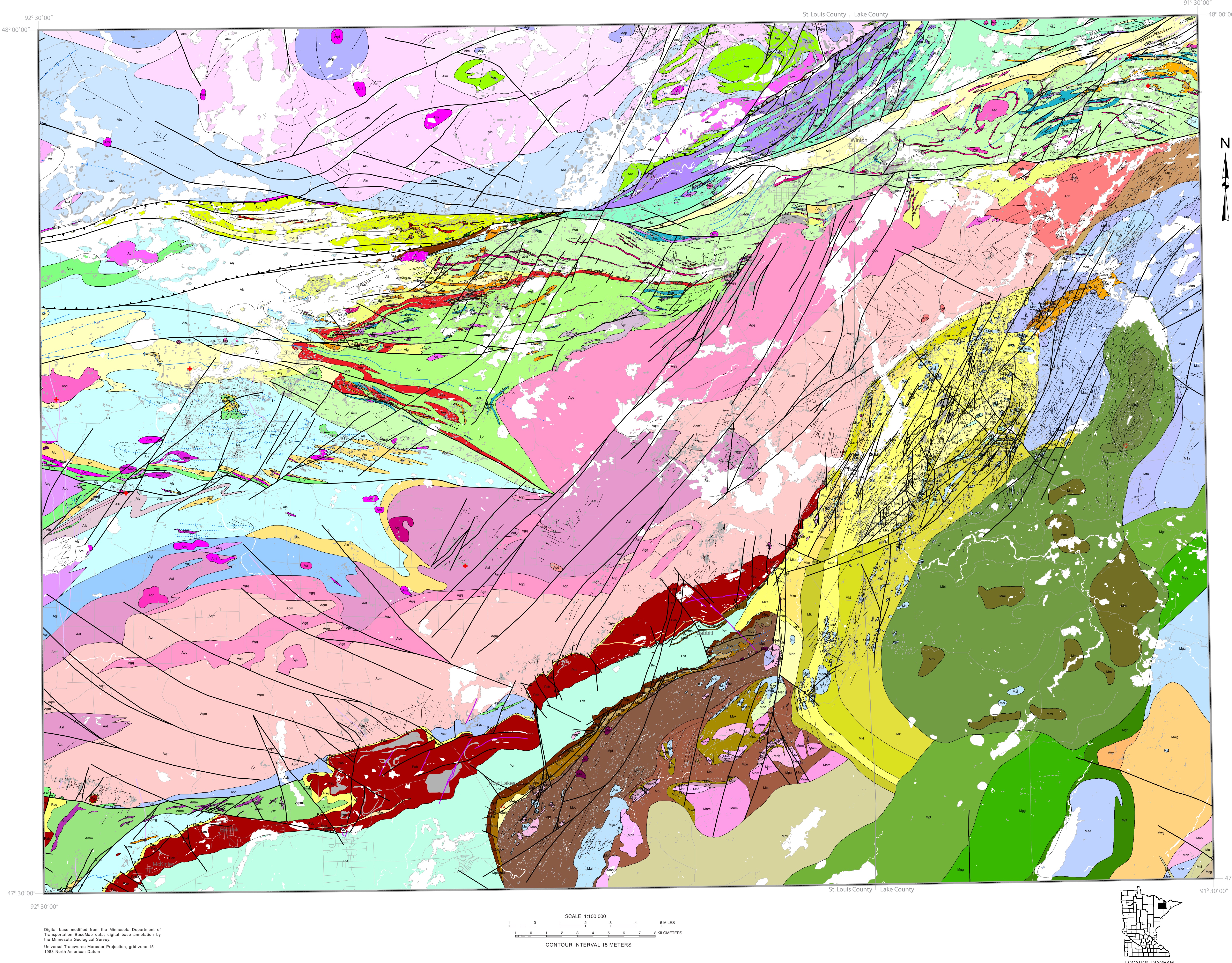


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MAP UNITS

Table listing map units with color swatches, including units like Mcl, Mgc, Mul, Mmd, Mms, etc.

