

Recreational Geology in Minnesota

Minnesota Department of Natural Resources

Division of Lands and Minerals

500 Lafayette Road

Saint Paul, MN 55155-4045

January 2001

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Minnesota offers a rich geological history and a wealth of recreational geological opportunities that are of interest to amateurs of all ages as well as professional geologists. Some of these opportunities include:

Rockhounding:

Moose Lake State Park has an interpretive display with publications about agate collecting, geological history etc., and an agate collection on display containing many beautiful examples of the state gem stone. There is also an agreement with several area gravel pits that allow gravel pit rock collecting with permission by the owners. Ph. (218) 485-5420

Hill Annex Mine State Park offers rock collecting tours between May 1 and October 15 on a reservation basis (sorry, walk-ins cannot be accommodated). For further information or reservations, contact Hill Annex Mine State Park, P.O. Box 376, Calumet, MN 55716. Ph. (218) 247-7215.

Fossil Collecting permits are available for **Lilydale Park** in St. Paul. Contact Edward L. Olsen, Arborist Supervisor, City of St. Paul, Division of Parks and Recreation, 1120 Hamline Ave N, St. Paul, MN 55108. (651) 632-2413

Cave Studies and Exploration (Spelunking):

The Minnesota Speleological Survey is an open organization that encourages public participation, and which publishes a monthly newsletter, the Minnesota Speleology Monthly. The organization meets at 7pm on the 2nd Wednesday of each month, 110 Pillsbury Hall, on the University of Minnesota Twin Cities Campus. For more information, contact E. Calvin Alexander at (612) 624-3517 or (612) 624-7822.

Iron Mine and Processing Plant Tours:

Hill Annex Mine State Park is located at the inactive Hill Annex open pit mine. Tours and activities are available. (218) 247-7215

The **Soudan Underground Mine State Park** is located on the site of the inactive Tower-Soudan shaft mine. Tours are available. (218) 753-2245

Several iron mining company tours are available during the summer months. Contact the **Iron Trail Convention and Visitors Bureau** at 1-800-777-8497 for more information about places and schedules.

Sightseeing, Photography, Geologic History:

The Science Museum of Minnesota features "Lava Live," a volcanic geological history of Minnesota that includes a live demonstration. A Minnesota Fossils Activity Station is one of many other enjoyable opportunities available at the museum. Call (651) 221-9441 for show times, directions or other information.

Minnesota's State Parks offer opportunities to experience Minnesota's fascinating geological features. Below is a short list of State Parks that offer some specific attractions. Since the list is not comprehensive we also recommend that you contact:

DNR Information Center

500 Lafayette Road, St. Paul, MN 55155-4040

(651) 296-4776 or (888) MINNDNR

TTY: 651-296-5484 or 800-657-3929.

Email: info@dnr.state.mn.us **Website:** <http://www.dnr.state.mn.us>

- Banning State Park:** Ruins of the historic Banning Sandstone Quarry, Wolf Creek Falls, the Log Creek Arches, Robinson's Ice Cave.....(320) 245-2668
- Blue Mounds State Park:** Blue Mound, Sioux Quartzite Cliff..... (507)283- 1307
- Forestville and Mystery Cave State Park:** Mystery Cave Office..... (507) 937-3251
- Gooseberry Falls State Park:** Waterfalls, outcroppings, shoreline, interpretive program includes geological features.....(218) 834-3855
- Hill Annex Mine:** "Minnesota's Grand Canyon," bus tours available.....(218) 247-7215
- Interstate St. Park:** River gorge, glacial potholes, ancient outcroppings, Taylors Falls.....(651) 465-5711
- Moose Lake State Park:** Agate interpretive display, rock picking available nearby.....(218) 485-5420
- Soudan Underground Mine State Park:** Only underground iron mine in the United States that can be toured.....(218) 753-2245
- Whitewater S.P.:** 200' limestone rock faces, ancient fossils.....(507) 932-3007

RECREATIONAL GOLD PROSPECTING

Am I likely to find gold in Minnesota's streams and rivers?

There have been no commercial placer gold discoveries in Minnesota. The topography, climate, glacial geology and landscape have combined to create streams and rivers that are less favorable, in general, for placer gold deposits than in other parts of the United States.

