

# **PUBLICATIONS**

## PRELIMINARY MAPS

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- PMAP2003-1 Geology and structure of the Garner Lake area, southeast Rice Lake greenstone belt, Manitoba  
(part of NTS 52L14)  
by S.D. Anderson ..... scale 1:20 000
- PMAP2003-2 Geology of the Blueberry Lake area, Manitoba (part of NTS 63K14NW)  
by H.P. Gilbert .....scale 1:20 000
- PMAP2003-3 Geology of the Gull Rapids area, Manitoba (part of NTS 54D6)  
by C.O. Böhm, M.S. Bowerman and M.W. Downey .....scale 1:5000
- PMAP2003-4 Geology of the western Sharpe Lake area, Manitoba (NTS 63K5)  
by M.T. Corkery, C.J. Beaumont-Smith, S.D. Anderson and A.H. Bailes .....scale 1:50 000
- PMAP2003-5 Geology of the eastern Sharpe Lake area, Manitoba (NTS 63K6)  
by M.T. Corkery, C.J. Beaumont-Smith, S.D. Anderson and A.H. Bailes .....scale 1:50 000
- PMAP2003-6 Geology of the Millrock Hill area, Flin Flon, Manitoba (parts of NTS 63K12NW and  
63K13SW)  
by H.L. Gibson, A.H. Bailes, G. Tourigny and E.C. Syme .....scale 1:500
- PMAP2003-7 Geology of the South Main shaft area, Flin Flon, Manitoba (parts of NTS 63K12NW  
and 63K13SW)  
A.H. Bailes, D. Bray and E.C. Syme .....scale 1:500

## **PUBLICATIONS RELEASED NOVEMBER 2002 – NOVEMBER 2003**

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### **Manitoba Geological Survey Reports and Maps**

#### **Exploration Reports**

EX2003-1

Enzyme Leach<sup>SM</sup> and Mobile Metal Ion<sup>®</sup> B-horizon-based soil geochemical surveys over the Thorne gold zone and adjacent areas, Snow Lake, Manitoba / Fedikow, M.A.F. (digital web release only)

#### **Bedrock Geology Compilation Map Series**

NTS 63G

Grand Rapids, scale 1:250 000

NTS 64P

Nejanilini, scale 1:250 000

#### **Geoscientific Papers**

GP2002-2

Augite phenocrysts in Paleoproterozoic metavolcanic rocks, Flin Flon, Manitoba / Turnock, A.C. and Syme, E.C.

#### **Geoscientific Reports**

GR2002-1

Bedrock mineral resources of Manitoba's capital region / Bezys, R.K., Bamburak, J.D. and Conley, G.G.

#### **Mineral Deposit Series**

MDS Report No. 30

Mineral deposits and occurrences in the Elbow Lake area, Manitoba, NTS 63K15 / Heine, T.H.

MDS Report No. 31

Mineral deposits and occurrences in the Iskwasum Lake area, Manitoba, NTS 63K10 / Heine, T.H.

#### **Open File Reports**

OF2001-7

Summary of geophysical data from open assessment files of the Fox River Sill area, Manitoba (part of NTS 53N, 53M, and 54D) / Hosain, I. T.

OF2003-1

Geology and tectonostratigraphic assemblages, West Uchi map area, Manitoba/Ontario / Bailes, A.H., Percival, J.A., Corkery, M.T., McNicoll, V.J., Tomlinson, K.Y., Rogers, N., Sasseville, C., Whalen J.B. and Stone, D., scale 1:250 000

## **Preliminary Map Series**

PMAP2002-1

Geology of the Lake Aimée-Naosap Lake-Alberts Lake area (parts of NTS 63K13SE and 14SW) / Gilbert, H.P., scale 1:20 000.

PMAP2002-2

Geology of the western portion of Island Lake (NTS 53E15) / Parks, J., scale 1:50 000.