MAP SYMBOLS

- Contacts and faults: bndry, contact, fault, thrust fault
- Line symbols: Dikes (Mmd, mafic dike; Mms, mafic sill; Pd, mafic dike, Kenora-Kabetogama swarm)
- Foliations, inferred: bedding trace, lidar foliation
- Fractures, inferred: lidar fracture, magnetic anomaly
- Axial surface trace of folds: F1 anticline, F1 syncline, F2 anticline, F2 syncline, F3 anticline, F3 syncline, anticline, anticline, overturned, syncline, syncline, overturned

Age Dates

- 2016 Age Dates: Outcrop symbol
- Published Age Dates: Outcrop symbol

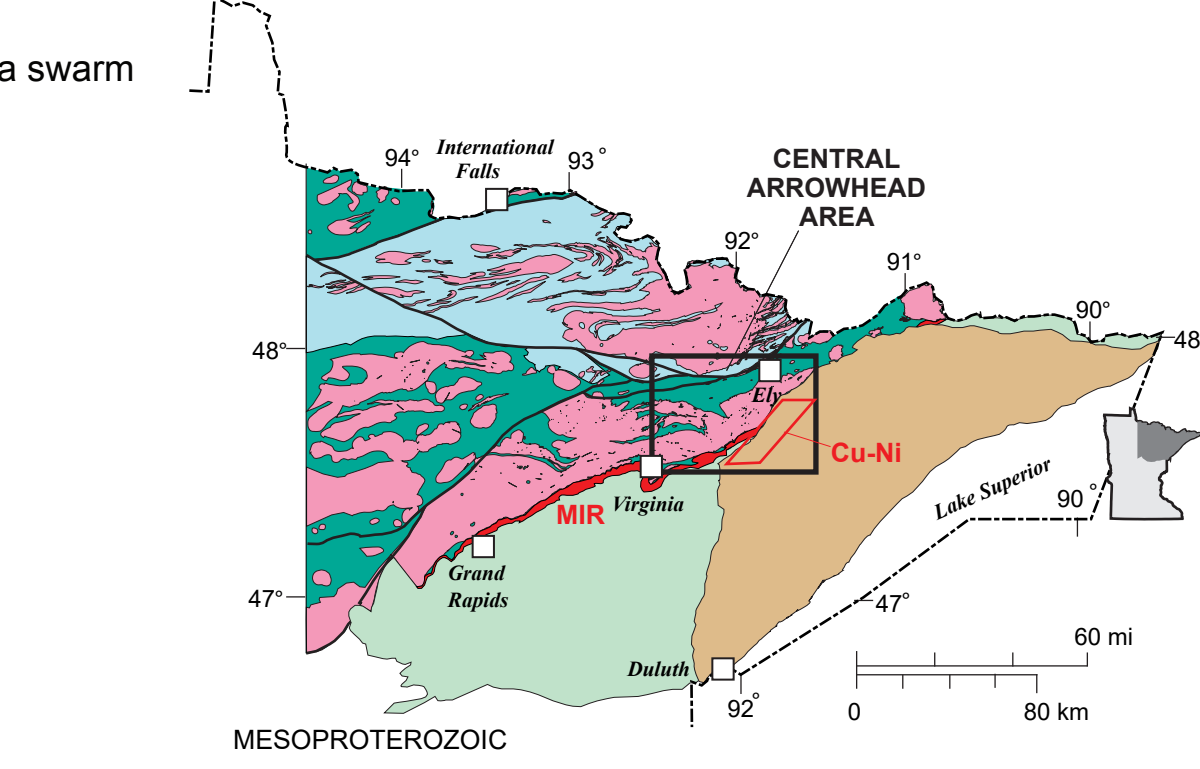


Figure 1. Generalized bedrock geology of northeastern Minnesota showing the location of the Central Arrowhead map area. Red lettering denotes Meabi Iron Range (MIR) and the primary copper-nickel exploration district (Cu-Ni).

