GEOLOGIC MAP OF THE WESTERN BLUE RIDGE AND PORTIONS OF THE EASTERN BLUE RIDGE AND VALLEY AND RIDGE PROVINCES IN SOUTHWEST TENNESSEE, SOUTHWEST NORTH CAROLINA, AND NORTHERN GEORGIA

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Valley and Ridge

Mbl **Maynardville Limestone**–Medium gray, medium-bedded limestone and dolomite. Thickness 400 m.

Ꞓl **Lower Conasauga Group**–Consists of Pumpkin Valley Shale, Rutledge Limestone, and Rogersville Shale (ascending order). Thickness 1500 m.

Ꞓr **Rome Formation**–Purple and green, thin to medium-bedded micaceous and shale with occasional sandstone and limestone. Thickness 500 m.

Western Blue Ridge - Great Smoky thrust sheet

Ꞓrs **Shady Formation**–Pink to blue-gray dolomite with some argillaceous limestone and silt. Thickness 300 m.

Ꞓc **Chilhowee Group**–Vitreous quartz arenite in the upper part, grading downward into feldspathic quartz arenite, conglomerate in the lower formation. Thickness 1500 m.

Western Blue Ridge - Maggies Mill/Citico thrust sheet

Ꞓmm **Maggies Mill Formation**–Light brown, coarse to very coarse-grained micaceous sandstone, conglomerate, feldspathic graywacke, and subordinate gray-green brown feldspathic sandstone.

Ꞓcc **Carbonate member**–Dark, fine-grained mottle, lighter-gray coarser-grained calcareous sandstone, carbonate breccia, and calcareous siltstone and glauconite. Carbonate member is concentrated at base.

Western Blue Ridge - Miller Cove thrust sheet

Ꞓmc **Miller Cove Formation**–Pale green, thin to medium-bedded micaceous and shale with occasional sandstone and limestone. Thickness 500 m.

Ꞓcc **Chatto/Chilhowee Formation**–Chatto is red to brown thin to medium-grained, crossbedded sandstone interbedded with micaceous shale, siltstone, and conglomerate. Chilhowee is sandstone, conglomerate, siltstone, and shale. Thickness 100m.

Ꞓcs **Chapman Ridge Sandstone**–Interbedded calcareous sandstone and fossiliferous limestone with shale and black fossils. Thickness 400 m.

Ꞓcc **Chilhowee member**–Continuous discrete sandstone beds in the central portion of the section.

Ꞓcl **Allens Lake Formation**–Red, brown, and gray, calcareous shale with interbedded fine-crossbeds, siltstone, and calcareous sandstone. Thickness 120-180 m.

Ꞓcb **Tapeats Sandstone member**–Brown, fine to coarse-grained, medium to thick-bedded, cross-bedded, calcareous sandstone. Thickness 30-45 m.

Ꞓcl **Lemon Limestone**–Gray, mottle limestone with occasional fossiliferous beds. Contains Middle Cambrian fossils. Thickness 15-30 m.

Unconformity

Ꞓmc **Mascot Dolomite**–Light-gray, fine-grained, well-bedded, cherty dolomite. Contains Late of South-gray limestone in upper part. Thickness 100-200 m.

Ꞓk **Kingsport Formation**–Gray, fine-grained, sparsely cherty dolomite with basal dense, gray limestone member. Thickness ~80 m.

Ꞓl **Longview Dolomite**–Siliceous, gray, fine-grained, medium-bedded dolomite; interbeds of gray limestone in upper part. Thickness 100 m.

Ꞓn **Newala (Knox) Dolomite**–Gray, fine-grained, well-bedded cherty dolomite; moderately cherty, fine-grained limestone beds nearly in upper part; quartz sandstone beds at base. Thickness ~200 m.

Ꞓcc **Copper Ridge Dolomite**–Coarse, dark-gray, medium-bedded dolomite; gray, medium-grained, well-bedded dolomite; abundant chert. Thickness ~1000 m.

Ꞓcr **Rogersville Limestone**–Medium gray, medium-bedded limestone and dolomite. Thickness 400 m.

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Western Blue Ridge - Great Smoky thrust sheet

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Ꞓr **Rome Formation**–Purple and green, thin to medium-bedded micaceous and shale with occasional sandstone and limestone. Thickness 500 m.