PMAP2002-3

Geology of southern Granville Lake (parts of NTS 64C1, 2 and 7) / Zwanzig, H. and Cameron, H.D.M., scale 1:20 000.

## **Report of Activities 2002**

Annual Review / Syme, E.C., p. 1-8

### Flin Flon - Snow Lake

Stratigraphy of volcanogenic massive sulphide-hosting volcanic and volcanoclastic rocks of the Flin Flon formation, Flin Flon (NTS 63K12 and 13), Manitoba and Saskatchewan / Devine, C.A., Gibson, H.L., Bailes, A.H., MacLachlan, K., Gilmore, K. and Galley, A.G., p. 9-19.

Geology and hydrothermal alteration of the hanging wall stratigraphy to the Flin Flon-777-Callinan volcanogenic massive sulphide horizon (NTS 63K12NW and 13SW), Flin Flon area, Manitoba / Ames, D.E., Tardif, N., MacLachlan, K. and Gibson, H.L., p. 20-34.

Alteration of the Paleoproterozoic felsic volcanic Baker Patton complex (NTS 63K12NE and 13SE), Flin Flon, Manitoba / Mitchinson, D.E., Gibson, H.L. and Galley, A.G., p. 35-40.

Trace-element signatures of Flin Flon volcanogenic massive sulphide (VMS) deposits (NTS 63K, 63L), Manitoba / Jonasson, I.R., Galley, A.G. and Ames, D.E., p. 41-44.

Geology of the Alberts Lake area (NTS 64K13SE and 14SW), Manitoba / Gilbert, H.P., p. 45-58.

Rare earth element geochemistry of sulphide-bearing strata in the Flin Flon-Snow Lake area (NTS 63K), Manitoba / Gale, G.H., p. 59-62.

Rare earth geochemistry of the Sneath Lake mineral occurrence (NTS 63K16), Manitoba / Gale, G.H., p. 63-68.

Vectoring volcanogenic massive sulphide mineralization at the Raindrop zone, Snow Lake (NTS 63K16), Manitoba / Gale, G.H., p. 69-74.

Geochemistry of drillcore samples, alders, peat, bog iron and till at Reed Lake, Manitoba (NTS 63K9) / Gale, G.H., p. 75-82.

Geology of the New Britannia Mine, Snow Lake (NTS 63K16), Manitoba / Gale, G.H., p. 83-86.

Platinum group element investigations in the Flin Flon greenstone belt: regional geology of the McBratney Lake PGE-Au occurrence and part of the Mikanagan Lake sill (NTS 63K13), Manitoba / Theyer, P. and Heine, T., p. 87-93.

Platinum group element investigations in the Flin Flon greenstone belt: petrography and mineralogy of the McBratney Lake PGE-Au occurrence (NTS 63K13), Manitoba / Olivo, G., Theyer, P. and Bursztyn, N., p. 94-99.

Activities of Manitoba's Flin Flon regional office / Heine, T.H., p. 100-101.

#### Thompson Nickel Belt, Superior Boundary Zone, Fox River Belt

Tectonostratigraphy, Sm-Nd isotope and U-Pb age data of the Thompson Nickel Belt and Kisseynew north and east margins (NTS 63J, 63O, 63P, 64A, 64B), Manitoba / Zwanzig, H.V. and Böhm, Ch.O., p. 102-114.

Thompson Nickel Belt project: progress report (parts of NTS 63J, 63O and 63P), Manitoba / Macek, J.J., McGregor, C.R. and Couëslan, C.G., p. 115-116.

Interpretation of Thompson-type geophysical signatures (NTS 63B and 63F) and the possible cause of the Camperville gravity low (NTS 62N and 63C), west-central Manitoba / Hosain, I.T. and Bamburak, J.D., p. 117-130.

Phanerozoic solid-sulphide occurrence containing Devonian dolomite breccia clasts, Pemmican Island, Lake Winnipegosis (NTS 63B12NW), Manitoba / Bamburak, J.D., Hosain, I.T. and Klyne, K., p. 131-143.