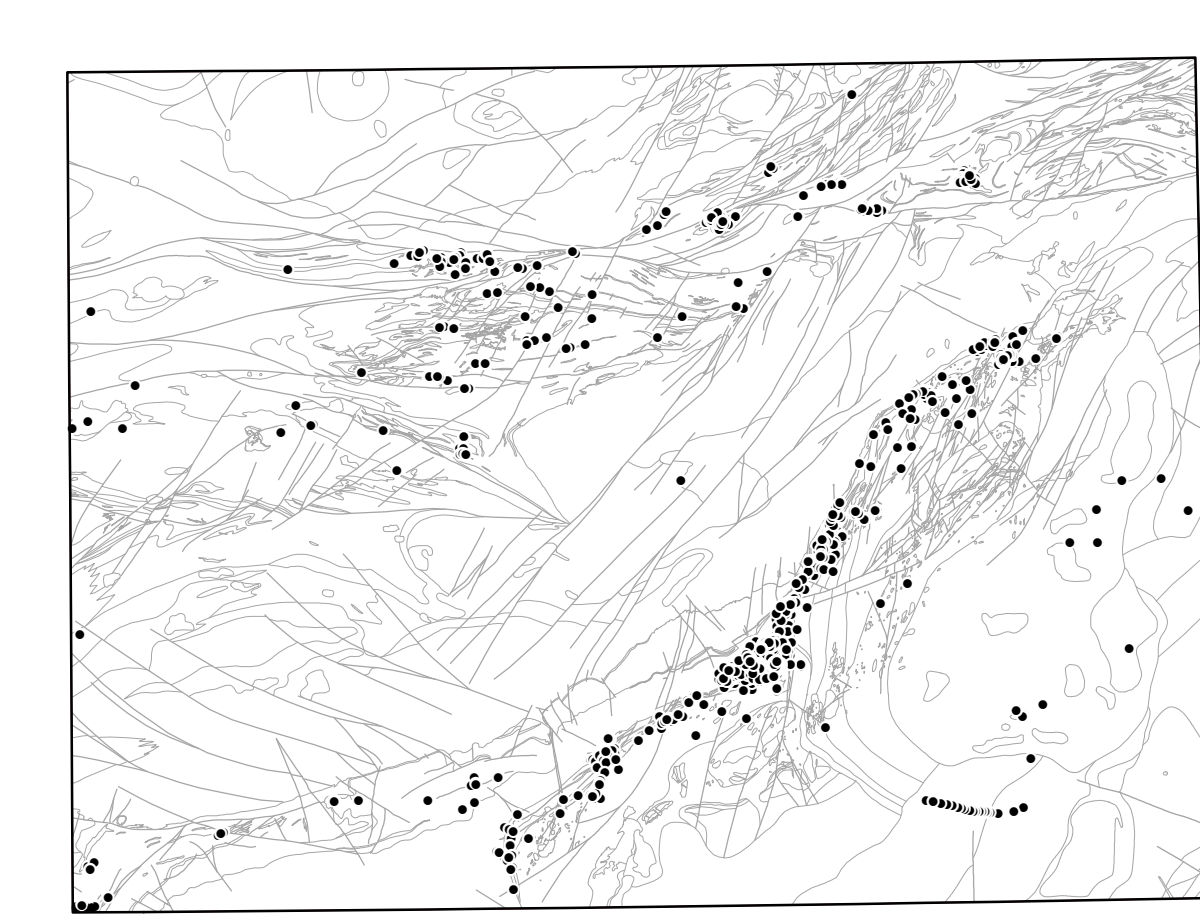


Figure 2. Drill hole locations relative to the mapped bedrock geology.

