loam-----	SM, ML	A-2, A-4, A-5	0-5	90-100	80-100	50-87	25-55	30-50	NP-10
	11-37	Sandy clay loam, loam, clay loam.	SM, ML, SC	A-2, A-4, A-6, A-5	0-5	90-100	80-100	50-90	30-56	30-50	4-15
	37-60	Sandy clay loam, fine sandy loam, sandy loam.	ML, SM, CL-ML, SC-SM	A-2-4, A-4	0-5	90-100	80-100	50-85	25-60	25-40	NP-10
ToA----- Toxaway	0-36	Loam-----	CL, ML, CL-ML, MH	A-4, A-6, A-7	0	98-100	95-100	85-100	51-90	25-55	6-22
	36-60	Sand, loam, silty clay loam.	CL, ML, SM, SC	A-2, A-4, A-6	5-15	95-100	85-100	60-95	25-90	20-40	NP-15

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments >3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
TrE, TrF----- Trimont	0-9	Gravelly loam	SM, ML	A-2-4, A-4, A-1, A-5	5-15	70-85	60-75	30-65	20-55	30-51	NP-10
	9-45	Clay loam, sandy clay loam, loam.	SC, CL, ML, SM	A-4, A-6, A-7	0-5	90-100	85-100	75-90	35-65	25-51	6-18
	45-60	Gravelly sandy loam, loam, sandy loam.	SM, ML, CL, SC	A-2-4, A-4, A-1, A-5	0-15	70-100	60-100	30-85	20-65	25-50	NP-16
TsC*: Tuckasegee---	0-13	Fine sandy loam.	SM	A-2, A-4, A-5	0-10	85-100	80-100	65-80	30-50	19-50	NP-10
	13-26	Loam, fine sandy loam, sandy loam.	SM, ML	A-4	0-15	85-100	75-100	65-95	36-65	<40	NP-10
	26-47	Stony sandy clay loam, stony fine sandy loam, stony sandy loam.	SM	A-2-4, A-4, A-1-b	15-35	75-90	70-85	30-75	20-50	<40	NP-10
	47-65	Very stony sandy clay loam, very stony sandy loam.	SM, SC-SM, GM, GP-GM	A-2-4, A-1-b, A-1-a	25-60	45-85	35-75	25-55	12-35	<40	NP-7
Cullasaja----	0-17	Cobbly sandy clay loam.	SM	A-5, A-2-5, A-5	15-35	70-95	65-85	55-70	25-40	41-70	NP-7
	17-32	Very cobbly sandy loam, very cobbly fine sandy loam, very cobbly sandy loam.	SM, GM	A-1-b, A-2-4	30-60	55-85	50-75	35-60	15-30	25-40	NP-7
	32-65	Cobbly loamy sand, very cobbly sandy loam, extremely cobbly sandy loam.	SM, SP-SM, GM, GP-GM	A-1, A-2-4	40-70	45-70	25-45	10-35	5-20	25-40	NP-7

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments >3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
TWB*, TwC*: Tuckasegee---	0-13	Fine sandy loam.	SM	A-2, A-4, A-5	0-10	85-100	80-100	65-80	30-50	19-50	NP-10
	13-26	Loam, fine sandy loam, sandy loam.	SM, ML	A-4	0-15	85-100	75-100	65-95	36-65	<40	NP-10
	26-47	Sandy clay loam, gravelly fine sandy loam, cobbly sandy loam.	SM	A-2-4, A-4, A-1-b	15-35	75-90	70-85	30-75	20-50	<40	NP-10
	47-65	Very cobbly sandy clay loam, very cobbly sandy loam.	SM, SC-SM, GM, GP-GM	A-2-4, A-1-b, A-1-a	25-60	45-85	35-75	25-55	12-35	<40	NP-7
Whiteside---	0-11	Loam-----	SM, ML	A-2, A-4, A-5	0-5	90-100	80-100	50-87	25-55	30-50	NP-10
	11-37	Sandy clay loam, loam, clay loam.	SM, ML, SC	A-2, A-4, A-6, A-5	0-5	90-100	80-100	50-90	30-56	30-50	4-15
	37-60	Sandy clay loam, fine sandy loam, sandy loam.	ML, SM, CL-ML, SC-SM	A-2-4, A-4	0-5	90-100	80-100	50-85	25-60	25-40	NP-10
Ud. Udorthents											
UfB*: Udorthents.											
Urban land.											
WeC, WeD, WeE, WeF----- Wayah	0-15	Sandy loam----	SM, ML	A-2, A-4, A-5	0-5	90-100	80-98	50-88	25-65	30-50	NP-7
	15-37	Gravelly loam, sandy loam, gravelly sandy loam.	SM, SC-SM, GM, ML	A-2-4, A-4, A-1-b	3-15	53-99	50-97	30-87	20-55	25-35	NP-7
	37-60	Gravelly fine sandy loam, gravelly sandy loam, gravelly loamy sand.	SM, SP-SM, GM, GP-GM	A-2-4, A-1-b	3-15	53-87	50-80	20-50	10-30	20-35	NP-4

\* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS

(The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated)