#### Lynn Lake - Leaf Rapids

Churchill River-Southern Indian Lake targeted geoscience initiative (NTS 64B, 64C, 64G, 64H), Manitoba: update and new findings / Corrigan, D. and Rayner, N., p. 144-158.

Structural analysis and geochronological studies in the Lynn Lake greenstone belt and its gold-bearing shear zones (NTS 64C10, 11, 12, 14, 15 and 16), Manitoba / Beaumont-Smith, C.J. and Böhm, Ch.O., p. 159-170.

Structure and stratigraphy in the Agassiz metallotect, Lynn Lake greenstone belt (NTS 64C14 and 64C15), Manitoba / Park, A.F., Beaumont-Smith, C.J. and Lentz, D.R., p. 171-186.

Discovery of a carbonatite complex at Eden Lake (NTS 64C9), Manitoba / Mumin, A.H., p. 187-197.

Geology and geochemistry of the Ruttan and Darrol Lake deposits (NTS 63B5), Manitoba / Gale, G.H., McClenaghan, S.H. and Yaworski, R., p. 198-204.

Determining residual mineral potential using europium anomalies in the Ruttan and Lynn Lake areas, Manitoba / Gale, G.H. and McClenaghan, S.H., p. 205-208.

#### Northern Superior

Quaternary stratigraphy and ice-flow history along the Lower Nelson, Hayes, Gods and Pennycutaway Rivers and implications for diamond exploration in northeastern Manitoba / Nielsen, E., p. 209-215.

Tectonostratigraphic panels and early deformation in the Island Lake greenstone belt (NTS 53E15 and 16), northwestern Superior Province, Manitoba / Parks, J., Lin, S., Corkery, M.T., Tomlinson, K.Y. and Davis, D.W., p. 216-225.

Deformation history of the northwestern Cross Lake greenstone belt (NTS 63I12), northwestern Superior Province, Manitoba / Dai, T., Jiang, D., and Corkery, M.T., p. 226-233.

#### Southeastern Manitoba

Preliminary report on the geology and structure of the Garner Lake area, southeast Rice Lake greenstone belt (NTS 52L14), Manitoba / Anderson, S.D., p. 234-249.

Platinum group element investigations in the Peterson block of the Bird River sill (NTS 52L5NE), Manitoba / Theyer, P., p. 250-254.

Phytoremediation of mine tailings and bio-ore production: progress report on seed germination, survival and metal uptake of seedlings planted at central Manitoba (Au) minesite (NTS 52L13) / Renault, S., Sailerova, E. and Fedikow, M.A.F., p. 255-265.

#### South Central Manitoba

Capital Region study (Winnipeg and surrounding areas) update and stratigraphic drilling 2002, Manitoba / Bezys, R.K., Bamburak, J.D. and Conley, G.G., p. 266-272.

The Manitoba stratigraphic database and Capital Region study: an update / Conley, G.G., p. 273.

Development of methods for 3-D geological mapping of southern Manitoba phanerozoic terrane / Matile, G.L.D., Keller, G.R., Pyne, D.M. and Thorleifson, L.H., p. 274-282.

Contributions of dendrochronology to flood hazard analysis in the Red River basin, Manitoba / St. George, S. and Nielsen, E., p. 283-286.

Kimberlite indicator minerals from west-central Manitoba - 2002 update (NTS 63C and 63K) / Bamburak, J.D. and Fedikow, M.A.F., p. 287-294.

Aggregate resources in the rural municipalities of Ste. Anne and Turtle Mountain, and in the Buffalo Point area, Manitoba / Groom, H.D., p. 295-302.

#### Manitoba General

Scoping study for hydrothermal iron-oxide copper-gold deposits (Olympic Dam-type), Manitoba / Mumin, A.H., p. 303-308.