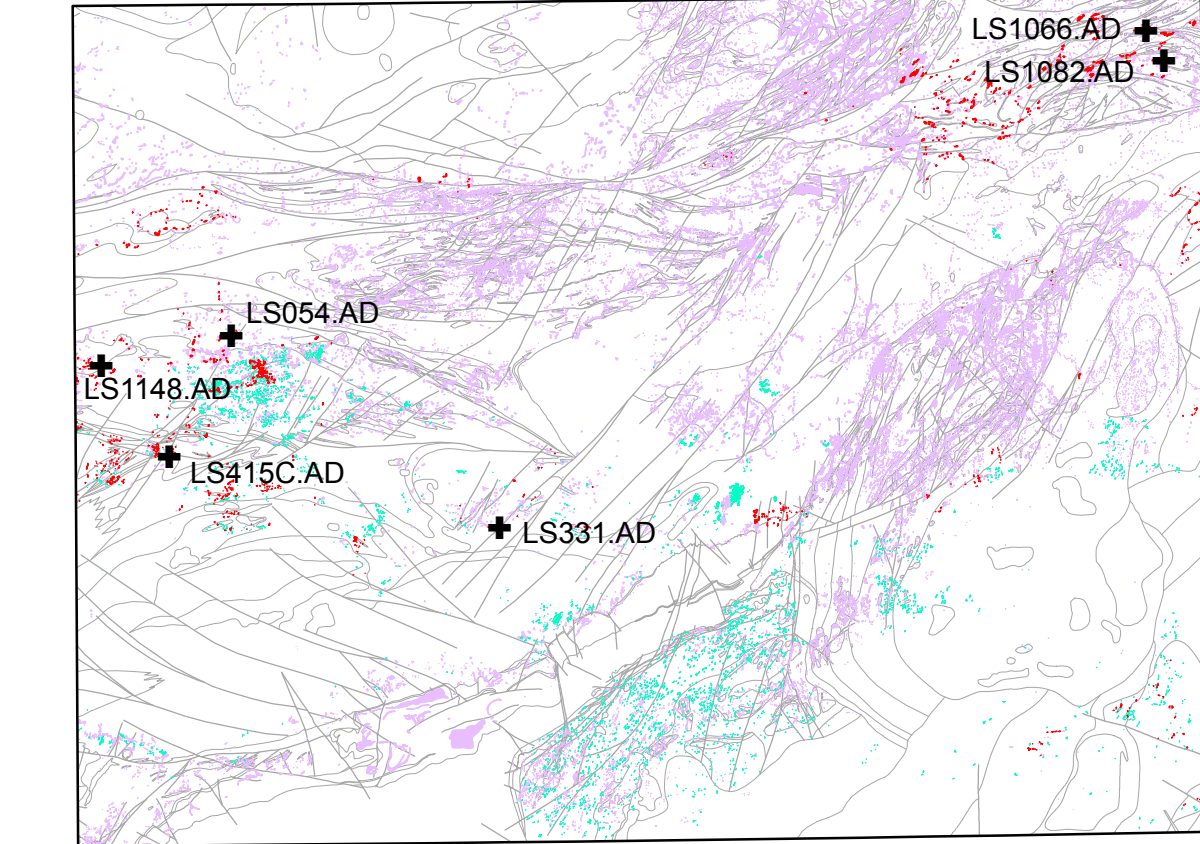


Figure 3. Outcrop history and locations relative to the mapped bedrock geology.

