

CORRELATION OF MAP UNITS

PLUTONIC ROCKS	
K.J.	Cretaceous or Jurassic
Dkarn	Late Devonian
Dkarn	Early Devonian
METASEDIMENTARY ROCKS	
Sm	Silurian (Pridolian?)
Saf	Silurian (Ludlovian)
Sp	Silurian (Wenlockian)
Sru	Silurian (Llandoveryan)
Srt	Silurian (Llandoveryan)

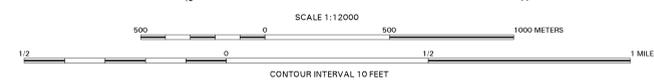
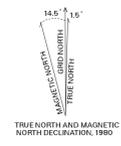
DESCRIPTION OF MAP UNITS

- Dike (Cretaceous or Jurassic)** Light greenish gray to dark bluish gray, commonly easily weathering diabase. Aphanitic or porphyritic with an aphanitic groundmass. Most commonly massive; locally contains some greenish white euhedral plagioclase phenocrysts as much as several millimeters in length; also contains pyrite and magnetite. Vesicular or amygdaloidal, with vesicles lined with chlorite, druse carbonatic, or clay. Occurs as dikes and composite dikes, which both crosscut and conform to foliation. (190-95 MY)
- Concord Granite, New Hampshire Plutonic Series (Late Devonian)** Gray, equigranular two mica granite, locally grading to tonalite; part of the regional Concord Intrusive Suite. Medium grained, light gray, hypidionorphic; contains muscovite, biotite, and sparse purple red garnet. X ray modal analysis shows sample collected on 19 roadcut is tonalitic; that is, it contains little or no orthoclase feldspar; feldspar present is plagioclase. Contains xenoliths, some partially absorbed; of schist as much as 10 m across. Intrudes as fingers and dikes crosscutting and opening foliation in lower and upper members of Rangley Formation and in the Perry Mountain Formation. Very thin dikes and fingers often exhibit pyramidal folding. (370-365 MY)
- Kinsman Granodiorite, New Hampshire Plutonic Suite (Early Devonian)** Foliated granite, granodiorite, tonalite, and minor quartz diorite that contains large megacrysts of potash feldspar. Large garnets locally abundant. Intrudes as fingers and dikes crosscutting and opening foliation in upper member of Rangley Formation. (414-410 MY)
- Madrid Formation (Silurian, Pridolian?)** Massive to foliated purple biotite, white plagioclase, quartz, granofels that contain layers and lenses of calc silicate rock. Basal unit light to dark green, well bedded, calc silicate granite with abundant actinolite. Grains into a thick bedded, massive, plagioclase quartz biotite granofels. (419-417 MY)
- Swan Falls Formation (Silurian, Ludlovian)** Red brown to brown black, well bedded, rusty weathering, sulfidic, commonly graphitic, shaly quartzite, mica schist, and calc silicate granofels. (423-419 MY)
- Perry Mountain Formation (Silurian, Wenlockian?)** Sharply interbedded quartzite and light gray nongraphitic metapelite also contains "fat grained" metarhyolites. Biotite rich, poorly foliated. Commonly large quartz rich layers metamorphosed to quartzite; porphyroblasts of white transparent sillimanite crystals as much as 3 cm in diameter. Original sedimentary bedding often visible. (428-423 MY)
- Upper member of Rangley Formation (Silurian, Llandoveryan)** Rusty weathering pelitic schist, meta sandstone, and local girt, calc silicate pods common. Minor calc silicate laminae of garnets and quartz. Locally intruded by granite, pegmatite, and diabase. (4437-428? MY)
- Lower member of Rangley Formation (Silurian, Llandoveryan)** Medium to coarse grained, thinly laminated (5-25 mm), nonrusty weathering, black and white pelitic schist. Contains feldspar, quartz, biotite, muscovite, and sillimanite; calc silicate pods are rare. Contains local lenses of turbidite and thin quartz conglomerate beds. Contains quartz boudins, clots of fine grained garnet, and thin calc silicate laminae of garnets and quartz; locally sulfidic. Foliation is strong, corrugated, planar, and locally folded. Locally intruded by granite, pegmatite, and diabase. (4437-428 MY)

SYMBOLS

- Water bodies
- Stream
- Road or trail
- Major grid cell
- Contact—Dashed where inferred
- Hubbard Brook Experimental Forest boundary
- White Mountain National Forest boundary
- Subwatershed boundary
- Fault Zone
- Mylonite Zones of intense ductile deformation and mineral stretching, as much as 25 m wide, found in Kinsman granodiorite only. Fluffy and heavily weathered with intense development of pale yellow iron oxide on outcrop surfaces. Commonly pale light green due to chlorite, but occasionally black and fine grained. Slickensides and fault gouge common, indicating brittle stage of deformation or reactivation
- Watershed number
- Weir
- Rain gage
- Rain gage number
- Building
- Bedrock station Color indicates rock type. Symbol size larger than actual outcrop
- Drill hole Color indicates rock type intersected by drill hole at top of bedrock. Symbol size larger than actual drill hole
- Strike and dip of foliation
- Strike of vertical foliation
- Bearing of glacial striation
- Survey point (permanent marker) Latitude: 43 degrees, 56 minutes, 57.7911 seconds. Longitude: 71 degrees, 42 minutes, 05.7012 seconds. Elevation: 833.87 feet. North American Datum of 1927

Base from unpublished U.S. Forest Service map, 1956.
 Base map digitized by Cornell Laboratory for Environmental
 Applications of Remote Sensing (CLEAR), Center for the
 Environment, Cornell University.
 Topography by photogrammetric methods from aerial photographs
 taken 1956. Topographic contours in northeastern part of
 Mirror Lake watershed are interpolated from U.S. Geological
 Survey Woodstock quadrangle, New Hampshire, 7.5 minute series
 topographic map, 1950
 Universal Transverse Mercator projection, zone 19
 500-meter Hubbard Brook Major Reference Grid, (Universal
 Transverse Mercator, zone 19)
 1927 North American Datum



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 S.W. Bailey, August 1994 to August 1995
 Digital map prepared by Larry Reeder
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 and John Lyons (Dartmouth College) for sharing
 their knowledge of the bedrock geology of the
 study area.
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BEDROCK GEOLOGIC MAP OF HUBBARD BROOK EXPERIMENTAL FOREST

By Christopher C. Barton, Rion H. Camerlo, and Scott W. Bailey

BEDROCK GEOLOGIC MAP OF HUBBARD BROOK EXPERIMENTAL FOREST AND MAPS OF FRACTURES AND GEOLOGY IN ROADCUTS ALONG INTERSTATE 93, GRAFTON COUNTY, NEW HAMPSHIRE