Industrial mineral potential of mafic-ultramafic intrusions in Manitoba / Leskiw, P.D., p. 309.

Manitoba mineral inventory / Johnson, J.J., Janower, L. and Bamburak, J.D., p. 310-311.

Manitoba's Precambrian drill core libraries program: an update / Prouse, D.E., p. 312-314.

**Manitoba Mining & Minerals Convention Speaker Abstracts**  
**Winnipeg, Manitoba, November 14-16, 2002**

- Ames, D.E., MacLachlan, K. and Tardif, N. 2002: Geology and hydrothermal alteration of the Flin Flon-Triple 7-Callinan VMS horizon hangingwall stratigraphy: Flin Flon Targeted Geoscience Initiative; Manitoba Industry, Trade and Mines, Manitoba Mining & Minerals Convention 2002: program, p. 44.
- Anderson, S.D. 2002: Superior Province gold: new results from old rocks; Manitoba Industry, Trade and Mines, Manitoba Mining & Minerals Convention 2002: program, p. 46.
- Bailes, A., Devine, C., Gibson, H., MacLachlan, K., Gilmore, K. and Galley, A. 2002: Setting of the Flin Flon massive sulphide deposit: new ideas from the Flin Flon Targeted Geoscience Initiative; Manitoba Industry, Trade and Mines, Manitoba Mining & Minerals Convention 2002: program, p. 46.
- Beaumont-Smith, C., Böhm, Ch.O. and Park, A.F. 2002: Golden tectonics: regional tectonic synthesis and its application to gold exploration in the Churchill Province; Manitoba Industry, Trade and Mines, Manitoba Mining & Minerals Convention 2002: program, p. 44.
- Bezys, R.K., Bamburak, J.D. and Conley, G.G. 2002: Capital Region study: release of report, maps and a new discovery of shallow Gunton Member bedrock within the City Of Winnipeg; Manitoba Industry, Trade and Mines, Manitoba Mining & Minerals Convention 2002: program, p. 42.
- Blais, S. 2002: Emergency egress/ventilation raise innovations in directional raise boring & remote shotcrete application; Manitoba Industry, Trade and Mines, Manitoba Mining & Minerals Convention 2002: program, p. 43.
- Christoffersen, J. 2002: Assean Lake Gold Project; Manitoba Industry, Trade and Mines, Manitoba Mining & Minerals Convention 2002: program, p. 42.
- Clark, R. 2002: Investment tax credit for mineral exploration in Canada; Manitoba Industry, Trade and Mines, Manitoba Mining & Minerals Convention 2002: program, p. 45.
- Comba, D. 2002: PDAC's efforts to get and keep access to money for exploration; Manitoba Industry, Trade and Mines, Manitoba Mining & Minerals Convention 2002: program, p. 45.
- Cook, R. 2002: CNQ - An innovative new marketplace for emerging companies; Manitoba Industry, Trade and Mines, Manitoba Mining & Minerals Convention 2002: program, p. 43.
- Corrigan, D., Rayner, N., Böhm, Ch.O. and Douma, S. 2002: The Churchill River/Southern Indian Lake Targeted Geoscience Initiative: update and new findings; Manitoba Industry, Trade and Mines, Manitoba Mining & Minerals Convention 2002: program, p. 47.
- Gilbert, P. 2002: Geochemistry and economic potential of tectonically distinct volcanic terranes at the north flank of the Flin Flon Belt; Manitoba Industry, Trade and Mines, Manitoba Mining & Minerals Convention 2002: program, p. 44.
- Gordon, I. 2002: Why the coming bull market in gold will be biggest in your life time; Manitoba Industry, Trade and Mines, Manitoba Mining & Minerals Convention 2002: program, p. 48.