DESCRIPTION OF MAP UNITS
MESOPROTEROZOIC
BEAVER BAY COMPLEX
Cluquet Lake Layered Series
Mcl Olivine gabbro
Mgl Gabbro to diorite
DULUTH COMPLEX
Miscellaneous intrusions
Mli Oxide-rich ultramafic to mafic intrusions within the Partridge River intrusion
Mms Miscellaneous fine to med-grained mafic dikes
Mas Miscellaneous fine to med-grained mafic sills & dikes
Mau Aurora sill-syenite to monzonite
Mog Oxide-olivine gabbro sill
Layered Series
Bald Eagle intrusion: fan-shaped, concentric, zoned troctolite to gabbro layered intrusion containing magnetite inclusions of troctolite composition
Mkt Troctolitic rocks
Mkg Gabbroic rocks
Mmi Miscellaneous magnetic inclusions in the Bald Eagle intrusion, possibly basaltic hornfels or gabbroic rocks of the anorthositic series
Greenwood Lake intrusion: poorly exposed, well-differentiated troctolite to gabbro layered intrusion with the stratigraphy understood primarily from drill core
Mkf Ferrogabbroic rocks
Zancara intrusion: incompletely mapped troctolite to gabbroic intrusion at the base of the Duluth Complex
Mkl Troctolitic rocks
Mkg Gabbroic rocks
Mmi Miscellaneous magnetic inclusions in the Bald Eagle intrusion, possibly basaltic hornfels or gabbroic rocks of the anorthositic series
Greenwood Lake intrusion: poorly exposed, well-differentiated troctolite to gabbro layered intrusion with the stratigraphy understood primarily from drill core
Mkl Troctolitic rocks
Mkg Gabbroic rocks
Mmi Miscellaneous magnetic inclusions in the Bald Eagle intrusion, possibly basaltic hornfels or gabbroic rocks of the anorthositic series

NEARCHAEAN
Kenora-Kabetogama dike swarm
Pgd Diabasic to gabbroic dike; typically less than 100 m wide
NEOARCHAIC
Aaz Shear zone-phyllite to blazonite/ironic, variated protomylonite, typically altered
Mkn Layered troctolite to melanocratic
Partridge River intrusion: poorly to well-exposed troctolite cumulate hosting several Cu-Ni sulfide deposits along its basal contact
Mpv Poorly exposed eastern zone of heterogeneous troctolite intrusions, anorthositic series rocks, and inclusions of volcanic rock from the North Shore Volcanic Group
Mbs Sulfide-bearing troctolite
Mbl Poorly exposed eastern zone of heterogeneous troctolite rocks of uncertain origin, likely part of either the Partridge River or South Kawishiwi intrusions
Mpx Oxide-olivine anorthositic gabbro/oxide-olivine anorthositic troctolite associated with volcanic hornfels inclusions in the Partridge River intrusion
Mpy Oxide-olivine anorthositic gabbro/oxide-olivine anorthositic troctolite zone
Mqt Troctolite cumulates
Mqz Polylithic anorthositic troctolite cumulates
Mpm Metasiltstone to argillite troctolite cumulates
Mpn Sulfide-bearing, layered troctolite cumulates
Mgq Heterogeneous troctolite and gabbro, locally sulfide bearing, forming the contact zone of the Partridge River intrusion
Mgp Parve Lake tonalite
Mgt Britt granodiorite
Mgm Mafic intrusions, undifferentiated; varied timing of emplacement
Mgs Layered tonalite and amphibolite gneiss
Maa Anorthositic rocks, undivided
Mao Olivine-bearing anorthositic gabbro to olivine gabbroic anorthositic rocks
Man Noritic rocks
Mni Anorthositic xenoliths included in Layered Series intrusions
Mlc Felicitic Series
Mwq Microphyllite to intergranular granophyre of the Mt. Weber intrusion
Maw Locally perphyritic granophyre gabbro to ferromonzonite interpreted to be a border phase of the Mt. Weber granophyre
Mki Anorthositic troctolite to troctolite cumulate
Mmi Angite-bearing troctolite cumulate, undivided
Mka Upper angle-bearing troctolite cumulate
Mkb Lower angle-bearing troctolite cumulate
Mkc Upper angle troctolite cumulate
Mmp Polylithic anorthositic troctolite inclusions in the South Kawishiwi intrusion
Mkr Troctolite cumulate
Mko Oxide-olivine gabbro to argillite troctolite cumulate
Mkd Lower angle troctolite cumulate
Mkz Heterogeneous troctolite rocks, locally sulfide bearing, forming the contact zone of the South Kawishiwi intrusion
PALEOPROTEROZOIC
ANIMKIE GROUP
Pvt Virginia and Thomson Formations slate and graywacke
Pab Bivalvite Iron Formation
Psg Pokagama Quartzite

CORRELATION OF MAP UNITS