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	g/cc	In/hr	In/in	pH				Pct
ArA----- Arkaqua	0-10	10-20	1.20-1.50	0.6-2.0	0.12-0.20	4.5-6.5	Low-----	0.24	4	2-5
	10-48	15-34	1.20-1.55	0.6-2.0	0.12-0.20	4.5-6.5	Low-----	0.28		
	48-60	---	---	0.6-2.0	---	---	-----	---		
BeA----- Biltmore	0-12	6-18	1.45-1.65	2.0-6.0	0.10-0.15	5.1-7.3	Low-----	0.15	5	2-5
	12-60	4-12	1.60-1.70	6.0-20	0.06-0.10	5.1-7.3	Low-----	0.10		
BkB2, BkC2----- Braddock	0-11	27-40	1.20-1.50	0.6-2.0	0.14-0.19	4.5-7.3	Low-----	0.32	3	.5-1
	11-57	35-55	1.20-1.50	0.6-2.0	0.12-0.17	4.5-7.3	Moderate----	0.24		
	57-60	20-45	1.20-1.50	0.6-6.0	0.06-0.12	4.5-7.3	Low-----	0.24		
BrC*, BrD*: Braddock-----	0-11	27-40	1.20-1.50	0.6-2.0	0.14-0.19	4.5-5.5	Low-----	0.32	3	.5-1
	11-57	35-55	1.20-1.50	0.6-2.0	0.12-0.17	4.5-5.5	Moderate----	0.24		
	57-60	20-45	1.20-1.50	0.6-6.0	0.06-0.12	4.5-5.5	Low-----	0.24		
Urban land.										
BsC*, BsD*, BsE*, BsF*: Brasstown-----	0-6	5-18	1.00-1.40	2.0-6.0	0.12-0.18	3.6-6.0	Low-----	0.28	3	1-5
	6-36	18-35	1.35-1.60	0.6-2.0	0.12-0.18	3.6-6.0	Low-----	0.15		
	36-45	8-20	1.40-1.65	0.6-2.0	0.10-0.15	3.6-6.0	Low-----	0.15		
	45-60	---	---	---	---	---	-----	---		
Junaluska-----	0-5	5-18	1.35-1.60	2.0-6.0	0.10-0.15	3.6-6.0	Low-----	0.15	2	1-5
	5-21	18-35	1.30-1.65	0.6-2.0	0.12-0.18	3.6-6.0	Low-----	0.15		
	21-36	15-20	1.35-1.65	2.0-6.0	0.10-0.15	3.6-6.0	Low-----	0.15		
	36-45	---	---	---	---	---	-----	---		
BuD*, BuF*: Burton-----	0-18	5-18	1.10-1.30	2.0-6.0	0.16-0.23	3.6-6.0	Low-----	0.24	2	8-20
	18-36	5-18	1.45-1.65	2.0-6.0	0.07-0.12	3.6-6.0	Low-----	0.15		
	36	---	---	---	---	---	-----	---		
Craggey-----	0-17	8-20	1.10-1.30	2.0-6.0	0.10-0.15	3.6-6.0	Low-----	0.15	1	8-20
17-21	---	---	---	---	---	---	-----	---		
Rock outcrop.										
CaE, CaF----- Cashiers	0-8	5-18	1.30-1.50	2.0-6.0	0.11-0.15	4.5-6.0	Low-----	0.28	4	5-10
	8-49	5-18	1.30-1.50	2.0-6.0	0.13-0.18	4.5-6.0	Low-----	0.32		
	49-60	5-18	1.30-1.50	2.0-6.0	0.10-0.14	4.5-6.0	Low-----	0.32		
CcF*: Cataska-----	0-6	12-22	1.30-1.40	2.0-6.0	0.08-0.12	3.6-5.5	Low-----	0.15	1	1-3
	6-16	12-22	1.30-1.45	2.0-6.0	0.04-0.09	3.6-5.5	Low-----	0.15		
	16-30	---	---	0.2-0.01	---	---	-----	---		
	30	---	---	---	---	---	-----	---		
Sylco-----	0-6	15-25	1.00-1.20	0.6-2.0	0.11-0.16	3.6-5.5	Low-----	0.20	2	1-5
	6-22	15-35	1.30-1.50	0.6-2.0	0.10-0.15	3.6-5.5	Low-----	0.20		
	22-30	---	---	0.0-0.01	---	---	-----	---		
	30-34	---	---	0.00-0.01	---	---	-----	---		

