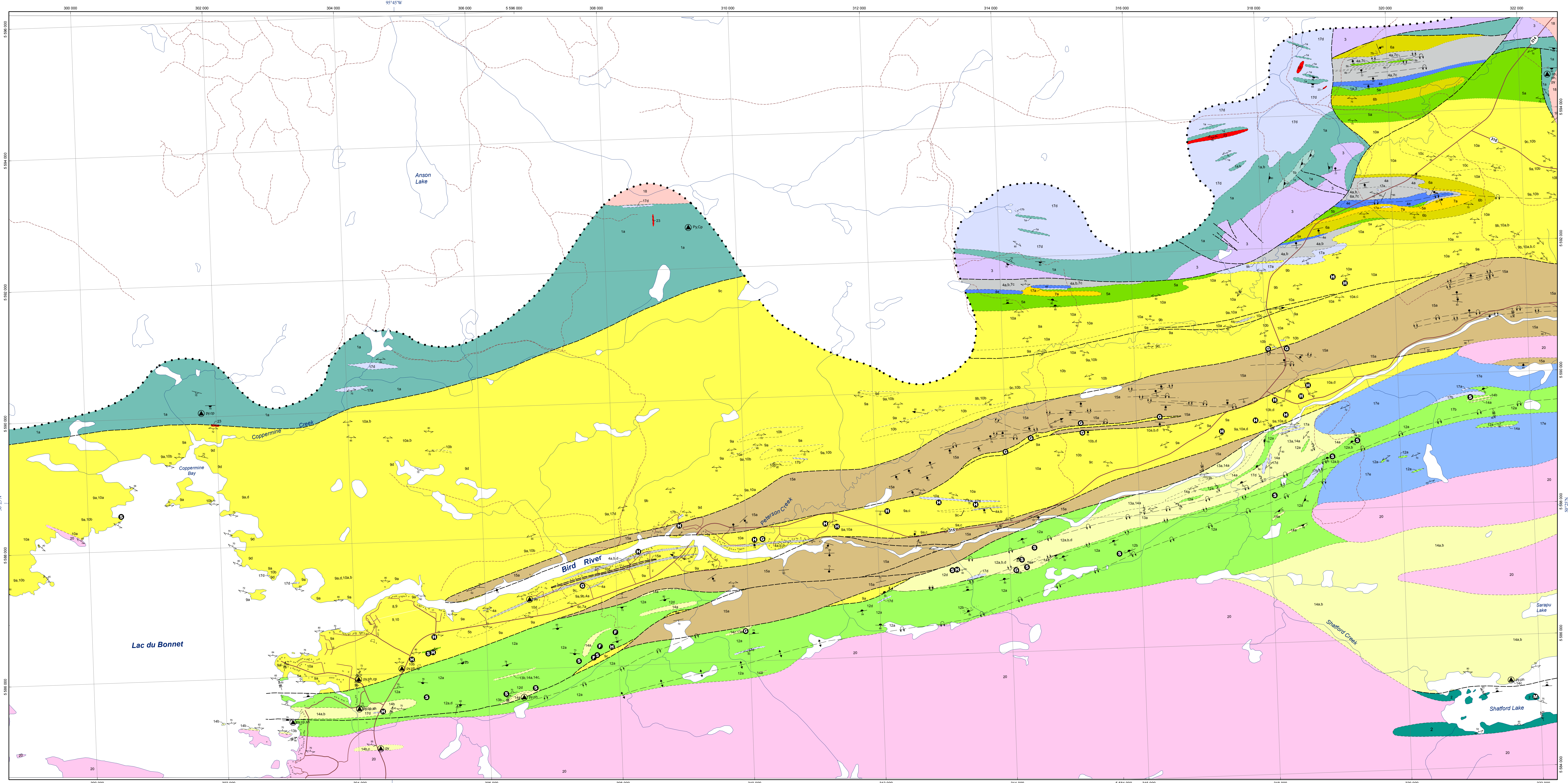
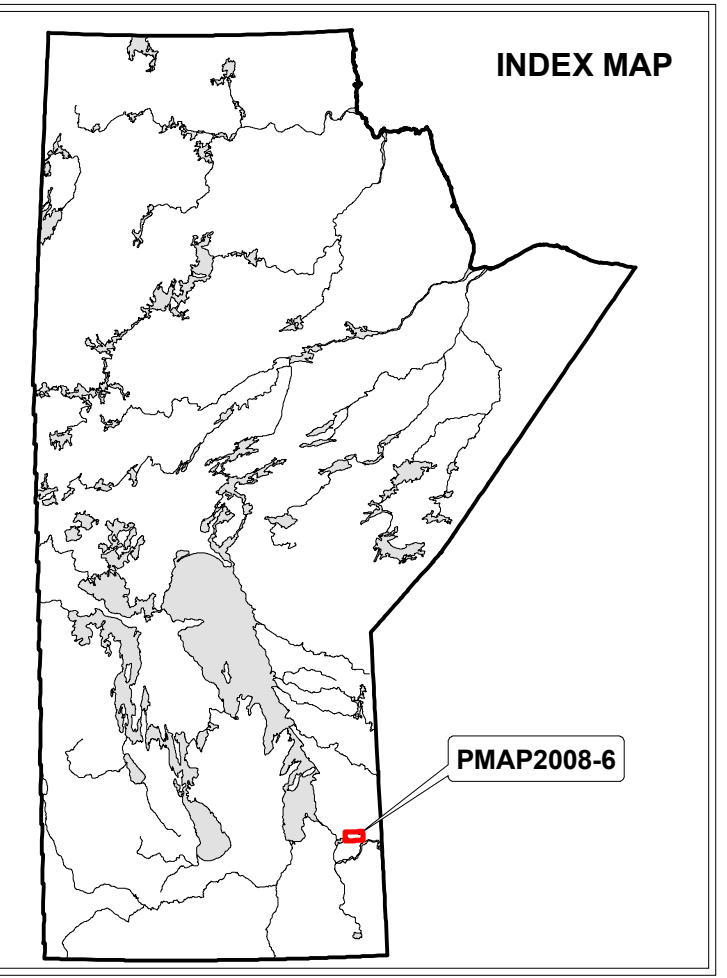