- Groskopf, G. 2002: Metal mining effluent regulation; Manitoba Industry, Trade and Mines, Manitoba Mining & Minerals Convention 2002: program, p. 45.
- Lewis, B. 2002: Mining more for less; Manitoba Industry, Trade and Mines, Manitoba Mining & Minerals Convention 2002: program, p. 45.
- Meade, R. 2002: A Northern Manitoba perspective on sustainable development in mining; Manitoba Industry, Trade and Mines, Manitoba Mining & Minerals Convention 2002: program, p. 42.
- Mumin, H. 2002: The Eden Lake carbonatite complex: a new discovery; Manitoba Industry, Trade and Mines, Manitoba Mining & Minerals Convention 2002: program, p. 47.
- Nielsen, E. 2002: An Evolutionary model of glacial dispersal in the Hudson Bay Lowland and implications for diamond exploration; Manitoba Industry, Trade and Mines, Manitoba Mining & Minerals Convention 2002: program, p. 42.
- O'Donnell, J.J. 2002: Triple 7 Volcanogenic massive sulphide deposit; Manitoba Industry, Trade and Mines, Manitoba Mining & Minerals Convention 2002: program, p. 47.
- Orava, D. 2002: Environmental excellence in exploration (E3); Manitoba Industry, Trade and Mines, Manitoba Mining & Minerals Convention 2002: program, p. 43.
- Parks, J. 2002: The Island Lake greenstone belt: a window into the tectonic evolution of the northwestern Superior Province; Manitoba Industry, Trade and Mines, Manitoba Mining & Minerals Convention 2002: program, p. 47.
- Percival, J.A., Bailes, A.H., McNicoll, V., Sanborn-Barrie, M., Skulski, T. and Whalen, J.B. 2002: Does the Red Lake Belt extend into eastern Manitoba?; Manitoba Industry, Trade and Mines, Manitoba Mining & Minerals Convention 2002: program, p. 43.
- Poirier, D. 2002: Flow-through shares-are they working?; Manitoba Industry, Trade and Mines, Manitoba Mining & Minerals Convention 2002: program, p. 44.
- Priscu, C. 2002: The CDA dam safety guidelines - how do they affect you? ; Manitoba Industry, Trade and Mines, Manitoba Mining & Minerals Convention 2002: program, p. 46.
- Rusk, D. 2002: High grade update from the Red Lake Mine; Manitoba Industry, Trade and Mines, Manitoba Mining & Minerals Convention 2002: program, p. 45.
- Strong, K. 2002: TSX Venture Exchange: a well-regulated environment for raising capital and investing; Manitoba Industry, Trade and Mines, Manitoba Mining & Minerals Convention 2002: program, p. 48.
- Theyer, P. 2002: PGE in Manitoba: McBratney Lake, Bird River Sill and other "hotspots"; Manitoba Industry, Trade and Mines, Manitoba Mining & Minerals Convention 2002: program, p. 45.
- Zamzow, G. 2002: Community survival with tomorrow's sustainable development; Manitoba Industry, Trade and Mines, Manitoba Mining & Minerals Convention 2002: program, p. 43.