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
CdD, CdE, CdF---- Chandler	0-5	5-18	1.30-1.50	2.0-6.0	0.10-0.14	4.5-6.0	Low-----	0.28	3	1-8
	5-60	5-18	1.30-1.50	2.0-6.0	0.11-0.15	4.5-6.0	Low-----	0.32		
ChE, ChF----- Cheoah	0-17	5-18	1.35-1.60	2.0-6.0	0.12-0.18	3.6-5.5	Low-----	0.15	3	5-10
	17-36	5-18	1.35-1.60	2.0-6.0	0.14-0.22	3.6-6.0	Low-----	0.32		
	36-47	5-18	1.35-1.60	2.0-6.0	0.11-0.17	3.6-6.0	Low-----	0.20		
	47-60	---	---	---	---	---	-----	---		
CnC*, CnD*, CnE*: Chestnut-----	0-10	5-20	1.35-1.60	2.0-6.0	0.08-0.12	4.5-6.0	Low-----	0.17	2	1-8
	10-36	5-25	1.35-1.60	2.0-6.0	0.08-0.12	4.5-6.0	Low-----	0.15		
	36-45	---	---	---	---	---	-----	---		
Edneyville-----	0-5	5-18	1.40-1.60	2.0-6.0	0.11-0.17	4.5-6.0	Low-----	0.24	4	1-8
	5-43	7-20	1.40-1.60	2.0-6.0	0.10-0.16	4.5-6.0	Low-----	0.20		
	43-64	5-20	1.40-1.60	2.0-6.0	0.08-0.14	4.5-6.0	Low-----	0.20		
CpD*, CpE*, CpF*: Cleveland-----	0-17	6-20	1.20-1.50	2.0-6.0	0.08-0.12	4.5-6.0	Low-----	0.24	1	5-8
	17-21	---	---	---	---	---	-----	---		
Chestnut-----	0-10	5-20	1.35-1.60	2.0-6.0	0.08-0.12	4.5-6.0	Low-----	0.17	2	1-8
	10-36	5-25	1.35-1.60	2.0-6.0	0.08-0.12	4.5-6.0	Low-----	0.15		
	36-45	---	---	---	---	---	-----	---		
Rock outcrop.										
CsD, CsE----- Cullasaja	0-15	5-25	0.50-1.20	2.0-6.0	0.07-0.10	4.5-6.0	Low-----	0.02	5	5-18
	15-65	2-15	1.00-1.60	2.0-6.0	0.03-0.06	4.5-6.0	Low-----	0.05		
CuD*, CuE*, CuF*: Cullasaja-----	0-17	5-25	0.50-1.20	2.0-6.0	0.10-0.16	4.5-6.5	Low-----	0.10	5	5-18
	17-32	5-20	1.00-1.60	2.0-6.0	0.07-0.10	4.5-6.0	Low-----	0.05		
	32-65	2-15	1.00-1.60	2.0-6.0	0.03-0.06	4.5-6.0	Low-----	0.05		
Tuckasegee-----	0-13	12-20	0.85-1.20	2.0-6.0	0.14-0.22	4.5-6.5	Low-----	0.24	5	4-15
	13-26	15-27	1.00-1.40	2.0-6.0	0.15-0.21	4.5-6.0	Low-----	0.20		
	26-47	15-27	1.20-1.50	2.0-6.0	0.11-0.16	4.5-6.0	Low-----	0.15		
	47-65	10-25	1.20-1.50	2.0-6.0	0.07-0.12	4.5-6.0	Low-----	0.10		
DgB----- Dellwood	0-16	5-15	1.30-1.50	2.0-6.0	0.08-0.12	4.5-7.3	Low-----	0.10	2	3-8
	16-40	1-8	1.40-1.60	>6.0	0.02-0.05	4.5-7.3	Low-----	0.05		
DrB----- Dillard	0-7	10-25	1.20-1.50	0.6-2.0	0.15-0.20	5.1-6.0	Low-----	0.32	4	5-5
	7-50	18-35	1.40-1.60	0.6-2.0	0.12-0.16	4.5-5.5	Low-----	0.28		
	50-60	---	---	0.00-0.2	---	---	-----	---		
DsB, DsC----- Dillsboro	0-12	10-27	1.00-1.70	2.0-6.0	0.11-0.20	4.5-7.3	Low-----	0.20	5	2-8
	12-50	35-60	1.20-1.60	0.6-2.0	0.17-0.19	4.5-7.3	Moderate----	0.28		
	50-60	18-35	1.30-1.60	0.6-2.0	0.12-0.18	4.5-6.0	Low-----	0.24		
EdB*, EdC*, EdD*, EdE*, EdF*: Edneyville-----	0-5	5-18	1.40-1.60	2.0-6.0	0.11-0.17	4.5-6.0	Low-----	0.24	4	1-8
	5-43	7-20	1.40-1.60	2.0-6.0	0.10-0.16	4.5-6.0	Low-----	0.20		
	43-64	5-20	1.40-1.60	2.0-6.0	0.08-0.14	4.5-6.0	Low-----	0.20		
Chestnut-----	0-10	5-20	1.35-1.60	2.0-6.0	0.08-0.12	3.6-6.0	Low-----	0.17	2	1-8
	10-36	5-25	1.35-1.60	2.0-6.0	0.08-0.12	3.6-6.0	Low-----	0.15		
	36-45	---	---	---	---	---	-----	---		

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction pH	Shrink-swell potential	Erosion factors		Organic matter Pct
								K	T	
EeC*, EeD*: Edneyville-----	0-5 5-43 43-64	5-18 7-20 5-20	1.40-1.60 1.40-1.60 1.40-1.60	2.0-6.0 2.0-6.0 2.0-6.0	0.11-0.17 0.10-0.16 0.08-0.14	4.5-6.0 4.5-6.0 4.5-6.0	Low----- Low----- Low-----	0.24 0.20 0.20	4	1-8
Chestnut-----	0-10 10-36 36-45	5-20 5-25 ---	1.35-1.60 1.35-1.60 ---	2.0-6.0 2.0-6.0 ---	0.08-0.12 0.08-0.12 ---	4.5-6.0 4.5-6.0 ---	Low----- Low----- ---	0.17 0.15 ---	2	1-8
Urban land.										
EvB*, EvC*, EvD*, EvE*, EvF*: Evard-----	0-5 5-35 35-45 45-61 61-66	5-20 18-35 12-30 5-20 ---	1.30-1.60 1.30-1.50 1.20-1.40 1.20-1.40 ---	2.0-6.0 0.6-2.0 0.6-2.0 0.6-2.0 ---	0.10-0.14 0.12-0.16 0.10-0.25 0.08-0.12 ---	4.5-6.0 4.5-6.0 4.5-6.0 4.5-6.0 ---	Low----- Low----- Low----- Low----- ---	0.24 0.24 0.24 0.24 ---	5	1-5
Cowee-----	0-10 10-38 38-45	8-20 18-35 ---	1.25-1.60 1.30-1.60 ---	2.0-6.0 0.6-2.0 ---	0.12-0.20 0.12-0.18 ---	4.5-6.0 4.5-6.0 ---	Low----- Low----- ---	0.28 0.24 ---	2	1-5
Urban land.										
ExC*, ExD*: Evard-----	0-5 5-35 35-45 45-61 61-66	5-20 18-35 12-30 5-20 ---	1.30-1.60 1.30-1.50 1.20-1.40 1.20-1.40 ---	2.0-6.0 0.6-2.0 0.6-2.0 0.6-2.0 ---	0.10-0.14 0.12-0.16 0.10-0.25 0.08-0.12 ---	4.5-6.0 4.5-6.0 4.5-6.0 4.5-6.0 ---	Low----- Low----- Low----- Low----- ---	0.24 0.24 0.24 0.24 ---	5	1-5
Cowee-----	0-10 10-38 38-45	8-20 18-35 ---	1.25-1.60 1.30-1.60 ---	2.0-6.0 0.6-2.0 ---	0.12-0.20 0.12-0.18 ---	4.5-6.0 4.5-6.0 ---	Low----- Low----- ---	0.28 0.24 ---	2	1-5
Urban land.										
FaC, FaD, FaE, FaF----- Fannin	0-7 7-21 21-60	5-25 18-35 5-25	1.30-1.50 1.30-1.50 1.30-1.50	2.0-6.0 0.6-2.0 0.6-2.0	0.12-0.18 0.11-0.17 0.08-0.12	4.5-6.5 4.5-6.5 4.5-6.5	Low----- Low----- Low-----	0.32 0.24 0.24	3	1-5
HaB2, HaC2, HaD2- Hayesville	0-6 6-33 33-45 45-60	20-40 30-50 20-40 5-25	1.30-1.50 1.20-1.35 1.30-1.40 1.45-1.65	0.6-2.0 0.6-2.0 0.6-2.0 2.0-6.0	0.12-0.20 0.15-0.20 0.12-0.20 0.11-0.15	3.6-6.5 3.6-6.0 3.6-6.0 3.6-6.0	Low----- Low----- Low----- Low-----	0.24 0.24 0.20 0.17	5	1-3
HmA----- Hemphill	0-8 8-28 28-60	8-27 35-60 8-35	1.20-1.45 1.20-1.45 1.20-1.45	0.6-2.0 0.06-0.2 0.2-0.6	0.15-0.24 0.15-0.20 0.12-0.20	4.5-7.3 4.5-7.3 4.5-7.3	Low----- High----- Low-----	0.32 0.28 0.24	5	3-10
NkA----- Nikwasi	0-9 9-25 25-60	5-18 3-12 1-5	1.30-1.50 1.35-1.55 1.40-1.60	2.0-6.0 2.0-20 >6.0	0.13-0.20 0.05-0.10 0.02-0.05	4.5-6.5 4.5-5.5 4.5-6.5	Low----- Low----- Low-----	0.20 0.10 0.05	3	5-12
OwE----- Oconaluftee	0-12 12-44 44-60	5-18 5-18 5-18	1.00-1.30 1.20-1.50 1.35-1.60	2.0-6.0 2.0-6.0 2.0-6.0	0.13-0.18 0.11-0.17 0.11-0.17	3.6-5.5 3.6-6.0 3.6-6.0	Low----- Low----- Low-----	0.15 0.20 0.20	3	8-20