Minnesota's bedrock may contain undiscovered lode gold deposits. There have been searches for hardrock gold deposits in Minnesota using modern exploration methods.

Prospecting on dry land?

The possibility of prospecting success may be improved by exploring in Minnesota's numerous sand and gravel deposits. Minnesota has sand and gravel deposits that were created by fast-moving meltwaters from the glaciers. Some of these deposits appear to have had favorable

conditions for the formation of placer gold deposits, especially in areas of the state where gold has been found nearby in small amounts in the bedrock. Such sand and gravel deposits offer the same prospecting challenges as modern streambeds, but are likely in general to have much better potential for the occurrence of gold grains.

Many existing gravel pits are privately owned, and those owners should be contacted for permission to conduct activities in these pits. The Department of Natural Resources is also in the process of identifying favorable sand and gravel deposits on state lands that could be made available for exploration and leasing purposes.

May I pan for gold in Minnesota's streams and rivers?

The State of Minnesota defines recreational gold prospecting as an activity involving limited use of hand-held, non-mechanical, non-motorized tools such as a gold pan and hand shovel or other hand tools for digging and classifying material. The gold panning activity must have a minimum impact on the area prospected. Minimum impacts would be the same type of impacts caused by wading or swimming. Gold panning must not disturb fish and aquatic plant habitat and may not be conducted in areas where mineral collecting activities are prohibited, such as state parks. The State does not require a permit for this type of recreational activity in the state-owned beds of streams, rivers and lakes.

The Department's conservation officers and local peace officers may prohibit activities at specific sites when they find damage is occurring or may occur. Fish spawning season, the number of individuals along a confined stretch of water, or other sensitivity of the area may result in the panning activities being prohibited. No one should pan in the bed of a designated trout stream without first contacting the Department's local Area Fisheries Manager. The Area Hydrologist also may be contacted to help identify natural resource concerns.

What about on private land?

The State regulates activity which is commercial in nature or which affects State owned resources such as water. In most cases, prospecting that is confined to private property such as a privately owned gravel pit, and does not impact wetlands, rivers, streams or other controlled waters, is not a regulated activity.

With the permission of the property owner, prospectors working in a gravel pit could use powered equipment such as dredges, power sluices, or power screens. It is still possible that while that activity is not regulated by the State, it still might be subject to county and local zoning regulation. The person doing the prospecting is responsible for checking about and complying with local law.

It is important to note that any appropriation of waters from or discharge of water into wetlands, rivers, streams or other controlled waters would be an impact which would affect those waters and would bring the activity into the State regulated area.

Under what circumstances may I use a sluice or dredge in Minnesota's streams and rivers?

Use of a sluice or dredge in the beds of Minnesota's streams, rivers, and lakes is considered to be a commercial activity. This commercial activity is regulated and permits are required. In addition, permission from the owner of the minerals is required. If the State of Minnesota owns the bed of the water body, a mineral lease from the State would be required. If the federal government or private individual owned the bed of the water body, a lease or other authorization would be required from that owner.

Depending on the extent of the activity, the following permits will be required from the Department of Natural Resources, the Pollution Control Agency, the U.S. Corps of Engineers, and the local unit of government:

- o A Protected Waters Permit, to conduct any work which will change or diminish the current or cross section of the water body
- o A Water Appropriation Permit, to appropriate water
- o A Permit to Mine, to ensure the area is reclaimed
- o A NPDES Permit, to discharge water
- o A Section 404 Permit and a Section 10 Permit from the U.S. Corps of Engineers, to conduct dredging and to conduct work in navigable waters
- o A Shoreland Conditional Use Permit, to conduct activities within a shoreland area managed by the local zoning authorities.

The Minnesota Environmental Policy Act provides for review of the environmental impacts of major development projects. The rules adopted by the Environmental Quality Board require a mandatory Environmental Assessment Worksheet for mineral deposit evaluations of metallic minerals, and a mandatory Environmental Impact Statement for construction of a new mine. If the activity requires the preparation of either of these documents, the documents must be completed before the regulatory permits are issued.

Whom may I contact for further information?

If you have any further questions, please contact:

Department of Natural Resources
Division of Lands and Minerals
500 Lafayette Road
Saint Paul, MN 55155-4045
Telephone: 651-296-4807
TTY: 1-800-657-3939

This material is available in alternative formats upon request.