Preliminary Map PMAP2008-6
Geology of the west part of the Bird River area, southeastern Manitoba (part of NTS 52L5)



- NEOARCHEAN INTRUSIVE ROCKS**
 Granitoid rocks (<2725 Ma except unit 18, which includes some older rocks)
- 22 Quartz-plagioclase porphyry, felsic rocks of uncertain age
 - 21 Pegmatite, pegmatitic granite (includes TANCQ pegmatite, 3649 ±1 Ma)
 - 21 Granite, granodiorite (Marjane Lake pluton, 2645 ±1.3 Ma)
 - 20 Granite, granodiorite (Lac du Bonnet Batholith, 2660 ±3 Ma) and related intrusions
 - 19 Tonalite, granodiorite (Bird Lake pluton, 3733 ±6.7 Ma)
 - 18 Quartz-diorite, granodiorite, granite (Massawa Lake Batholith 2725 ±6 Ma, 2844 ±11 Ma, 2882 ±1.1 Ma)
- Mafic rocks (<2731 Ma except unit 17d, which includes possibly older syrovolcanic intrusions)**
- 17a Diabase, plagioclase-hornblende-phyric, quartz-amygdaloidal
 - 17b Diabase, aphyric
 - 17c Gabbro, mesocratic
 - 17d Gabbro, mesocratic to melanocratic (syrovolcanic and intrusions of unknown age)
 - 17e Quartz-diorite, quartz diorite (includes TANCQ gabbro intrusion 2723 ±6.6 Ma)
- SEDIMENTARY ROCKS**
 Flanders Lake Formation (<2697 ±18 Ma)
- 15a Pluvial conglomerate
 - 15b Arctite, felspathic wacke
 - 15c Booster Lake Formation (<2712 ±17 Ma)
 - 15a Greywacke, siltstone, felsic wacke, minor argillite and cherty siltstone
 - 15b Intermediate to felsic paragneiss
 - 15c Volcanic-derived conglomerate
- ARC-TYPE VOLCANIC AND SEDIMENTARY ROCKS**
 Bemis Lake Formation (2724.6 ±1.1 Ma)
- FELSIC VOLCANIC ROCKS AND DERIVED GNEISS AND SCHIST**
 Dacite and rhyolite, aphyric to porphyritic, related breccia and rhyolite rocks
- 14a Felsic gneiss
 - 14b Altered felsic volcanic rocks (sulfidation hornblende agmatite)
- INTERMEDIATE TO FELSIC VOLCANIC FRAGMENTAL ROCKS**
- 13a Heterolithic volcanic breccia, lapilli tuff
 - 13b Intermediate to felsic tuff, locally reworked
- MAFIC TO INTERMEDIATE VOLCANIC ROCKS**
- 12a Basalt and andesite, aphyric to sparsely plagioclase-phyric, locally pillowed (a breccia), related amphibolite and gneiss (agmatite)
 - 12b Mesocratic volcanic breccia, silicified basalt clasts in mafic tuff matrix, locally associated with silicified pillowed basalt
 - 12c Heterolithic intermediate tuff and lapilli tuff, minor breccia
 - 12d Altered basalt, derived gneiss (sulfidation apatite hornblende agmatite)
- SEDIMENTARY ROCKS**
- 11 Oxide-facies iron formation
- Peterson Creek Formation (2731.1 ±1.1 Ma)**
- FELSIC VOLCANIC AND RELATED INTRUSIVE ROCKS**