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
PwC, PwD, PwE, PwF-----	0-14	4-18	1.00-1.20	2.0-6.0	0.18-0.28	3.6-6.0	Low-----	0.24	4	5-15
Plott	14-46	5-20	1.20-1.40	2.0-6.0	0.14-0.24	4.5-6.0	Low-----	0.24		
	46-62	2-18	1.20-1.60	2.0-6.0	0.05-0.20	4.5-6.0	Low-----	0.15		
ReA-----	0-12	5-18	1.30-1.50	2.0-6.0	0.10-0.18	4.5-7.3	Low-----	0.20	3	3-8
Reddies	12-35	5-18	1.35-1.55	2.0-6.0	0.08-0.15	4.5-7.3	Low-----	0.10		
	35-60	1-5	1.40-1.60	>6.0	0.02-0.05	4.5-7.3	Low-----	0.05		
RhF*: Rock outcrop.										
Cataska-----	0-6	12-22	1.30-1.40	2.0-20	0.08-0.12	3.6-5.5	Low-----	0.15	1	1-3
	6-16	12-22	1.30-1.45	0.00-0.06	0.04-0.09	3.6-5.5	Low-----	0.15		
	16-30	---	---	0.2-0.01	---	---	-----	---		
	30-34	---	---	---	---	---	-----	---		
RkF*: Rock outcrop.										
Cleveland-----	0-17	6-20	1.20-1.50	2.0-6.0	0.08-0.12	4.5-6.0	Low-----	0.24	1	5-8
	17	---	---	---	---	---	-----	---		
RsA-----	0-16	8-18	1.25-1.40	2.0-6.0	0.12-0.18	5.1-6.5	Low-----	0.24	5	2-8
Rosman	16-60	8-18	1.25-1.50	2.0-6.0	0.10-0.18	5.1-6.5	Low-----	0.24		
SbC, SbD, SbE----	0-10	7-20	1.35-1.60	2.0-6.0	0.10-0.15	3.6-6.0	Low-----	0.15	5	3-10
Saunook	10-34	18-35	1.30-1.50	0.6-2.0	0.12-0.20	4.5-6.5	Low-----	0.24		
	34-60	7-20	1.35-1.60	2.0-6.0	0.07-0.12	4.5-6.5	Low-----	0.15		
ScB, ScC-----	0-8	7-20	1.35-1.60	2.0-6.0	0.14-0.20	3.6-6.0	Low-----	0.24	5	3-10
Saunook	8-50	18-35	1.30-1.50	0.6-2.0	0.12-0.20	4.5-6.5	Low-----	0.24		
	50-60	18-35	1.30-1.50	0.6-2.0	0.09-0.15	4.5-6.5	Low-----	0.15		
SoD*, SoE*, SoF*:										
Soco-----	0-5	5-18	1.35-1.60	2.0-6.0	0.11-0.17	3.6-5.5	Low-----	0.15	2	1-8
	5-22	5-18	1.40-1.65	2.0-6.0	0.09-0.15	3.6-5.5	Low-----	0.15		
	22-35	---	---	---	---	---	-----	---		
Stecoah-----	0-6	5-18	1.35-1.60	2.0-6.0	0.11-0.17	3.6-5.5	Low-----	0.15	3	1-8
	6-29	5-18	1.35-1.60	2.0-6.0	0.10-0.17	3.6-5.5	Low-----	0.32		
	29-54	5-18	1.40-1.65	2.0-6.0	0.10-0.15	3.6-5.5	Low-----	0.15		
	54-60	---	---	---	---	---	-----	---		
SrC*, SrD*, SrE*:										
Spivey-----	0-18	5-20	1.20-1.40	2.0-6.0	0.09-0.20	3.6-6.0	Low-----	0.17	5	5-18
	18-60	5-20	1.30-1.50	2.0-6.0	0.07-0.11	3.6-6.0	Low-----	0.17		
Santeetlah-----	0-16	5-18	1.20-1.40	2.0-6.0	0.15-0.24	3.6-6.0	Low-----	0.28	5	5-10
	16-42	5-18	1.30-1.50	2.0-6.0	0.14-0.22	3.6-6.0	Low-----	0.32		
	42-60	5-18	1.35-1.55	2.0-6.0	0.08-0.13	3.6-6.0	Low-----	0.15		
StB-----	0-10	10-20	1.35-1.45	0.6-2.0	0.18-0.22	5.1-7.3	Low-----	0.32	5	2-6
Statler	10-60	18-35	1.35-1.50	0.6-2.0	0.17-0.20	5.1-6.5	Low-----	0.24		
SxE*:										
Sylco-----	0-6	15-25	1.00-1.20	0.6-2.0	0.11-0.16	3.6-5.5	Low-----	0.20	2	1-5
	6-22	15-35	1.30-1.50	0.6-2.0	0.10-0.15	3.6-5.5	Low-----	0.20		
	22-30	---	---	0.0-0.01	---	---	-----	---		
	30-34	---	---	0.00-0.01	---	---	-----	---		