Western Blue Ridge - Greenbrier thrust sheet

Ꞓcs **Sandsuck Formation (undivided)**

Ꞓcs **Yellow Breeches member (undivided)**

Ꞓcs **Dove Mountain member**–Micaceous and limy, medium-grained, medium-bedded, cross-bedded sandstone and shale and light gray siltstone. Thickness 400-600 m.

Ꞓcs **Rich Butt Sandstone**–Massively bedded, unsorted, commonly graded feldspathic sandstones with interbedded dark argillite. Gradationally overlies the Pigeon Siltstone at the top and the Greenbrier Limestone at the base.

Ꞓcs **Slate member**–Dark, well-bedded argillite and slate with lesser amounts of feldspathic sandstone. Argillite generally carbonaceous and partly homogenized.

Ꞓcs **Metcalf Phyllite**–Nearly homogeneous body of light-colored phyllite and minor amounts of siltstone and sandstone. Exhibits well-developed slaty cleavage.

Ꞓcs **Pigeon Siltstone**–An interbedded sequence of metagraywacke, metasiltstone, and slate. Metagraywacke - medium light gray to medium dark gray; fine- to coarse-grained; poorly sorted; thin- to medium-bedded. Metasiltstone - dark gray to olive-black to greenish black; laminated to massively bedded. Slate - gray to olive-black to brownish black; laminated; sulfidic.

Ꞓcs **Floating Fork Sandstone**–A variably interbedded sequence of metasiltstone, metagraywacke to meta-arkose, and slate. Metasiltstone - light bluish gray to dark greenish gray; fine- to coarse-grained siltstone; but ranging to fine-grained sandstone. Metagraywacke - bluish gray to light to brownish gray; medium- to coarse-grained; well-sorted; bedding ranges from medium-bedded to massive to about one meter thick; locally graded and cross-bedded.

Ꞓcs **Longpen Quartzite**–Dominantly meta-arkose and metaargillite/wacke, with subordinate metagraywacke, metasiltstone and slate. Meta-arkose and metaargillite/wacke - pinkish gray to greenish pink; mottled with white to very light gray; fine- to coarse-grained; poorly sorted; thin- to medium-bedded; coarse- to very coarse-grained; locally pebbly; thick-bedded. Interbedded throughout the sequence is dark greenish gray metagraywacke, greyish vine metasiltstone, and greyish black to brownish black slate.

Ꞓcs **Rolling Branch Formation**–Phyllite interbedded and gradational with slate and metagraywacke. Phyllite - medium light bluish gray to medium dark gray to dark gray; fine grained; moderately to markedly foliated; commonly interbedded with dark-gray slate and metagraywacke. Slate - medium dark gray to dark gray; fine grained; moderately to markedly foliated; commonly interbedded with phyllite and metagraywacke. Metagraywacke - light gray to olive-black; fine- to coarse-grained; angular to subrounded; poorly sorted; locally graded.

Ꞓcs **Arkose member**–Arkose interbedded with metagraywacke, granule conglomerate, phyllite, and a rare basal massive clay metatuff. Arkose - light olive gray; mottled with moderate reddish orange to pinkish gray; fine- to coarse-grained; poorly sorted; thin- to medium-bedded; feldspathic quartzite and lithic quartzite.

Ꞓcs **Floating Fork Formation**–A thick sequence dominated by poorly-to-moderately foliated, coarse-grained, mostly matrix-supported quartz/feldspathic rocks, including metagraywacke, feldspathic and arkosic metawacke, subgraywacke, pebbly metaarkosite, very pebble and pebble metagraywacke, with minor metapelite and metaarkosite. Thickness 250-2000 m.

Unconformity

Ꞓcs **Danville Basement (undivided; 1200-800 Ma)**–Augen and flaser gneiss, gneiss, quartz monzonite, and greenstone (metagabbro), minor amphibolite, layered quartzite, muscovite and biotite gneiss. Thickness unknown.

Ꞓcs **Corbin metagranite (1100 and 1000 Ma)**–Ranges from megacrystic granodiorite through quartz monzonite to gneiss.

Ꞓcs **Salem Church gneiss (age unknown)**–Coarse-grained granite of non-albite affinity.

Western Blue Ridge - Rabbit Creek thrust sheet

Ꞓcs **Upper conglomerate and sandstone member**–Consists primarily of medium- to coarse-grained conglomerate and sandstone. Feldspar clast content is much greater than that observed in the Elkhorn Sandstone and rutilated blue quartz clasts are rare.

Ꞓcs **Slate and metasiltstone**

Ꞓcs **Upper slate and metasiltstone member**–Consists primarily of black to dark-gray slate and siltstone. Slate commonly sulfidic and pyrite bearing.