For information on gold panning opportunities in other states, contact a travel agent. Several companies in western states offer travel packages that include gold panning. Both the National Park Service, Department of the Interior, and the U.S. Forest Service, Department of Agriculture, have information and permits available for recreational gold prospectors. Contact the directors of individual national parks or forests to obtain information specific to each.

Reference Materials

These publications on Minnesota geology are available at public libraries or for purchase by mail from the Minnesota Geological Survey, 2642 University Avenue, St. Paul, MN 55114-1057, (612)627-4782.

Contact your local rock or fossil collecting club for more information regarding recreational opportunities in Minnesota.

Alexander, E.C. Jr. Editor, 1980.

An introduction to caves of Minnesota, Iowa and Wisconsin. 1980 National Speleological Society Convention Guidebook.

Dahlberg, H.; Kuhns, M.J. 1988. "Is that rock worth anything?" *The Minnesota Volunteer* 51, no. 301 (November-December 1988), pp. 35-41. The *Volunteer* is published bimonthly by the Minnesota Department of Natural Resources. 651-296-0888

Hogberg, R.K.; Sloan, R.E.; Tufford, S. 1965. Guide to fossil collecting in Minnesota. St. Paul: Minnesota Geological Survey. ES.1 Out of print. 38 p.

Hogberg, R.K. 1971. Environmental geology of the Twin Cities Metropolitan Area. St. Paul: Minnesota Geological Survey. ES.5 Out of print. 64 p.

Hogberg, R.K.; Bayer, T.K. 1967. Guide to the caves of Minnesota. St. Paul: Minnesota Geological Survey. ES.4 Out of print.

Ojakangas, R.W.; Matsch, C.L. 1982. Minnesota's geology. Minneapolis: University of Minnesota Press.

Peters, Lisa Westberg. 1995. "Minnesota's Rocky Roots," a Young Naturalists feature in *The Minnesota Volunteer* (September-October 1995), pp. 34-47. The *Volunteer* is published bimonthly by the Minnesota Department of Natural Resources. 651-296-0888

Rapp, G.R. Jr.; Wallace, D.T. 1974. Guide to mineral collecting in Minnesota. St. Paul: Minnesota Geological Survey.

Sansome, C.J. 1983. Minnesota underfoot, a field guide to the state's outstanding geologic features. Voyageur Press.

Sims, P.K.; Morey, G.B. 1966. Geologic sketch of the Tower-Soudan State Park. St. Paul: Minnesota Geological Survey. ES.3 Out of print. 29 p.

Stenlund, M. 1988. Ghost mines of the Ely Area (1882-1925). Ely, Minnesota: Ely-Winton Historical Society.

Stensaas, Mark Sparky. 1999. Rock Picker's Guide to Lake Superior's North Shore. Duluth: Kollath-Stensaas Publishing.

Wolter, S.F. 1986. The Lake Superior agate. Minneapolis: Lake Superior Agate, Inc.

Organizations/Contacts

Chambers of Commerce

Aurora Area

P.O. Box 53
Aurora, MN 55705

Eveleth (800)777-8497

Virginia (800)777-7395
..... (218)741-2717

Mountain Iron ... (218)735-8267

Chisholm (800)422-0806
..... (218)254-3600

Hibbing (218)262-3895

Lake Vermilion ... (800)648-5897

Tower (218)753-2301

City of St. Paul

Division of Parks and Recreation
c/o Edward L. Olsen
Arborist Supervisor
1120 Hamline Ave N
St. Paul, MN 55108
(651) 632-2413

Croft Mine Historical Park

c/o Crosby-Ironton Joint Powers Board
Box 97
Ironton, MN 56455
(218) 546-5625

Iron Trail

Convention & Visitors Bureau
P.O. Box 559
Eveleth, MN 55734
(800)777-8497
(218)744-2441

Iron Range Resource and Rehabilitation Board

P.O. Box 441
1006 Highway 53 South
Eveleth, MN 55734-0441
(218) 744-7400

800-765-5043

Fax: (218) 744-7401

MGS

University of Minnesota
Minnesota Geological Survey
2642 University Ave.
St. Paul, MN 55114
(612) 627-4780
Maps & Publications 627-4782
Water Well Records 627-4784
Director, Geologists 627-4780