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
SxE*:										
Cataska-----	0-6	12-22	1.30-1.40	2.0-20	0.08-0.12	3.6-5.5	Low-----	0.15	1	1-3
	6-16	12-22	1.30-1.45	0.00-0.06	0.04-0.09	3.6-5.5	Low-----	0.15		
	16-30	---	---	0.2-0.01	---	---	-----	---		
	30	---	---	---	---	---	-----	---		
SyA*:										
Sylva-----	0-8	5-18	1.30-1.50	2.0-6.0	0.16-0.24	3.6-5.5	Low-----	0.24	5	4-10
	8-32	5-18	1.35-1.55	2.0-6.0	0.14-0.20	3.6-5.5	Low-----	0.24		
	32-53	4-12	1.60-1.70	2.0-6.0	0.06-0.10	3.6-5.5	Low-----	0.10		
	53-60	5-27	1.35-1.55	0.6-6.0	0.14-0.20	3.6-5.5	Low-----	0.24		
Whiteside-----	0-11	5-18	1.30-1.50	2.0-6.0	0.15-0.22	4.5-7.3	Low-----	0.24	5	2-8
	11-37	18-27	1.35-1.55	0.6-2.0	0.14-0.20	4.5-6.0	Low-----	0.24		
	37-60	8-35	1.35-1.60	0.6-6.0	0.10-0.16	4.5-6.0	Low-----	0.24		
ToA-----	0-36	7-27	1.30-1.50	0.6-2.0	0.15-0.20	5.1-6.5	Low-----	0.17	5	2-10
Toxaway	36-60	5-30	1.45-1.65	0.6-2.0	0.05-0.15	5.1-6.5	Low-----	0.17		
TrE, TrF-----	0-9	8-20	1.35-1.60	2.0-6.0	0.10-0.15	4.5-6.0	Low-----	0.15	4	3-9
Trimont	9-45	18-35	1.30-1.50	0.6-2.0	0.12-0.20	4.5-6.0	Low-----	0.24		
	45-60	8-20	1.40-1.65	0.6-2.0	0.10-0.15	4.5-6.0	Low-----	0.15		
TsC*:										
Tuckasegee-----	0-13	12-20	0.85-1.20	2.0-6.0	0.14-0.22	4.5-6.5	Low-----	0.24	5	4-15
	13-26	15-27	1.00-1.40	2.0-6.0	0.15-0.21	4.5-6.0	Low-----	0.20		
	26-47	15-27	1.20-1.50	2.0-6.0	0.11-0.16	4.5-6.0	Low-----	0.15		
	47-65	10-25	1.20-1.50	2.0-6.0	0.07-0.12	4.5-6.0	Low-----	0.10		
Cullasaja-----	0-17	5-25	0.50-1.20	2.0-6.0	0.10-0.16	4.5-6.0	Low-----	0.10	5	5-18
	17-32	5-20	1.00-1.60	2.0-6.0	0.07-0.10	4.5-6.0	Low-----	0.05		
	32-65	2-15	1.00-1.60	2.0-6.0	0.03-0.06	4.5-6.5	Low-----	0.05		
TwB*, TwC*:										
Tuckasegee-----	0-13	12-20	0.85-1.20	2.0-6.0	0.14-0.22	4.5-6.0	Low-----	0.24	5	4-15
	13-26	15-27	1.00-1.40	2.0-6.0	0.15-0.21	4.5-6.0	Low-----	0.20		
	26-47	15-27	1.20-1.50	2.0-6.0	0.11-0.16	4.5-6.0	Low-----	0.15		
	47-65	10-25	1.20-1.50	2.0-6.0	0.07-0.12	4.5-6.0	Low-----	0.10		
Whiteside-----	0-11	5-18	1.30-1.50	2.0-6.0	0.15-0.22	4.5-6.0	Low-----	0.24	5	2-8
	11-37	18-27	1.35-1.55	0.6-2.0	0.14-0.20	4.5-6.0	Low-----	0.24		
	37-60	8-35	1.35-1.60	0.6-6.0	0.10-0.16	4.5-6.0	Low-----	0.24		
Ud.										
Udorthents										
UfB*:										
Udorthents.										
Urban land.										
WeC, WeD, WeE,										
WeF-----	0-15	5-18	1.00-1.20	2.0-6.0	0.16-0.22	3.6-5.5	Low-----	0.24	3	8-20
Wayah	15-37	5-18	1.20-1.60	2.0-6.0	0.09-0.13	4.5-6.0	Low-----	0.15		
	37-60	3-15	1.40-1.65	2.0-6.0	0.05-0.09	4.5-6.0	Low-----	0.10		

\* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 16.--SOIL AND WATER FEATURES

("Flooding" and "water table" and terms such as "rare," "brief," and "apparent," are explained in the text. The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Soil name and map symbol	Hydro-logic group	Flooding			High water table			Bedrock		Potential frost action	Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness		Uncoated steel	Concrete
ArA----- Arkaqua	C	Frequent-----	Very brief-----	Dec-May	1.5-2.0	Apparent	Dec-May	>60	---	Moderate	High-----	Moderate.
BeA----- Biltmore	A	Frequent-----	Brief-----	Jan-Dec	3.5-6.0	Apparent	Dec-May	>60	---	Low-----	Low-----	Moderate.
BkB2, BkC2----- Braddock	B	None-----	---	---	>6.0	---	---	>60	---	Moderate	High-----	Moderate.
BrC*, BrD*: Braddock----- Urban land.	B	None-----	---	---	>6.0	---	---	>60	---	Moderate	High-----	Moderate.
BsC*, BsD*, BsE*, BsF*: Brasstown-----	B	None-----	---	---	>6.0	---	---	40-60	Soft	Moderate	Moderate	High.
Junaluska-----	B	None-----	---	---	>6.0	---	---	20-40	Soft	Moderate	Moderate	High.
BuD*, BuF*: Burton-----	B	None-----	---	---	>6.0	---	---	20-40	Hard	Moderate	High-----	High.
Craggey----- Rock outcrop.	D	None-----	---	---	>6.0	---	---	10-20	Hard	Moderate	High-----	High.
CaE, CaF----- Cashiers	B	None-----	---	---	>6.0	---	---	>60	---	Moderate	Low-----	Moderate.
CcF*: Cataska-----	D	None-----	---	---	>6.0	---	---	10-20	Soft	Moderate	Low-----	Moderate.
Sylco-----	C	None-----	---	---	>6.0	---	---	20-40	Hard	Moderate	Low-----	Moderate.
CdD, CdE, CdF----- Chandler	B	None-----	---	---	>6.0	---	---	>60	---	Moderate	Low-----	High.
ChE, ChF----- Cheoah	B	None-----	---	---	>6.0	---	---	40-60	Soft	Moderate	Low-----	High.

See footnote at end of table.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydro-logic group	Flooding			High water table			Bedrock		Potential frost action	Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness		Uncoated steel	Concrete
					Ft			In				
CnC*, CnD*, CnE*: Chestnut-----	B	None-----	---	---	>6.0	---	---	20-40	Soft	Moderate	Low-----	High.
Edneyville-----	B	None-----	---	---	>6.0	---	---	>60	---	Moderate	Low-----	High.
CpD*, CpE*, CpF*: Cleveland-----	C	None-----	---	---	>6.0	---	---	10-20	Hard	Moderate	Low-----	High.
Chestnut-----	B	None-----	---	---	>6.0	---	---	20-40	Soft	Moderate	Low-----	High.
Rock outcrop.												
CsD, CsE----- Cullasaja	B	None-----	---	---	>6.0	---	---	>60	---	Moderate	High-----	High.
CuD*, CuE*, CuF*: Cullasaja-----	B	None-----	---	---	>6.0	---	---	>60	---	Moderate	High-----	High.
Tuckasegee-----	B	None-----	---	---	>6.0	---	---	>60	---	Moderate	High-----	High.
DgB----- Dellwood	A	Frequent---	Very brief	Dec-Apr	2.0-4.0	Apparent	Jan-Apr	>60	---	Low-----	Low-----	Moderate.
DrB----- Dillard	C	Rare-----	---	---	2.0-3.0	Apparent	Dec-Apr	>60	---	Moderate	Moderate	High.
DsB, DsC----- Dillsboro	B	None-----	---	---	>6.0	---	---	>60	---	Moderate	High-----	Moderate.
EdB*, EdC*, EdD*, EdE*, EdF*: Edneyville-----	B	None-----	---	---	>6.0	---	---	>60	---	Moderate	Low-----	High.
Chestnut-----	B	None-----	---	---	>6.0	---	---	20-40	Soft	Moderate	Low-----	High.
EeC*, EeD*: Edneyville-----	B	None-----	---	---	>6.0	---	---	>60	---	Moderate	Low-----	High.
Chestnut-----	B	None-----	---	---	>6.0	---	---	20-40	Soft	Moderate	Low-----	High.
Urban land.												
EvB*, EvC*, EvD*, EvE*, EvF*: Evard-----	B	None-----	---	---	>6.0	---	---	>60	---	Moderate	Moderate	High.
Cowee-----	B	None-----	---	---	>6.0	---	---	20-40	Soft	Moderate	Moderate	High.

