

Description of Map Units

Cretaceous
 + Lamprophyre; black, rusty-weathering, granular, unfoliated, mafic dikes.

Devonian
 Dg light gray medium-coarse-grained quartz-plagioclase-muscovite granite.

Silurian and Devonian
 Northfield Formation
 Dsn silvery dark gray to black phyllites and slates with 1-2 mm pyrites visible on foliation planes, locally interlayered with massive brown calcareous dirty marble layers and gray quartzite layers.

Silurian
 Shaw Mountain Formation
 Sm cream colored, soft, thinly foliated meta-limestones interlayered with gray phyllites.

Ordovician
 Cram Hill Formation
 Ocr rusty-weathering, silvery gray to black, pyritiferous and often graphitic phyllites and phyllitic granofels greywackes. Massive weakly-foliated, granular metabasitic dikes and sills of the Mt. Norris Intrusive Suite (MNIS) (Kim et al., 2003) occur locally; these intrusions have chilled margins and plagioclase phenocrysts.
 Ocr2 green calcareous greenstone (metavolcanic) that becomes more massive and granular along-strike to the north.
 Ocr3 rusty-weathering, light gray, sulfidic, fine-grained, flaky granofels metasilstone.
 Ocr4 same as Ocr, but has numerous horizons of massive dark gray phyllitic amphibolite.
 Ocr5 interlayered light green granofels and grayish-green phyllites.

Cambrian and Ordovician
 Moretown Formation - Bayley-Hazen Member
 COmb3 soft, finely foliated, grayish-green phyllite with conspicuous layers of rusty weathering, pearly white granofels. Interlayered with Umbrella Hill Conglomerate (COhb1)
 COhb2 rusty-weathering dark gray to black graphitic phyllite. Interlayered with Umbrella Hill Conglomerate (COhb1)
 COhb1 Umbrella Hill Conglomerate; silvery-gray phyllitic conglomerate composed of pebbles and cobbles of coarse- to crystalline vein quartz, pink to red slate, tan granofels, black phyllite, and amphibolite. Unventilated chloritoid found in pelitic clasts and phyllitic matrix. Top of this unit (east) is interlayered with COhb2 and COhb3.
 COmw Western Moretown member; light gray fine-grained granofels metasilstone, gray and tan quartzites, gray and black slates, with massive, gray, granular metabasitic dikes of the Mt. Norris Intrusive Suite (MNIS) (Kim et al., 2003); these intrusions have chilled margins and plagioclase phenocrysts.
 Moretown Formation - Wild Branch Member
 COmbl grayish-green phyllites interlayered with massive light green quartzo-feldspathic phyllitic granofels; spaced cleavage gives the granofels a pin-striped appearance; greenstones are common and may have compositions intermediate between greenstone and feldspathic phyllitic granofels. Massive, gray, granular metabasitic dikes of the Mt. Norris Intrusive Suite (MNIS) (Kim et al., 2003) occur locally; these dikes and sills have chilled margins and plagioclase phenocrysts. Massive well foliated greenstone.
 COmw2 rusty-weathering dark gray to black graphitic phyllite.
 COmw3 rusty-weathering dark gray to black graphitic phyllite.

Cambrian
 Ottauquechee Formation
 Cobp rusty-weathering gray to black phyllite that is usually graphitic and pyritiferous; isoclinally folded and transposed quartz veins are abundant.
 Cogg massive well foliated greenstone with anomalously high quartz content; may have a volcanoclastic origin.
 Cogg2 silvery grayish green phyllitic meta-greywacke with conspicuous smoky gray sub-rounded quartz pebbles; frequently rusty-weathering and interlayered with grayish green and black phyllites.

Late Proterozoic-Ordovician
 Ozn massive serpentinized ultramafic; margins may consist of strongly foliated talc carbonate or "blackwall" which is composed of chlorite, serpentine, and magnetite.

Late Proterozoic and Cambrian
 Stowe Formation
 CZsmn grayish-green phyllites with abundant isoclinally folded and transposed quartz veins; massive, gray, granular metabasitic dikes and sills of the Mt. Norris Intrusive Suite (MNIS) (Kim et al., 2003) occur throughout; these intrusions have chilled margins and plagioclase phenocrysts.
 CZsbg rusty-weathering gray to black phyllite that is usually graphitic and pyritiferous; isoclinally folded and transposed quartz veins are abundant.
 CZsg massive well foliated bodies of dark green greenstone; rusty Fe carbonate spots often give this unit a punky appearance; locally interlayered with grayish-green or black phyllites.
 CZslm1 grayish-green phyllites that are interlayered with rusty-weathering black phyllites; this interlayering can occur within a single outcrop or within a series of closely spaced outcrops and is too fine to portray on this map; isoclinally folded and transposed quartz veins are abundant; thin greenstones occur locally.
 CZslm2 same as CZslm1 except for the presence of massive, gray, granular metabasitic dikes and sills of the Mt. Norris Intrusive Suite (MNIS) (Kim et al., 2003); these intrusions have chilled margins and plagioclase phenocrysts.
 CZslg tan-weathering gray phyllitic granofels that have a granular appearance due to the high quartz content.

Hazens Notch Formation
 COgast silvery grayish-green albite porphyroblast schist interlayered with thin greenstones along the Burgess Branch Fault Zone.
 CZhn rusty-weathering, gray to black, graphitic and pyritiferous schist with white and black albite porphyroblasts; locally interlayered with gray and black laminated quartzites.

