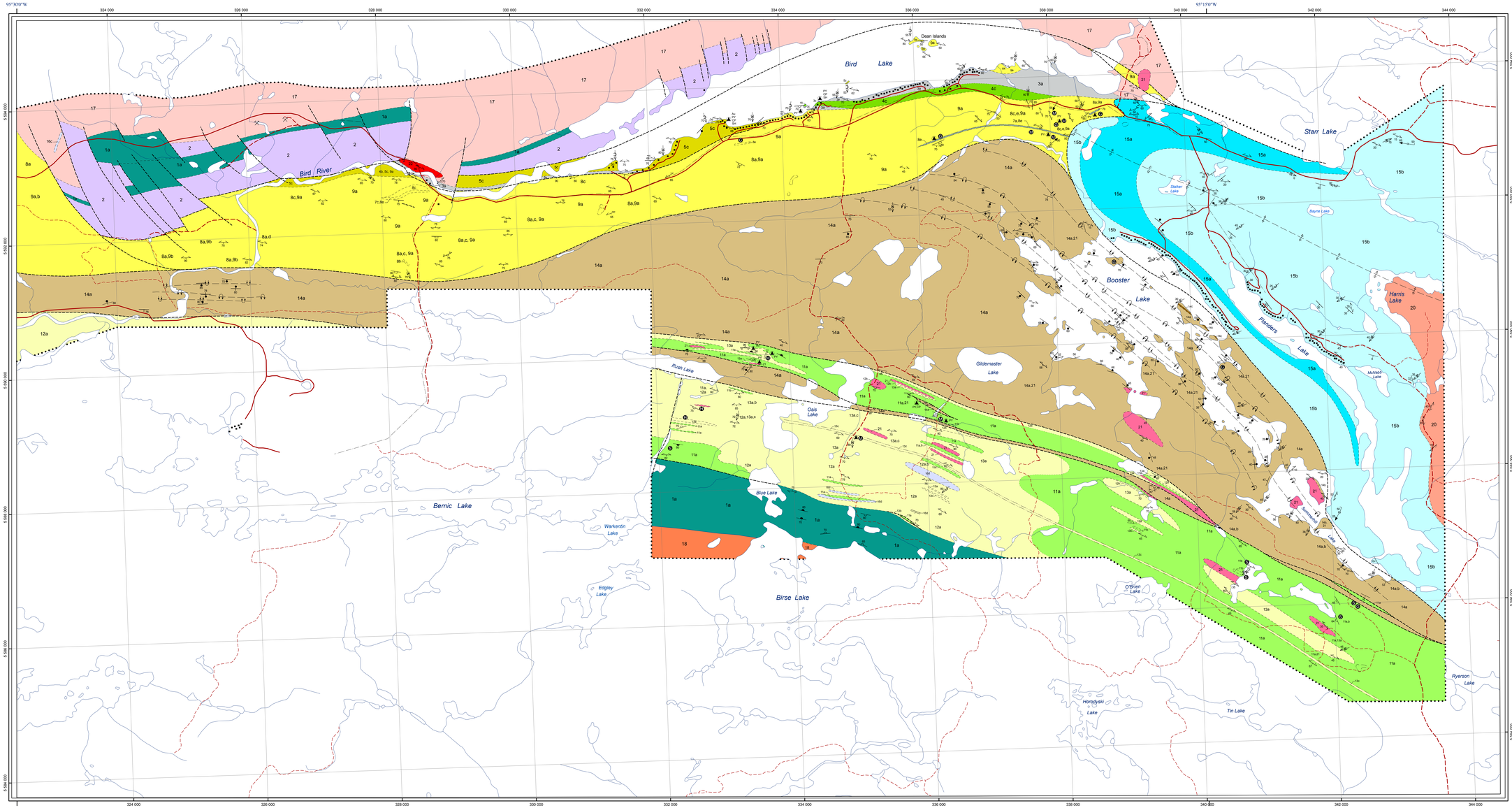
Preliminary Map PMAP2007-5

Geology of the east part of the Bird River area, southeastern Manitoba (part of NTS 52L6)



Map projection is Universal Transverse Mercator, zone 15, NAD83

Printed 2007

NEOARCHEAN

INTRUSIVE ROCKS

Granitoid rocks (<2725 Ma except unit 17, which includes some older rocks)