- 10a Rhyolite, dacite, aphyric to sparsely plagioclase-phyric, massive to fragmental, related intrusive rocks
 - 10b Rhyolite, dacite, quartz-plagioclase-phyric, massive to fragmental, related intrusive rocks
 - 10c Rhyolite with spherulitic domains of uncertain origin
 - 10d Dacite, aphyric to plagioclase-phyric, a quartz-amygdaloidal chlorite-amphibole alteration
- INTERMEDIATE TO FELSIC VOLCANIC FRAGMENTAL ROCKS**
- 9a Heterolithic lapilli crystal tuff and volcanic breccia
 - 9b Monolithic felsic lapilli tuff and volcanic breccia
 - 9c Intermediate to felsic tuff, crystal tuff
 - 9d Andesite-dacite, aphyric to sparsely plagioclase-phyric, locally pillowed, related breccia
 - 9e Altered felsic volcanic rocks, silicified or with sedimentary detritus (hornblende agmatite, argillite)
- SEDIMENTARY ROCKS**
- 8a Oxide-facies iron formation
 - 8b Sulfidite-facies iron formation
- Diverse Arc assemblage (2706 ±23 Ma)**
- FELSIC VOLCANIC AND RELATED FRAGMENTAL ROCKS**
- 7a Rhyolite, sparsely plagioclase-phyric, related fragmental rocks
 - 7b Rhyolite, aphyritic
 - 7c Felsic tuff and crystal tuff, locally reworked
- INTERMEDIATE TO FELSIC VOLCANIC FRAGMENTAL ROCKS**
- 6a Heterolithic intermediate volcanic breccia, matrix supported, locally reworked
 - 6b Heterolithic felsic volcanic breccia, clast supported, locally reworked
 - 6c Heterolithic intermediate volcanic breccia, clast-supported, locally reworked
 - 6d Andesite-dacite, aphyric, quartz-amygdaloidal, locally pillowed
- MAFIC TO INTERMEDIATE VOLCANIC ROCKS**
- 5a Basalt, aphyric, locally pillowed, related gneiss
 - 5b Basalt and andesite, aphyric to porphyritic, locally amygdaloidal and/or pillowed, locally altered (sulfidation hornblende agmatite, argillite)
 - 5c Basalt and andesite, aphyric to porphyritic, locally amygdaloidal and/or pillowed, locally altered (sulfidation hornblende agmatite, argillite)
- SEDIMENTARY ROCKS**
- 4a Greywacke, siltstone, minor felsic wacke and argillite siltstone
 - 4b Chert, siliceous siltstone
 - 4c Oxide-facies iron formation
 - 4d Carbonate (arenaceous a calcareous / arenaceous siltstone, with chertitic siltstone laminae)
 - 4e Pluvial conglomerate (derived from units 1 and 3 to 10)
- INTRUSIVE ROCKS**
 Bird River Sill (2744.7 ±5.2 Ma)
- 3 Dunitic, peridotite, picrite, anorthositic and gabbro
- MORB-TYPE MAFIC VOLCANIC ROCKS**
 Southern MORB-type Formation
- 2 Basalt, locally pillowed
- Northern MORB-type Formation**
- 1a Basalt, locally pillowed
 - 1b Basalt, pillowed and plagioclase-megacrystic