See footnote at end of table.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydro-logic group	Flooding			High water table			Bedrock		Potential frost action	Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness		Uncoated steel	Concrete
					Ft			In				
ExC*, ExD*: Evard-----	B	None-----	---	---	>6.0	---	---	>60	---	Moderate	Moderate	High.
Cowee----- Urban land.	B	None-----	---	---	>6.0	---	---	20-40	Soft	Moderate	Moderate	High.
FaC, FaD, FaE, FaF----- Fannin	B	None-----	---	---	>6.0	---	---	>60	---	Moderate	Moderate	Moderate.
HaB2, HaC2, HaD2-- Hayesville	B	None-----	---	---	>6.0	---	---	>60	---	Moderate	Moderate	Moderate.
HmA----- Hemphill	D	Rare-----	---	---	0-1.0	Apparent	Nov-May	>60	---	High-----	High-----	High.
NkA----- Nikwasi	B/D	Frequent---	Very brief	Jan-Dec	0-1.0	Apparent	Nov-May	>60	---	Moderate	High-----	High.
OwE----- Oconaluftee	B	None-----	---	---	>6.0	---	---	>60	---	Moderate	Low-----	High.
PwC, PwD, PwE, PwF----- Plott	B	None-----	---	---	>6.0	---	---	>60	---	Moderate	Low-----	High.
ReA----- Reddies	B	Frequent---	Very brief	Jan-Dec	2.0-3.5	Apparent	Dec-Apr	>60	---	Low-----	Low-----	Moderate.
RhF*: Rock outcrop.  Cataska-----	D	None-----	---	---	>6.0	---	---	10-20	Soft	Moderate	Low-----	Moderate.
RkF*: Rock outcrop.  Cleveland-----	C	None-----	---	---	>6.0	---	---	10-20	Hard	Moderate	Low-----	High.
RsA----- Rosman	B	Frequent---	Very brief	Dec-Apr	2.5-5.0	Apparent	Jan-Apr	>60	---	Moderate	Moderate	Moderate.
SbC, SbD, SbE, ScB, ScC----- Saunook	B	None-----	---	---	>6.0	---	---	>60	---	Moderate	Low-----	High.

See footnote at end of table.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydro-logic group	Flooding			High water table			Bedrock		Potential frost action	Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness		Uncoated steel	Concrete
					Ft			In				
SoD*, SoE*, SoF*: Soco-----	B	None-----	---	---	>6.0	---	---	20-40	Soft	Moderate	Moderate	High.
Stecoah-----	B	None-----	---	---	>6.0	---	---	40-60	Soft	Moderate	Moderate	High.
SrC*, SrD*, SrE*: Spivey-----	B	None-----	---	---	>6.0	---	---	>60	---	Moderate	Low-----	Moderate.
Santeetlah-----	B	None-----	---	---	>6.0	---	---	>60	---	Moderate	Low-----	High.
StB----- Statler	B	Rare-----	---	---	>6.0	---	---	>60	---	Moderate	Low-----	Moderate.
SxE*: Sylco-----	C	None-----	---	---	>6.0	---	---	20-40	Hard	Moderate	Low-----	Moderate.
Cataska-----	D	None-----	---	---	>6.0	---	---	10-20	Soft	Moderate	Low-----	Moderate.
SyA*: Sylva-----	B/D	None-----	---	---	0-1.0	Apparent	Nov-May	>60	---	High-----	High-----	High.
Whiteside-----	B	None-----	---	---	1.5-3.0	Apparent	Nov-May	>60	---	Moderate	Moderate	High.
ToA----- Toxaway	B/D	Frequent-----	Very brief	Nov-Mar	0-1.0	Apparent	Nov-Apr	>60	---	High-----	High-----	Moderate.
TrE, TrF----- Trimont	B	None-----	---	---	>6.0	---	---	>60	---	Moderate	Low-----	High.
TsC*: Tuckasegee-----	B	None-----	---	---	>6.0	---	---	>60	---	Moderate	High-----	High.
Cullasaja-----	B	None-----	---	---	>6.0	---	---	>60	---	Moderate	High-----	High.
TwB*, TwC*: Tuckasegee-----	B	None-----	---	---	>6.0	---	---	>60	---	Moderate	High-----	High.
Whiteside-----	B	None-----	---	---	1.5-3.0	Apparent	Nov-May	>60	---	Moderate	Moderate	High.
Ud. Udorthents												
UfB*: Udorthents.												
Urban land.												

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydro-logic group	Flooding			High water table			Bedrock		Potential frost action	Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness		Uncoated steel	Concrete
					<u>Ft</u>			<u>In</u>				
WeC, WeD, WeE, WeF----- Wayah	B	None-----	---	---	>6.0	---	---	>60	---	Moderate	Low-----	High.

\* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 17.--ENGINEERING INDEX TEST DATA

(Dashes indicate that data were not available. LL means liquid limit; PI, plasticity index; MD, maximum dry density; OM, optimum moisture; and NP, nonplastic. The soils are the typical pedons for the soil series in the survey area. For the location of the pedons see "Soil Series and Their Morphology")

Soil name, report number, horizon, and depth in inches	Classification		Grain-size distribution											LL	PI	Moisture density	
			Percentage passing sieve--							Percentage smaller than--						MD	OM
	AASHTO	Uni- fied	3 in.	2 in.	3/4 inch	3/8 inch	No. 4	No. 10	No. 40	No. 200	.02 mm	.005 mm	.002 mm	Pct	Lb/ cu ft		
Braddock clay loam: (S85NC-113-001)																	
Ap-----0 to 11	A-7-6(16)	CL	100	98	96	95	95	89	68	56	42	35	48	26	105	19	
Bt1-----11 to 21	A-7-5(23)	MH	100	98	98	97	97	92	77	71	58	54	63	27	92	28	
Bt2-----21 to 31	A-7-5(10)	MH				100	95	76	63	50	44	66	18	92	27		
BC-----43 to 57	A-7-5(14)	MH				100	94	67	53	36	31	64	18	94	27		
Cheoah channery loam: (S85NC-113-002)																	
A1-----0 to 6	A-5(0)	SM	100	96	95	89	88	70	43	23	7	4	55	NP	---	---	
A2-----6 to 13	A-5(0)	MH	100	98	97	95	94	79	51	28	9	5	51	NP	---	---	
Bw-----13 to 43	A-4(1)	ML		100	98	98	98	84	52	32	22	16	34	7	105	19	
Evard fine sandy loam: (S85NC-113-004)																	
A-----0 to 5	A-4(0)	SM	100	99	99	97	93	82	48	32	13	8	31	NP	94	24	
Bt-----8 to 35	A-4(2)	ML				100	88	52	35	24	21	34	10	109	18		
C-----45 to 61	A-2-4(0)	SM				100	81	32	18	10	9	25	NP	113	17		
Fannin fine sandy loam: (S85NC-113-005)																	
A-----0 to 4	A-2-5(0)	SM	100	99	95	92	86	63	34	30	21	15	50	NP	94	26	
Bt-----7 to 21	A-7-5(4)	SM		100	98	97	92	67	45	43	32	27	50	16	103	20	
C-----27 to 60	A-2-5(0)	SM				100	98	66	29	15	11	8	51	NP	94	24	
Rosman fine sandy loam: (S85NC-113-008)																	
Ap-----0 to 16	A-2-4(0)	SM				100	99	33	16	8	5	28	NP	101	20		
Bw-----16 to 57	A-4(0)	SM				100	100	40	21	13	7	28	NP	102	20		
C-----57 to 60	A-4(2)	ML				100	100	54	34	22	17	33	8	103	21		
Soco channery fine sandy loam: (S85NC-113-011)																	
A-----0 to 5	A-4(0)	SM	100	98	91	85	82	65	43	25	13	5	39	NP	98	22	
Bw-----5 to 22	A-6(3)	CL	100	99	93	90	90	76	51	32	17	11	33	11	108	18	

