

GEOLOGIC MAP OF THE VIRGINIA PORTION OF THE ELKINS 30 X 60 MINUTE QUADRANGLE

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2000

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EXPLANATION	
MISSISSIPPIAN	Mpo Pocono Formation Sandstone, white to medium-gray, fine- to coarse-grained, medium- to thick-bedded, often cross laminated in thick sets. Thickness: 500 to 700 feet.
	Dhs Hampshire Formation Shale, mudstone, siltstone, and sandstone. Shale, mudstone, and siltstone, dusky- to grayish-red, in part micaceous. Sandstone, medium- to brownish-gray, thin- to thick-bedded, cross laminated, in part micaceous and feldspathic; 6-inch to 3-foot beds of conglomerate common near the top, no reported fossils. Basal contact placed above the youngest fossiliferous sandstone and shale of the Foreknobs Formation, overlain by redbeds. Thickness: approximately 2000 feet.
	Dfk Foreknobs Formation Sandstone, siltstone, and minor shale, interbedded. Sandstone, brownish-gray, medium- to coarse-grained, medium- to thick-bedded, in part cross laminated, conglomeratic beds common, sandstone most abundant in the upper part of the formation; many beds very fossiliferous. Siltstone, medium- to thick-bedded, dominant in lower part of unit. Shale, interbedded with sandstone and siltstone throughout section. Brownish-red shale common in upper half of section. Basal contact mapped at the base of fossiliferous sandstone overlain by micaceous shale and thin-bedded siltstone. Thickness: approximately 2200 feet.
DEVONIAN	Db Brallier Formation Shale, siltstone, and minor sandstone, interbedded, dark-gray to greenish-gray, weathers light-brownish-gray; grain size increases upward in section; sandstone more abundant in upper part of section, thin- to medium-bedded, sparsely fossiliferous. Base of the formation placed at the top of black to gray shale of the Millboro Shale. As mapped in Highland County, the Brallier is equivalent to the Scherr Formation of Dennison (1996). Thickness: 1000 to 1800 feet.
	Dmn Millboro Shale, Tioga Ash, and Needmore Formation, undivided Millboro Shale: shale, black, fissile, weathers in thin papery plates, contains abundant pyrite, fossiliferous layer of concretions locally present (Purcell Member of Dennison, 1996). Thickness: 400 to 500 feet. Tioga Ash: alternating gray, silty shale and siltstone; brown, biotite-bearing, calcareous tuff; and fissile, black shale. Thickness: 10 to 20 feet. Needmore Formation: dark-greenish-gray, fossiliferous shale and calcareous mudstone with thin (3 to 8 feet) black shale at base. Thickness: approximately 120 feet. Base of map unit placed at top of gray quartzite of the Ridgeley Sandstone.
	unconformity

DEVONIAN AND SILURIAN ROCKS, UNDIVIDED	DS Devonian and Silurian rocks, undivided Ridgeley Sandstone: quartzarenite, light- to yellowish-gray, fine- to coarse-grained, locally conglomeratic, thin- to thick-bedded, generally cross laminated, calcareous cement, friable when weathered, fossiliferous, commonly contains molds of shells; thickness ranges from 30 to 100 feet. Heiderberg Group: limestone, light- to dark-gray, fine- to coarse-grained, laminated to thick-bedded, with black, nodular chert and white to light-gray, blocky chert, upper portion of the unit argillaceous, lower part of the unit sandy (locally a sandstone, Healing Springs Sandstone Member), base defined by a coarse-grained, gray limestone with large white to pink enoid stems; locally very fossiliferous; thickness ranges from 100 to 200 feet. Keyser Limestone: medium- to dark-gray, fine- to coarse-grained limestone with abundant fossils, Clifton Forge Sandstone Member near middle, argillaceous near base, may contain laminated beds similar to the underlying Tonoloway Limestone in lower portion; sparse, small black chert nodules common; thickness ranges from 75 to 150 feet. Tonoloway Limestone: upper and lower members, medium- to dark-gray, fine-grained, laminated, mudcracked limestone with sparse fossils (ostracodes and rare brachiopods); middle member, medium-gray, fine- to medium-grained, abundant algal structures; thickness ranges from 200 to 300 feet. Wills Creek Formation: light- to medium-gray, fine- to coarse-grained, fossiliferous limestone, gray, calcareous siltstone, greenish-gray, calcareous mudstone, all lithologies weather to a yellowish-gray shaly residue; thickness approximately 120 feet. Williamsport Sandstone: quartz sandstone or siltstone, with <i>Artrophycus alaghaniensis</i> near the base; thickness ranges from 15 to 25 feet. McKenzie Formation: medium-gray, yellowish weathering, calcareous shale and limestone, locally very fossiliferous; thickness, approximately 165 feet.
	Skr Keefer Sandstone and Rose Hill Formation, undivided Keefer Sandstone: sandstone, light-gray, fine- to coarse-grained, locally conglomeratic, cross laminated, quartz cement or overgrowths, thin green to purple shale beds near base, sparsely fossiliferous (<i>Scolithes</i> , <i>Artrophycus</i>); thickness ranges from 8 to 20 feet, thickens in a southwesterly direction. Rose Hill Formation: Sandstone and shale. Sandstone, light-gray to dusky-red, fine- to coarse-grained, cross laminated, gray sandstone identical to the overlying Keefer and the underlying Tuscarora, very resistant to weathering, makes ledges. Shale, green, yellowish-brown, and dusky-red, commonly contains limonitic lenses from the weathering of thin limestone beds; fossiliferous; thickness: 300 to 500 feet.
	Stu Tuscarora Formation Sandstone and quartzite. Sandstone, light-gray, weathers rusty brown, fine- to coarse-grained, commonly conglomeratic, clasts 0.25 to 0.5 inch, thin- to thick-bedded, cross laminated, quartz cement, matrix less than 1% Quartzite, light-gray, fine- to medium-grained, cemented by overgrowths, thick-bedded. Thin, red, green, or purple shale near base and top of unit. Sandstone generally overlain by quartzite. Contacts gradational, basal contact mapped at the base of the oldest thick sandstone bed, upper contact mapped at the first thick shale sequence overlying a thick quartzite. Thickness: 75 to 125 feet.