- 22 Quartz-plagioclase porphyry
- 21 Pegmatite, pegmatitic granite
- 20 Granite, granodiorite (Marijane Lake pluton, **2645.6 ±1.3 Ma**[1])
- 19 Granite, granodiorite (Lac du Bonnet Batholith, **2660 ±3 Ma**[2])
- 18 Tonalite, granodiorite (Birse Lake pluton, **2723.2 ±0.7 Ma**[3])
- 17 Quartz diorite, granodiorite, granite (Maskwa Lake Batholith **2725 ±6 Ma**[2]; **2830 ±1**[4] **Ma**, **2844 ±12 Ma**[5])

Mafic rocks (<2731 Ma except unit 16d, which includes synvolcanic intrusions)

- 16a Diabase, plagioclase-hornblende-phyric, quartz-amygdaloidal
- 16b Diabase, aphyric
- 16c Gabbro, mesocratic (sgarnet)
- 16d Gabbro, mesocratic to melanocratic (synvolcanic and intrusions of unknown age)

SEDIMENTARY ROCKS

Flanders Lake Formation (<2697 ±18 Ma[4])

- 15a Polymictic conglomerate
- 15b Arenite, feldspathic wacke

Booster Lake Formation (<2712 ±17 Ma[4])

- 14a Greywacke, siltstone, felsic wacke; minor argillite and cherty siltstone
- 14b Intermediate to felsic paragneiss
- 14c Volcanic-derived conglomerate

ARC-TYPE VOLCANIC AND SEDIMENTARY ROCKS

Bernic Lake Formation (2724.6 ±1.1 Ma[1])

FELSIC VOLCANIC ROCKS AND DERIVED GNEISS AND SCHIST

- 13a Dacite and rhyolite, aphyric to porphyritic; related breccia
- 13b Felsic gneiss
- 13c Altered felsic volcanic rocks (sslicification shomblende sgarnet)

INTERMEDIATE TO FELSIC VOLCANIC FRAGMENTAL ROCKS

- 12a Heterolithic volcanic breccia, lapilli tuff
- 12b Intermediate to felsic tuff, locally reworked

MAFIC TO INTERMEDIATE VOLCANIC ROCKS

- 11a Basalt and andesite, aphyric to sparsely plagioclase-phyric, locally pillowed; related amphibolite and gneiss (sgarnet)
- 11b Altered basalt, derived gneiss (ssilicification sepidote shomblende sgarnet)

SEDIMENTARY ROCKS

- 10a Carbonate-chert iron formation
- 10b Chert, siltstone, argillitic siltstone (sgarnet), svery fine grained amphibolite

Peterson Creek Formation (2731.1 ±1 Ma[1])

FELSIC VOLCANIC FLOWS AND RELATED INTRUSIVE ROCKS

- 9a Rhyolite, dacite, aphyric to sparsely plagioclasesquartz-phyric, massive to fragmental; related intrusive rocks
- 9b Rhyolite, dacite, quartz-plagioclase-phyric, massive to fragmental; related intrusive rocks
- 9c Rhyolite with spheroidal domains of uncertain origin

INTERMEDIATE TO FELSIC VOLCANIC FRAGMENTAL ROCKS

- 8a Heterolithic felsic lapilli crystal-tuff and volcanic breccia
- 8b Monolithic felsic lapilli tuff and volcanic breccia
- 8c Intermediate to felsic tuff, crystal tuff
- 8d Andesite-dacite, aphyric to sparsely plagioclase-phyric, locally pillowed; related breccia
- 8e Altered felsic volcanic rocks, silicified or with sedimentary detritus (zhomblende sgarnet scordierite)

SEDIMENTARY ROCKS

- 7a Oxide-facies iron formation
- 7b Sulphide-facies iron formation
- 7c Siltstone, cherty siltstone sconglomerate

Diverse arc assemblage

FELSIC VOLCANIC AND RELATED FRAGMENTAL ROCKS

- 6a Rhyolite, sparsely plagioclase-phyric, related fragmental rocks
- 6b Rhyolite, spherulitic
- 6c Felsic tuff and crystal tuff, locally reworked

INTERMEDIATE TO FELSIC VOLCANIC FRAGMENTAL ROCKS

- 5a Heterolithic intermediate volcanic breccia, matrix-supported, locally reworked
- 5b Heterolithic felsic volcanic breccia, clast-supported, locally reworked
- 5c Heterolithic intermediate volcanic breccia, clast-supported, locally reworked