Ꞓcs **Conglomerate**

Ꞓcs **Lower conglomerate and sandstone member**–Consists primarily of fine-grained to conglomeratic sandstone. Feldspar clast content is much greater than that observed in the Elkhorn Sandstone and rutilated blue quartz clasts are rare.

Western Blue Ridge - Greenbrier thrust sheet

Ꞓcs **Mineral Bluff Formation/Nutley Quartzite**

Ꞓcs **Mineral Bluff Formation**–Metagraywacke, gray to green slates, some felsic schist and graphitic schist, quartz conglomerate and metaarkose lenses. Minimum thickness 240 m. Nutley quartzite is white orthoquartzite, commonly feldspathic. Thickness 25-45 m.

Unconformity

Ꞓcs **Ingalls Formation**–Gray to green phyllite, gray slates or phyllites, calcareous schists and limonite beds at base. Thickness 420-640 m. Murphy Marble is thick-bedded, fine to medium-grained, white, blue, and blue-white banded marble. Thickness 20-75 m.

Unconformity

Ꞓcs **Ocoee Supergroup**

Ꞓcs **Hiwassee Formation**–Gray slates or phyllites, sericite schists, quartzites. Calcareous biotite schists at the top. Usually black slate or graphitic schists at base. Thickness 300-400 m.

Unconformity (?)

Ꞓcs **Ketchabella Formation/Tapoco Quartzite**–Black to gray banded slates, occasional dark schists and thin metaarenite quartzites. Thickness 200-550 m. Tapoco is thick-bedded, light colored, feldspathic quartzite with discontinuous lenticular and thin sandy beds of dark slate. Thickness 6-60 m.

Dahlonega gold belt - Hayesville thrust sheet

*Stratigraphic relationships uncertain

Ꞓcs **Metasediment**–Metasandstone is commonly gneissic, light to dark-gray, fine to medium-grained, and quartz dominant with locally abundant muscovite.

Ꞓcs **Muscovite schist**–Silver to light-gray and fine to coarse-grained, containing abundant muscovite and quartz with locally abundant kyanite and staurolite.

Ꞓcs **Calcareous quartzite**

Ꞓcs **Aluminous schist**–Contains pelitic schist, metasandstone, and quartzite. Aluminous schist is characterized by the presence of kyanite and fine to coarse-grained containing abundant muscovite and quartz and locally abundant kyanite and staurolite.

Ꞓcs **Quartzite**–Fine-grained, light to medium-gray, quartzite/metasandstone with locally abundant muscovite schist, hornblende, and traces of zircon, apatite, rutile/anatase, and opaque minerals.

Lake Burton Mafic-Ultramafic Complex

Ꞓcs **Hornblende gabbro**

Ꞓcs **Metagabbro and amphibolite**–Coarse, poorly foliated, dark-green to dark-gray, medium-grained; equigranular metagabbro with minor, well-foliated amphibolite.

Ꞓcs **Felsic gneiss and amphibolite**–Well foliated, strongly lineated, medium to fine-grained felsic gneiss and amphibolite with hornblende commonly forming prominent lineations and as distinct bands. Well foliated, amphibolite present as layers.

Ꞓcs **Felsic gneiss**–Well foliated, fine-grained, quartz-feldspar gneiss; rare mesogranular with relictual porphyroclastic augen, composed predominantly of quartz and some plagioclase. Locally migmatitic and contains both fine-grained biotite/hornblende gneiss and coarse-grained felsic gneiss.

Ꞓcs **Amphibolite**–Well foliated, dark-green to black, and fine to medium-grained schist to amphibolite.

Ꞓcs **Kyanite schist**

Ꞓcs **Felsic orthogneiss**–Coarse-grained biotite, quartz, K-feldspar, plagioclase orthogneiss, much of which is highly altered to epidote, quartz rock.

Ꞓcs **Hyper gneiss (alkaline)**–C

Chattahoochee-Holland Mountain thrust sheet (Tugaloo terrane)

*Stratigraphic relationships uncertain

Pelitic Units

Ꞓcs **Thick Creek Granitoid (335 ± 1 Ma)**–White to light-gray, medium to coarse-grained, foliated, hypidiomorphic granular biotite with minor muscovite. Contains abundant, large, euhedral to subhedral microcline and two pyroxenes (rich. Silver sulfide minerals are also present in the metagraywacke and in vein.