## External Publications

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- Bailes, A.H., Jonasson, I., Galley, A.G. and Syme, E.C. 2003: Tectonostratigraphic setting of volcanic massive sulphide deposits in the Paleoproterozoic Flin Flon Belt, Manitoba and Saskatchewan; Geological Association of Canada-Mineralogical Association of Canada-Society of Economic Geologists, Joint Annual Meeting 2003, Vancouver, British Columbia, Abstracts, v. 28, no. 628, CD-ROM.
- Beaumont-Smith, C.J. and Böhm, C.O. 2003: Tectonic evolution and gold metallogeny of the Lynn Lake greenstone belt, Manitoba; Geological Association of Canada-Mineralogical Association of Canada-Society of Economic Geologists, Joint Annual Meeting 2003, Vancouver, British Columbia, Abstracts, v. 28, no. 622, CD-ROM.
- Brooks, G.R., St. George, S., Lewis, C.F.M., Medioli, B.E., Nielsen, E., Simpson, S. and Thorleifson, L.H. 2003: Geoscientific insights into Red River flood hazards in Manitoba; Geological Survey of Canada, Open File Report 4473, 35 p.
- Devine, C.A., Gibson, H.L., Bailes, A.H., Galley, A.G., MacLachlan, K. and Gilmore, K. 2003: Origin and emplacement of VMS-hosting, Paleoproterozoic volcanoclastic rocks within the Flin Flon subsidence structure, Flin Flon, Manitoba and Saskatchewan; Geological Association of Canada-Mineralogical Association of Canada-Society of Economic Geologists, Joint Annual Meeting 2003, Vancouver, British Columbia, Abstracts, v. 28, no. 145, CD-ROM.
- Ferguson, G. and St. George, S. in press: Historical and estimated groundwater levels near Winnipeg, Canada and their sensitivity to climatic variability; Journal of the American Water Resources Association.
- Gibson, H.L., Ames, D., Bailes, A., Tardif, N., Devine, C., Galley, A., MacLachlan, K. and Gilmore, K. 2003: Invasive flows, peperite and Paleoproterozoic massive sulphide, Flin Flon, Manitoba and Saskatchewan; Geological Association of Canada-Mineralogical Association of Canada-Society of Economic Geologists, Joint Annual Meeting 2003, Vancouver, British Columbia, Abstracts, v. 28, no. 357, CD-ROM.
- Gibson, H.L., Devine, C., Galley, A., Bailes, A., Gilmore, K., MacLachlan, K. and Ames, D. 2003: Structural control on the location and formation of Paleoproterozoic massive sulfide deposits as indicated by synvolcanic dike swarms and peperite, Flin Flon, Manitoba and Saskatchewan; Geological Association of Canada-Mineralogical Association of Canada-Society of Economic Geologists, Joint Annual Meeting 2003, Vancouver, British Columbia, Abstracts, v. 28, no. 354, CD-ROM.
- Gilbert, H.P. 2003: Application of geochemistry for the assessment of economic potential of tectonically distinct volcanic terranes in the northern Flin Flon Belt, Manitoba, Canada; Geological Association of Canada-Mineralogical Association of Canada-Society of Economic Geologists, Joint Annual Meeting 2003, Vancouver, British Columbia, Abstracts, v. 28, no. 118, CD-ROM.
- Olivo, G.R. and Theyer, P. in press: Platinum-group minerals from the McBratney PGE-Au occurrence in the Flin Flon greenstone belt, Manitoba, Canada; Canadian Mineralogist.
- Prouse, D.E. 2003: Manitoba exploration and development highlights 2002; Exploration and development highlights: an annual publication of the Prospectors and Developers Association of Canada, March 2003, p. 19-21.
- Rogge, D.M., Beaumont-Smith, C.J. and Halden, N.M. 2003: Application of data fusion for structure and deformation potential analysis, Lynn Lake greenstone belt, Manitoba, Canada; Canadian Journal of Remote Sensing, v. 23, p. 458-471.

- St. George, S. and Nielsen, E. 2003: Palaeoflood records for the Red River, Manitoba, Canada derived from anatomical tree-ring signatures; *The Holocene*, v. 13, p. 547-555.
- St. George, S. and Nielsen, E. 2003: Paleoflood records from anatomical tree-ring signatures: environmental assessment from the width, anatomy, and chemical composition of tree rings; American Geophysical Union Meeting 2003, San Francisco, California (abstract).
- St. George, S. and Rannie, B. 2003: Causes, progression, and magnitude of the 1826 Red River flood in Manitoba; *Canadian Water Resources Journal*, v. 28, p. 99-120.
- St. George, S., Ruffman, A. and Nielsen, E. 2003: A nascent tree-ring network for Nova Scotia; Canadian Quaternary Association-Canadian Geomorphology Research Group, Biannual Meeting 2003, Halifax, Nova Scotia (abstract).