



Legend

Paleoproterozoic

Late intrusive suite

9 Two-mica granite, quartz-feldspar porphyry and pegmatite/aplite

Post-Sickle intrusive suite

8 Granodiorite and granite (1857 ± 2 Ma⁽¹⁾)

Zed Lake group

7 Sedimentary rocks: greywacke (ca. 1860 Ma⁽²⁾), siltstone and paragneiss

7a Greywacke and siltstone

7b Paragneiss

Ralph Lake group

6 Sedimentary rocks: conglomerate (ca. 1860 Ma⁽²⁾) and greywacke

6a Greywacke and mafic siltstone

6b Polymictic conglomerate and minor mafic siltstone

Pre-Sickle intrusive rocks

5 Gabbroic rocks, quartz diorite, granodiorite, granite (1891 ± 1 Ma to ~1870 Ma^(1,3,4)) and associated pegmatitic and aplitic dikes

4 Gabbro

Wasekwan group

3 Sedimentary rocks intercalated with minor volcanic sedimentary rocks

3a Argillite, siltstone and greywacke

3b Mafic to intermediate tuffaceous sandstone to tuff

3c Volcanic mudstone, siltstone, volcanic sandstone and minor volcanic conglomerate

2 Mafic to andesitic volcanic rocks and synvolcanic intrusive rocks

2a Diabase and gabbro

2b Porphyritic basaltic andesite

2c Plagioclase-phyric basalt and aphyric basalt

2d Pillow basalt

1 Volcaniclastic rocks with minor volcanic rocks and volcanic sedimentary rocks

1a Felsic to intermediate volcanic and volcaniclastic rocks

1b Intermediate lapillistone, lapilli tuff and tuff

1c Mafic lapillistone, mafic lapilli tuff, tuff, minor mafic mudstone and derivative garnet-biotite schist

1d Mafic tuff breccia and volcanic breccia

⁽¹⁾ Beaumont-Smith et al., 2006; ⁽²⁾ Lawley et al., 2020; ⁽³⁾ Baldwin et al., 1987; ⁽⁴⁾ Turek et al., 2000

Note: prefix 'meta-' is omitted in sedimentary rocks for brevity (e.g., meta-greywacke simply as greywacke).

Geological symbols

- Bedding: facing unknown, facing known, overturned
- Fold axial plane, unknown generation
- Fold axis, symmetric, unknown generation
- Fold hinge, S-crenulation
- Fault plane: unknown sense, normal
- Foliation, schistosity: unknown generation, generation 1, 2, 3, 4
- Fracture, joint
- Gneissosity: unknown generation, generation 2, 3
- Intersection lineation, generation 2
- Lineation, unknown generation
- Mineral lineation
- Pillow, facing unknown
- Spaced cleavage, generation 3
- Vein

Boundaries

- Fault
- Contact, approximate
- Contact, underwater
- Mapping limits
- Major road
- Outcrop
- Trail

Fault/Shear zones

- BMF** Betty Lake-Margaret Lake fault
- RLFZ** Ralph Lake fault zone
- RLSZ** Ralph Lake shear zone

Mineral occurrences (Baldwin, 1989)

Preliminary Map PMAP2021-2

Bedrock geology of the Ralph Lake area, Lynn Lake greenstone belt, northwestern Manitoba (parts of NTS 64C14)

Geology by X.M. Yang (and partly using data from Gilbert et al., 1980 and Zwanzig et al., 1999)

Cartography/GIS by H.O. Adediran

Suggested reference:

Yang, X.M. 2021: Bedrock geology of the Ralph Lake area, Lynn Lake greenstone belt, northwestern Manitoba (parts of NTS 64C14); Manitoba Agriculture and Resource Development, Manitoba Geological Survey, Preliminary Map PMAP2021-2, scale 1:10 000.

This map is a provisional summary of work carried out during the summer field season and is produced directly from the geologist's manuscript. It is not to be regarded as a final interpretation of the geology of the area.

References:

Baldwin, D.A. 1989: Mineral deposits and occurrences in the Lynn Lake area, NTS 64C14; Manitoba Energy and Mines, Geological Services, Mineral Deposit Series Report No. 6, 130 p., URL <https://www.manitoba.ca/lem/info/libmin/MS6.zip> [October 2021].

Baldwin, D.A., Syme, E.C., Zwanzig, H.V., Gordon, T.M., Hunt, P.A. and Stevens, R.P. 1987: U-Pb zircon ages from the Lynn Lake and Rusty Lake metavolcanic belts, Manitoba: two ages of Proterozoic magmatism; Canadian Journal of Earth Sciences, v. 24, p. 1053-1063.

Beaumont-Smith, C.J., Machado, N. and Peck, D.C. 2006: New uranium-lead geochronology results from the Lynn Lake greenstone belt, Manitoba (NTS 64C11-16); Manitoba Science, Technology, Energy and Mines, Manitoba Geological Survey, Geoscientific Paper GP2006-1, 11 p., URL <https://www.manitoba.ca/lem/info/libmin/GP2006-1.pdf> [October 2021].

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V. 1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 118 p., URL <https://www.manitoba.ca/lem/info/libmin/GP80-1.zip> [October 2021].

Lawley, C.J.M., Yang, X.M., Selby, D., Davis, W., Zhang, S., Petts, D.C. and Jackson, S.E. 2020: Sedimentary basin controls on orogenic gold deposits: new constraints from U-Pb detrital zircon and Re-Os sulphide geochronology, Lynn Lake greenstone belt, Canada; Ore Geology Reviews, v. 126, art. 103790, URL <https://doi.org/10.1016/j.oregeorev.2020.103790>.

Turek, A., Woodhead, J. and Zwanzig, H.V. 2000: U-Pb age of the gabbro and other plutons at Lynn Lake (part of NTS 64C); in Report of Activities 2000, Manitoba Industry, Trade and Mines, Manitoba Geological Survey, p. 97-104, URL <https://www.manitoba.ca/lem/geo/field/roa00pdfs/00gs-18.pdf> [October 2021].

Zwanzig, H.V., Syme, E.C. and Gilbert, H.P. 1999: Updated trace element geochemistry of ca. 1.9 Ga metavolcanic rocks in the Paleoproterozoic Lynn Lake belt; Manitoba Industry, Trade and Mines, Geological Services, Open File Report OF99-13, 46 p., URL <https://www.manitoba.ca/lem/info/libmin/OF99-13.zip> [October 2021].

Published by:

Manitoba Agriculture and Resource Development, Manitoba Geological Survey, 2021

ISBN: 978-0-7711-1632-2

Copies of this map can be obtained from:
Manitoba Agriculture and Resource Development
Manitoba Geological Survey, Publication Sales
360-1395 Ellice Avenue
Winnipeg, MB R3G 3P2 Canada

Phone: 204-945-6569
Toll free: 1-800-223-5215
Email: minesinfo@gov.mb.ca
Available for free download at www.manitoba.ca/minerals

Location Map