- Symbols**
- Primary layering**
- Bedding
 - Bedding, overturned
 - Bedding, tops unknown
 - Pillows, tops known
 - Pillows, tops overturned
 - Pillows, tops unknown
 - Main foliation
- Lineations**
- L-Fabric
 - Clast elongation
 - Mineral lineation
 - Shear
 - Minor fold
 - Fold axis, symmetric
 - Fold axis, symmetry unknown
 - Fold axial plane
- Alteration**
- Feldspathic alteration
 - Chl-Hb alteration
 - Silicic alteration
 - Gossan
- Mineralization**
- cp chalcopyrite
 - gr galena
 - pt pyrite
 - py pyrite
 - sp sphalerite
- Geological contacts**
- Geological contact, approximate
 - Geological contact, assumed
 - Fault
- Axial trace**
- anticline
 - overturned anticline
 - overturned syncline
- Other symbols**
- Limit of mapping
 - Road, two lane
 - Road, gravel
 - Track

NOTES

- Contacts of the Bird River Sill are based on Mealin, 2006 and Cerny et al., 1981.
- The Englehart Lake Formation does not occur within the mapped area and is not included in this legend.

REFERENCES

Baatzgaard, H. and Cerny, P. 1993. Geochronological studies in the Winnipeg River pegmatite populations, southeastern Manitoba. Geological Association of Canada—Mineralogical Association of Canada, Joint Annual Meeting, Program with Abstracts, v. 18, p. A5.

Cerny, P., Trueman, D.L., Zehrfke, D.V., Goad, B.E. and Paul, J. 1981. The Cat Lake—Winnipeg River and the Wikawo 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 52L5 and L6), in Report of Activities 2006, Manitoba Science, Technology, Energy and Mines, Manitoba Geological Survey, p. 184-205.

Gilbert, H.P., Davis, D.W., Duguet, M., Kremer, P.D., Mealin, C.A. and MacDonald, J. 2008. Geology of the Bird River Belt, southeastern Manitoba (parts of NTS 52L5, 5), Manitoba Science, Technology, Energy and Mines, Manitoba Geological Survey, Geoscientific Map MAP2008-1, scale 1:50 000 (plus notes and appendix).

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 PMAP2008-10, 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**

Cartography by: **M. Timcoe**

Published by:
 Manitoba Science, Technology, Energy and Mines
 Manitoba Geological Survey, 2008

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.

This map supersedes Preliminary Map PMAP2007-6.

SUGGESTED REFERENCE:
 Gilbert, H.P. 2008. Geology of the west part of the Bird River area, southeastern Manitoba (part of NTS 52L5), Manitoba Science, Technology, Energy and Mines, Manitoba Geological Survey, Preliminary Map PMAP2008-6, scale 1:20 000.