Ꞓcs **Upper member**–Dark gray medium-grained metagraywacke and minor muscovite-biotite schist with some quartz and quartz feldspar. Metagraywacke layers range from 5-15 cm thick; schist layers range from a few millimeters to a few centimeters thick. Minor sulfide minerals are also present in the metagraywacke and in veins.

Ꞓcs **Lower member**–Dark gray medium-grained metagraywacke and minor muscovite-biotite schist with some quartz and quartz feldspar. Metagraywacke layers range from 5-15 cm thick; schist layers range from a few millimeters to a few centimeters thick. Minor sulfide minerals are also present in the metagraywacke and in veins.

Ꞓcs **Migmatite**–Migmatite with leucosome commonly from Talulah Falls dome quartz; plagioclase; biotite metagraywacke; may contain up to 5% K-feldspar.

Ꞓcs **Amphibolite**

Ꞓcs **Talulah Falls quartzite**–Quartz; plagioclase, K-feldspar, biotite, muscovite quartzite containing minor carbonate and sphene. It contains quartz, plagioclase, K-feldspar, biotite, muscovite metasandstone inside Talulah Falls dome. Both are interlayered with muscovite, biotite, quartz schist.

Ꞓcs **Lending Dome Granodiorite**–Dark, fine-grained, biotite, and quartz schist.

Ꞓcs **Sutton Creek Gneiss (1153 Ma)**–Ultra from light-gray, fine to medium-grained, strongly foliated biotite granodiorite containing relict igneous texture is banded gneiss an amphibole bearing varieties.

Ꞓcs **Coweta Gneiss (1130 Ma)**–Gneiss, predominantly of light gray, fine to medium-grained, strongly foliated microcline-oligoclase-quartz-biotite granitoid. Contains biotite schist, gneiss, and a megacrystic phase that consists of microcline, plagioclase, quartz, and biotite.

Ꞓcs **Fala Bono Trondhjemite (380 Ma?)**–Uniformly medium-grained and leucocratic in composition, with minor K-feldspar accompanying very abundant plagioclase and quartz. Biotite is the only mafic mineral, and it is generally very homogeneous distribution. Well preserved igneous fabric (coarse, euhedral, secondary zoned plagioclase) is overprinted by a moderate temperature fabric. The Bucks Bend mylonite is another weak but pervasive fabric, manifested by recrystallized, grain boundary bulging and subgrain rotation.

Ꞓcs **Hornblende Granodiorite (Sand Mountain)**–Composition ranges from granodiorite to tonalite. Hornblende is the most abundant mafic type, but the rock is uniformly medium grained. Rocks range from weakly foliated to massive. Similar to parts of the Hayesville Granite, with a modest metamorphism, overprint to Bryson(ite) recrystallized granodiorite. The Whitewater Creek Gneiss is heterogeneous on outcrop scale, exhibiting considerable small scale variability in grain size, foliation, and, to a lesser extent, color index.

Ꞓcs **Pegmatite**

Ꞓcs **Calcsilicate quartzite**

Ꞓcs **Ultramafic bodies**

Blue Ridge basement complex[1]

*Stratigraphic relationships uncertain

Ꞓcs **Cataclasite**–Cataclasit breccia and brecciated mylonite; angular fragments consist of feldspar and quartz, with a matrix of epidote group minerals, biotite, chlorite, sericite, and clacite, opaque minerals.

Ꞓcs **Sericite mylonite (335-320 Ma mylonitization)**–Mylonite characterized by sericite, quartz, and feldspar. Sericite, epidote group minerals, and chlorite occurs in subfoliated drifting shear zones. Thin unit includes locally overprinted by progressively retrograded rock.

Ꞓcs **Amphibolite quartz-feldspathic rock (671 Ma)**–Thin bodies of "augen" deformed rock that cross cut or parallel foliations. Leucocratic, equigranular to porphyroclastic, locally mylonitic; massive to foliated; granite to tonalite with accessory magnetite.

Ꞓcs **Diabase**–Dikes and sills; fine- to medium-grained, foliated, with minor epidote and biotite, and disseminated chlorite; when altered, serpentine minerals are present. Dikes are commonly boudinaged and pinched, and in shear zones and peripheral areas.

Ꞓcs **Altered ultramafic**–Bodies ranging from altered pyroxenite and dunite to serpentinite. Serpentinite is commonly foliated, locally enclosed in partially enclosed by amphibole.