Minnesota Speleological Survey

c/o E. Calvin Alexander
Rm 106
Pillsbury Hall
#10 Pillsbury Dr. S.E.
Minneapolis, MN 55455
(612)624-3517
(612)624-7822

Geological Society of Minnesota

c/o Fran Corcoran
4105 41st Ave. S.
Minneapolis, MN 55406
(612)724-2101

Recreational Geology Contact List

MinnTac

USX Corporation
P.O. Box 417
Mountain Iron, MN 55768
(218)749-7200

NRRI

University of Minnesota-Duluth
Natural Resources Research Institute
Michael Lalich, Director
5013 Miller Trunk Highway
Duluth, Minnesota 55811
(218) 720-4294
1-800-234-0054

Science Museum of Minnesota

30 East 10th Street
St. Paul, MN 55101
(651)221-9488

Gem & Mineral Club Meetings in

Minnesota

(Courtesy Albert Zabinski's research;
information deemed reliable as of 1999, but
not guaranteed)

Anoka

ANOKA COUNTY GEM & MINERAL
CLUB
940 Cross Street (55303)
Meetings: 1st Friday, 7:30 pm(Sept.-April)
Northtown Hall, Community Room

Carlton

CARLTON COUNTY GEM & MINERAL
CLUB
113 Ave. C, Cloquet, MN 55720
Meetings: 3rd Thursday, 7:30 pm
(Sept.-June)
Alternating between Civic Centers in Carlton
and Moose Lake, MN

Crosby

CUYUNA ROCK, GEM & MINERAL
SOCIETY
Rd. 1, Box 70, Aitkin, MN 56431
Meetings: 1st Monday, 7:00 pm
Crosby Community Center

Duluth

LAKE SUPERIOR GEM & MINERAL
CLUB
419 Minneapolis Ave. (55803)
Meetings: 2nd Thursday, 7:00
pm(Sept.-May)
Senior Center, 2014 W. 3rd St.

Edina

RICHFIELD MINERAL CLUB
5116 Benton Ave. (55436)
Meetings: 3rd Tuesday, 7:30 pm (Sept.-Jun.)
United Methodist Church of Peace

Elmore

MINNOWA ROCK & GEM
Rt. 2, Box 114 (56027)
Meetings: 2nd Sunday, 1:30 pm (Aug.-April)
Members homes

Elysian

MINNESOTA VALLEY GEM &
MINERAL CLUB
Box 172 (56028)
Meetings: Last Thursday, 7:30 pm
(Feb.-May, Sept.-Nov.)
South Central Technical College

Grand Rapids

ITASCA ROCK & MINERAL CLUB
Meetings: 1st Wednesday, 8:00 pm (except
July)
Grand Rapids Public Library

Minneapolis/St. Paul/Shoreview
MINNESOTA MINERAL CLUB
Federation: Midwest Federation
Mail: John Rokke, P.O.Box 580706,
Minneapolis, MN 55458-0706
Meeting: 2nd Saturday Oct. - May, 7:30 PM
Location: Falcon Heights Community Center
2077 Larpenteur Ave.

Owatonna
STEELE COUNTY GEM & MINERAL
CLUB
2565 NE 3rd Ave. (55060)
Meetings: 3rd Monday, 7:00 pm
Associate Church, Havana Rd.

Spring Valley
AUSTIN GEM & MINERAL SOCIETY
Rt. 1, Box 235 (55975)
Meetings: 4th Tuesday, 7:30 pm
Salvation Army Community Center
Austin, MN

St. Paul
3M PROSPECTORS' CLUB
6953 35th St. N., Oakdale, MN 55128
Meetings: 2nd Monday, 7:30 pm
(March-May, Sept.-January)
3M Bldg. 21B, 900 E. Bush

Stillwater
ST. CROIX ROCKHOUNDS
28685 Johnson Lane, Chisago Lakes, MN
55013
Meetings: 3rd Tuesday, 7:15 pm
(Sept.-May)
Stone Bridge School

Willmar
LITTLE CROW LAPIDARY & MINERAL
CLUB
1412 Monongalia Ave. SW (56201)
Meetings: 1st Monday, 7:00 pm (Apr.-Oct.)
Willmar Jr. High School, Room 102