TABLE 17.--ENGINEERING INDEX TEST DATA--Continued

Soil name, report number, horizon, and depth in inches	Classification		Grain-size distribution											LL	PI	Moisture density	
			Percentage passing sieve--							Percentage smaller than--						MD	OM
	AASHTO	Uni- fied	3 in.	2 in.	3/4 inch	3/8 inch	No. 4	No. 10	No. 40	No. 200	.02 mm	.005 mm	.002 mm	Pct	Lb/ cu ft		
Statler fine sandy loam: (S85NC-113-9)																	
Ap-----0 to 10	A-4(1)	ML						100	97	53	35	17	10	33	7	103	19
Bt-----10 to 50	A-7-6(16)	CL						100	98	70	52	36	31	42	27	103	21
BC-----50 to 60	A-7-5(9)	ML						100	96	62	44	35	29	46	16	98	23

TABLE 18.--CLASSIFICATION OF THE SOILS

(An asterisk in the first column indicates that the soil is a taxadjunct to the series. See text for a description of those characteristics of the soil that are outside the range of the series)

Soil name	Family or higher taxonomic class
Arkaqua-----	Fine-loamy, mixed, mesic Fluvaquentic Dystrochrepts
Biltmore-----	Mixed, mesic Typic Udipsamments
Braddock-----	Clayey, mixed, mesic Typic Hapludults
Brasstown-----	Fine-loamy, mixed, mesic Typic Hapludults
Burton-----	Coarse-loamy, mixed, frigid Typic Haplumbrepts
Cashiers-----	Coarse-loamy, micaceous, mesic Umbric Dystrochrepts
Cataska-----	Loamy-skeletal, mixed, mesic, shallow Typic Dystrochrepts
Chandler-----	Coarse-loamy, micaceous, mesic Typic Dystrochrepts
Cheoah-----	Coarse-loamy, mixed, mesic Typic Haplumbrepts
Chestnut-----	Coarse-loamy, mixed, mesic Typic Dystrochrepts
Cleveland-----	Loamy, mixed, mesic Lithic Dystrochrepts
Cowee-----	Fine-loamy, mixed, mesic Typic Hapludults
Craggey-----	Loamy, mixed, frigid Lithic Haplumbrepts
Cullasaja-----	Loamy-skeletal, mixed, mesic Typic Haplumbrepts
Dellwood-----	Sandy-skeletal, mixed, mesic Fluventic Haplumbrepts
Dillard-----	Fine-loamy, mixed, mesic Aquic Hapludults
Dillsboro-----	Clayey, mixed, mesic Humic Hapludults
Edneyville-----	Coarse-loamy, mixed, mesic Typic Dystrochrepts
Evard-----	Fine-loamy, oxidic, mesic Typic Hapludults
Fannin-----	Fine-loamy, micaceous, mesic Typic Hapludults
Hayesville-----	Clayey, kaolinitic, mesic Typic Kanhapludults
Hemphill-----	Fine, mixed, mesic Typic Umbraqualfs
Junaluska-----	Fine-loamy, mixed, mesic Typic Hapludults
*Nikwasi-----	Coarse-loamy over sandy or sandy-skeletal, mixed, nonacid, mesic Cumulic Humaquepts
Oconaluftee-----	Coarse-loamy, mixed, frigid Typic Haplumbrepts
Plott-----	Coarse-loamy, mixed, mesic Typic Haplumbrepts
Reddies-----	Coarse-loamy over sandy or sandy-skeletal, mixed, mesic Fluventic Haplumbrepts
Rosman-----	Coarse-loamy, mixed, mesic Fluventic Haplumbrepts
Santeetlah-----	Coarse-loamy, mixed, mesic Typic Haplumbrepts
Saunook-----	Fine-loamy, mixed, mesic Humic Hapludults
Soco-----	Coarse-loamy, mixed, mesic Typic Dystrochrepts
Spivey-----	Loamy-skeletal, mixed, mesic Typic Haplumbrepts
*Statler-----	Fine-loamy, mixed, mesic Humic Hapludults
Stecoah-----	Coarse-loamy, mixed, mesic Typic Dystrochrepts
Sylco-----	Loamy-skeletal, mixed, mesic Typic Dystrochrepts
Sylva-----	Coarse-loamy, mixed, acid, mesic Humic Haplaquepts
Toxaway-----	Fine-loamy, mixed, nonacid, mesic Cumulic Humaquepts
Trimont-----	Fine-loamy, mixed, mesic Humic Hapludults
Tuckasegee-----	Fine-loamy, mixed, mesic Typic Haplumbrepts
Udorthents-----	Udorthents
Wayah-----	Coarse-loamy, mixed, frigid Typic Haplumbrepts
Whiteside-----	Fine-loamy, mixed, mesic Aquic Hapludults

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