Ꞓcs **Dahlonega metagabbro (710 Ma)**–Brownish-black to greenish-black, fine- to coarse-grained; subophitic to diabasphitic to locally porphyritic; massive to slightly foliated; commonly altered to amphibole, chlorite and epidote and minor pyrite. Secondary hematite/limonite texture and alteration minerals developed where altered. Weathers spheroidally. Small dikes are locally abundant.

Ꞓcs **Hornblende metagranite (790 Ma)**–Greyish-pink, weathers very light gray; medium-grained; equigranular; massive to foliated; granite to tonalite. Rock is weakly foliated to massive. Similar to parts of the Coweta Granite of Hatch (1972).

Ꞓcs **Hornblende metagranite porphyroblastic**–Protomylonite and mylonite equivalent of hornblende-bearing metagranite. Medium-gray to pinkish-gray; granodiorite to hypidiomorphic; variably megacrystic. Mylonite alteration minerals include sericite and visible group minerals.

Chattahoochee-Holland Mountain thrust sheet (Tugaloo terrane)

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Ꞓcs **Upper member**–Dark gray medium-grained metagraywacke and minor muscovite-biotite schist with some quartz and quartz feldspar. Metagraywacke layers range from 5-15 cm thick; schist layers range from a few millimeters to a few centimeters thick. Minor sulfide minerals are also present in the metagraywacke and in veins.

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Blue Ridge basement complex[1]

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Ꞓcs **Red Indian grandoid gneiss**–Grayish-pink to moderate-red, equigranular; granodiorite to tonalite; locally mylonitic; foliated to massive. Epidotization is widespread; epidote and sericite hereafter commonly fill fractures.

Ꞓcs **Blue Ridge gneiss (1060 Ma)**–Medium gray, medium- to coarse-grained; equigranular to slightly megacrystic; granodiorite to tonalite; locally mylonitic; foliated to massive. Epidote and sericite are the most common alteration; this zone of phyllosilicate occur throughout and are characterized by increased sericite, epidote group minerals, and chlorite. Locally, amphibolite xenoliths occur at all scales.

Ꞓcs **Blue Patch granite (protomylonite)**–Mesoscopic protomylonitization; medium gray to light-gray; fine- to medium-grained; granodiorite to tonalite; gneiss grade recrystallized plagioclase porphyroclasts; plagioclase; feldspar megacrysts as large as three inches in length; protomylonite to locally strongly foliated to massive. Epidote and sericite are the most common alteration minerals include sericite and epidote group minerals. This unit contains abundant, large, euhedral to subhedral microcline and two pyroxenes.

Ꞓcs **Tyrrenne granite**–Consists of mafic and felsic phases. Color varies with proportion; cranite-grained; granodiorite; shifts of clots of hornblende, hypersthene, and diopside. Phase, the mafic, tonalite is well-foliated and commonly a blastgrit gneiss (o-tectonite).

Ꞓcs **Tuckasegee granite**–Leucocratic, feldspathic, massive to foliated granitoid.

Ꞓcs **Epidote-veined granite gneiss**–Mottled, pink and white; massive to poorly foliated granodiorite with no accessory minerals. Epidote occurs as thin veins and as clots.

Ꞓcs **Sylva granite**–Leucocratic, equigranular, granodiorite; weakly foliated; thin layered to pyroblastic bodies; interlayered with amphibolite and other rock types. Characteristically coloured brown (smoky quartz resulting from preferential weathering of diopside.

Ꞓcs **Mafic granite**–Medium gray; granodiorite; with rock of variable composition and appearance; from amphibolite to biotite-hornblende. Layers and bodies range in thickness from centimeters to meters.

Ꞓcs **Carolina Gap granulite gneiss (1305-1250 Ma)**–Mafic and felsic rock types are interlayered on a scale of centimeters to meters. Felsic layers are composed of quartz, plagioclase, and K-feldspar; mafic layers are composed of hypersthene, diopside, hornblende, and biotite. Mafic layers are locally garnetiferous; well-foliated and commonly a straight gneiss (o-tectonite); very or extrapolation between gneiss and granulite. Felsic layers are in plagioclase granodiorite to leucotonalite; well-foliated to massive; very fine grade to granulite facies. Mafic layers are locally garnetiferous.

Ꞓcs **Carters Gap granulite gneiss (protomylonite)**–Dark gray; megacrystic to porphyroclastic; plagioclase porphyroclasts in a biotite-rich matrix; mesogranular; hypidiomorphic; megacrystic; foliated to weakly foliated; protomylonite to mylonite. Mylonite alteration minerals include sericite and epidote group minerals.