Explanation of Map Symbols

Location of Outcrops

45 Strike and dip of dominant/earlier foliation

52 Strike and dip of Second Foliation/Crenulation Cleavage

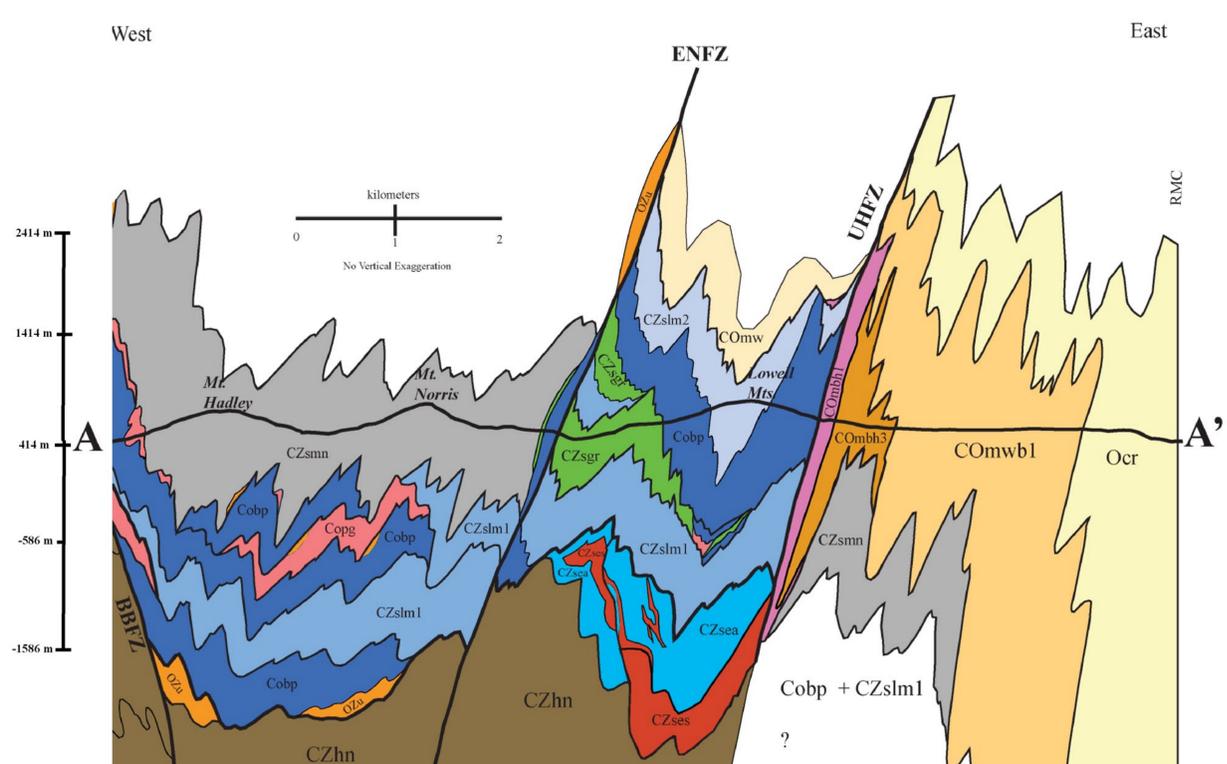
61 Strike and dip of axial surface of fold

Trend and plunge of fold axis

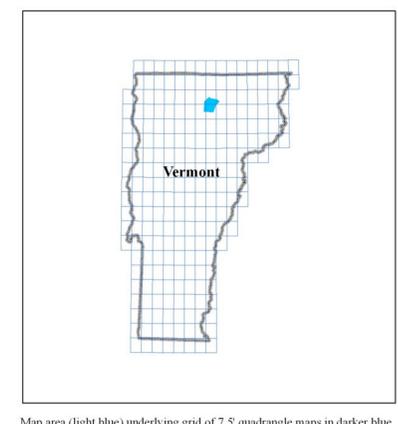
Trend and plunge of mineral lineation (quartz rods)

Trend and plunge of intersection lineation

Bedrock Geologic Map of Parts of the Eden, Albany, Lowell, Irasburg, and Hazens Notch Quadrangles, Vermont
 2009
 Author: Jonathan Kim



Cross section modified from Kim et al., (1999). BBFZ = Burgess Branch Fault Zone, ENFZ = Eden Notch Fault Zone, UHFZ = Umbrella Hill Fault Zone, RMC = Richardson Memorial Contact (Ordovician-Silurian unconformity and Acadian (Devonian) fault), CZsea (Elmore Amphibolite) and CZses (Elmore Schist) are part of the Worcester Complex (Kim et al., 1999,2003) and were projected in from the south.



References:
 Kim, J., 1997. Bedrock Geology of Parts of the Hazens Notch, Lowell, Irasburg, Eden, and Albany 7.5' Quadrangles: Northern Vermont. Vermont Geological Survey Open File Map VG97-5, scale 1: 24,000, 3 plates.
 Kim, J., Gale, M.H., Laird, J., and Stanley, R.S., 1999. Lamoille River Bedrock Transect #2, in S.F. Wright, editor. Guidebook to Field Trips in Vermont and Adjacent Regions of New Hampshire and New York. New England Intercollegiate Geological Conference, p. 213-250.
 Kim, J., Coish, R., Evans, M., and Dick, G., 2003. Supra-subduction zone extensional magmatism in Vermont and adjacent Quebec: Implications for early Paleozoic Appalachian tectonics. Geological Society of America Bulletin, v. 115, #12, p. 1552-1569.