MAFIC TO INTERMEDIATE VOLCANIC ROCKS

- 4a Andesite, aphyric, quartz-amygdaloidal, locally pillowed
- 4b Basalt, aphyric, locally pillowed; related gneiss
- 4c Basalt and andesite, aphyric to porphyritic, locally amygdaloidal and/or pillowed; locally altered (silicified/carbonatized/porphyroblastic sgarnet shomblende sbiotite)

SEDIMENTARY ROCKS

- 3a Greywacke, siltstone; minor felsic wacke and argillitic siltstone
- 3b Chert, siliceous siltstone
- 3c Oxide-facies iron formation
- 3d Arkeritic siltstone with chloritic schist laminae
- 3e Polymictic conglomerate (derived from units 1 to 6)

INTRUSIVE ROCKS

Bird River Sill (2745 ±5 Ma[3])

- 2 Dunite, peridotite, picrite, anorthosite and gabbro

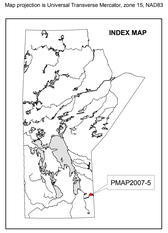
MORB-TYPE MAFIC VOLCANIC ROCKS

Lamprey Falls Formation

- 1a Basalt, locally pillowed
- 1b Basalt, pillowed and plagioclase-megaphyric

(1) M. Duguet and D.W. Davis, pers. comm., 2006.
(2) Wang, 1993.
(3) P. Kremer and D.W. Davis, pers. comm., 2006.
(4) Gilbert, 2006.

INDEX MAP



Symbols

Planar structures

- Bedding: tops unknown, upright, overturned
- Pillow: tops unknown, upright, overturned
- Foliation: generation unknown, 1st, 2nd
- Igneous layering
- Minor fold axial plane: generation unknown, 1st
- Shear zone
- Dike

Linear structures

- Fold axis, symmetrical: generation unknown, 1st
- Fold axis, generation unknown: asymmetrical S-shaped, Z-shaped
- L-fabric: mineral lineation
- L-fabric: clast elongation
- Axial trace of first generation anticline, overturned
- Axial trace of second generation anticline, upright
- Axial trace of first generation syncline, overturned

- Geological contact: approximate, assumed, inferred from aeromagnetic trends
- Limit of mapping
- Fault, inferred
- Maskwa-Dumbarton Mine, inactive

- Mineralization: Au Gold; PY Pyrite; CP Chalcopyrite; SH Sphalerite
- Gossan
- Silicic alteration
- Magnetic anomaly
- Chl-Hb alteration

- Provincial road
- Gravel road
- Track or trail
- Powerline

NOTES

1. Contacts of the Bird River Sill are based on Mealin (2006) and Černý et al. (1981).
2. The Eaglenest Lake Formation does not occur within the mapped area and is not included in this legend.

REFERENCES

Černý, P., Trueman, D.L., Ziehlke, D.V., Goad, B.E. and Paul, J. 1981: The Cat Lake–Winnipeg River and the Wekusko Lake pegmatite fields, Manitoba; Manitoba Energy and Mines, Mineral Resources Division, Economic Geology Report ER80-1, 215 p.

Gilbert, H.P., 2006: Geological investigations in the Bird River area, southeastern Manitoba (parts of NTS 52L5N and L6); *in* Report of Activities 2006, Manitoba Science, Technology, Energy and Mines, Manitoba Geological Survey, p. 184-205.

Mealin, C. 2006: Geology of the Bird River Sill, southeastern Manitoba (part of NTS 52L5); Manitoba Science, Technology, Energy and Mines, Manitoba Geological Survey, Preliminary Map PMAP2006-10 scale 1:10 000.

Wang, X. 1993: U-Pb zircon geochronology study of the Bird River greenstone belt, southeastern Manitoba; M.Sc. thesis, University of Windsor, Windsor, Ontario, 96 p.

Geology by:

H.P. Gilbert (2007)

Cartography by: Mark Timcoe and M.E. McFarlane

Published by:
Manitoba Science, Technology, Energy and Mines
Manitoba Geological Survey, 2007

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.

SUGGESTED REFERENCE

Gilbert, H.P. 2007: Geology of the east part of the Bird River area, southeastern Manitoba (part of NTS 52L6); Manitoba Science, Technology, Energy and Mines, Manitoba Geological Survey, Preliminary Map PMAP2007-5, scale 1:20 000.

Scale: 1:20 000

1 000 500 0 1 000

metres

Manitoba