Ꞓcs **Cullasaja granite**–Very light gray; granodiorite; weakly foliated; typically coronets of quartz; diopside; epidote group minerals; plagioclase. Characteristically bulbed and epidote aggregates within the most felsic groundmass.

Ꞓcs **Dryden Creek granulite**–Grayish-black to black with dusky-red stripes; granulite; fine- to medium-grained; hypersthene and diopside; hypersthene-diopside-hornblende-biotite-quartz-plagioclase; gneiss grade with interlayers of amphibolite. Outcrops throughout the Earlys Gap granitic gneiss.

Ꞓcs **Magnolia biotite gneiss**–Medium-gray; poorly foliated to foliated; quartz monzonite; megacrystic. Magnolia occurs as marked green to dark-green layers.

Ꞓcs **Epidote-veined granite gneiss**–Mottled pink and white; massive to poorly foliated granodiorite. Epidote occurs as thin veins or fracture fillings.

Shope Fork-Chunky Gal Mtn. thrust sheets (Cowrock and Cartoogechaye terranes)

*Stratigraphic relationships uncertain

Ꞓcs **Sassafras Mountain Granite**–Coarse-grained, quartz-feldspar metasediment, garnetiferous muscovite and biotite schists; some conglomerates, and lesser amounts of rare white quartzite that occur in the Coleman River Formation.

Ꞓcs **Coleman River Formation**–Interlayered metasandstone, quartz-feldspar metasediment, and biotite schist with minor calcsilicate quartzite and amphibolite.

Ꞓcs **Shooting Creek schist**–Muscovite-dominant gneiss; muscovite, biotite, quartz, plagioclase schist containing variable quantities of rutile.

Ꞓcs **Metasandstone pelitic schist**–Quartz, plagioclase; biotite schist with minor muscovite and garnet; commonly contains quartz-feldspar veins and rock containing minor garnet.

Ꞓcs **Muscovite biotite gneiss**–Lightgray to medium-gray; medium to coarse-grained; equigranular to mesogranular; lepidoblastic to granoblastic; well-foliated to massive; locally migmatitic. Composed of nearly equal amounts of plagioclase; quartz and biotite with less abundant muscovite and K-feldspar. Muscovite occurs as primary and secondary grains. Biotite is more amounts of phyllosilicates, and K-feldspar is the least. where the muscovite content is low, the rock type is difficult to distinguish from biotite gneiss; where the quartz content increase significantly, the rock grades to metagraywacke.

Ꞓcs **Metagraywacke**–Very light gray to medium-gray; fine- to medium-grained; equigranular; granoblastic; lepidoblastic; well-foliated to massive; locally migmatitic; composed of plagioclase, quartz, biotite, and muscovite. Muscovite occurs as primary and secondary grains. Biotite is well altered; rock is locally chloritic; commonly contains minor amounts of muscovite-biotite schist. Contains conspicuous lenses of muscovite-biotite schist and a different heavy mineral suite separate it from the Nathan Tallulah Falls formation metagraywackes.

Ꞓcs **Helen gneiss**–Very light gray to medium-light gray; medium- to coarse-grained granoblastic to lepidoblastic; equigranular to mesogranular; foliated to straight gneiss; ranges from biotite granite gneiss to quartz diorite gneiss.

Ꞓcs **Long Branch Member**

Ꞓcs **Ashe Formation/Little Crowder Formation**–Biotite-muscovite schist and metasandstone; with sphene amphibole.

Ꞓcs **Muscovite quartzite**–Fine-grained, light to medium-gray, quartzite and metasandstone with locally abundant muscovite schist.

Ꞓcs **Phyllonite and Metavolcanic Units**

Ꞓcs **Amphibolite**–Dark greenish gray to greenish black to brownish black, fine- to coarse-grained, well-foliated; amphibolite containing hornblende, plagioclase, epidote group minerals, and accessory opaque minerals.

Ꞓcs **Ultramafic bodies**

Basement Orthogneiss

Ꞓcs **Chauga Ridge felsic orthogneiss**–Medium- to coarse-grained migmatitic biotite; quartz; K-spar; plagioclase orthogneiss frequently combining other felsic rocks (biotite paragneiss, biotite-muscovite schist) that may have been included.

Ꞓcs **Cowrock felsic orthogneiss**–Medium-grained plagioclase, K-spar, quartz, biotite orthogneiss containing minor garnet and muscovite.

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