ORDOVICIAN	Oj Juniata Formation Sandstone, dusky-red, fine- to medium-grained, cross laminated, in part feldspathic. Sandstone, light-gray to white, fine- to medium-grained, thick-bedded, cross laminated, base often contains red shale clasts. Shale and mudstone, dusky-red, weathers lumpy. Thickness: 250 to 300 feet.
	Ord Reedsville Shale and Dolly Ridge Formation, undivided Reedsville Shale: Upper 50 to 100 feet: brown, medium- to coarse-grained sandstone, fossiliferous. Lower 300 to 400 feet: calcareous, gray shale and mudstone with interbedded lenticular fossiliferous limestone. Dolly Ridge Formation: Upper 300+ feet: interbedded argillaceous limestone and dark-gray shale, K-bentonites present, fossiliferous. Lower 100 feet: interbedded argillaceous limestone and olive-gray claystone (Eggleston Limestone of previous reports).
	Os Ordovician limestones, undivided Limestone, light- to dark-gray, very-fine- to coarse-grained, locally with black chert nodules and thin beds, several K-bentonites, fossiliferous, lower 100 to 150 feet dolostone or dolomitic limestone with thin ash gray shale beds, black and gray chert nodules. Thickness: ranges from 500 to 800 feet.
unconformity	
Ob Beekmantown Formation Dolostone, medium- to light gray, weathers very-light-gray, fine-grained, medium- to thick-bedded, weathered surfaces exhibit a "butcher-block" structure, sparse fossils; limestone, medium-gray, fine-grained, fossiliferous, light- to medium-gray, fine-grained, laminated dolomitic limestone and dolostone with mottled beds; lenses of gray chert common; upper contact unconformable; lower contact not exposed in this area.	

KEY	
CONTACTS	Exposed, approximate, or inferred
FAULTS	Exposed or approximate; tick mark indicates dip direction.
ATTITUDE OF ROCKS	
	Strike and dip of inclined bedding
	Strike and dip of overturned bedding

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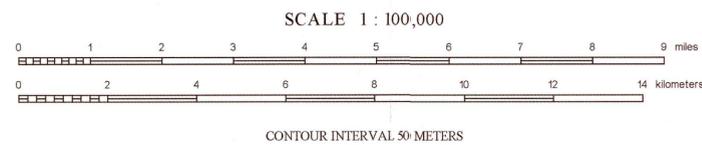
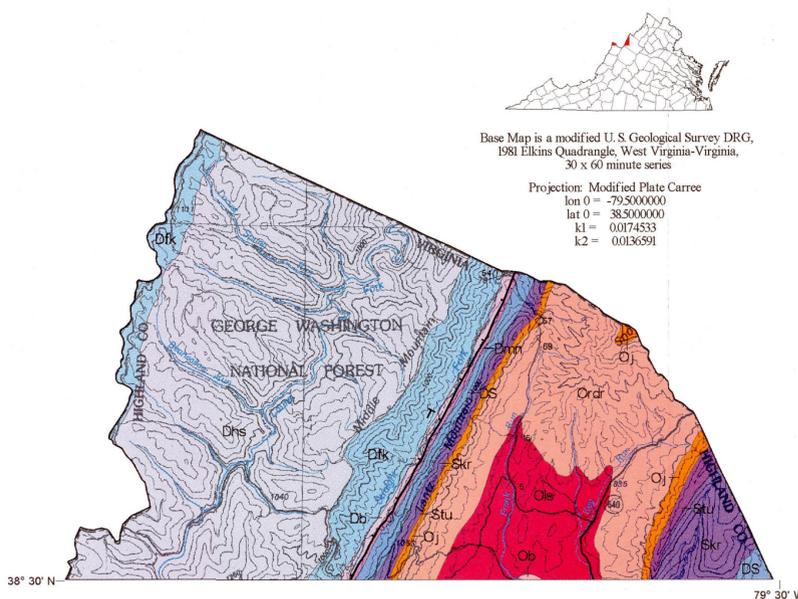
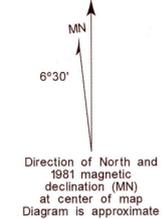
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Rader, E. K., and Wilkes, G. P., 2000, Geologic map of the Virginia portion of the Elkins 30 x 60 minute quadrangle: Virginia Division of Mineral Resources Publication 155.

This map was compiled digitally and the geospatially referenced files are available from the Division of Mineral Resources, P. O. Box 3667, Charlottesville, VA 22903.

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