



Minnesota Plant Press

The Minnesota Native Plant Society Newsletter

www.mnnps.org

Volume 36 Number 3

Winter 2017-2018

Minnesota Native Plant Society

A non-profit organization dedicated to the conservation and appreciation of Minnesota's native plants and plant communities through education and public awareness.

Monthly Meetings

Thompson Park Center/Dakota Lodge
Thompson County Park
1200 Stassen Lane
West St. Paul, MN 55118

First Thursday of the month, October-December and February-June. Social period begins at 6:30 p.m. and the meeting runs from 7:00-9:00 p.m. Please check the website at www.mnnps.org for more program information.

Membership

The MNNPS membership starts January 1st. Dues may be paid at the monthly meeting or mailed to:

P.O. Box 16237

St. Paul, MN 55116

Please note our new mailing address.

Membership Categories are:

- Individual or family \$15
- Student or senior \$8
- Institution \$20
- Donor \$25
- Lifetime \$300

The monthly meetings serve as a great opportunity to expose a friend to our organization and this also presents a chance to meet up with other folks that have a strong passion for Minnesota's native flora.

Monthly Programs – Spring 2018

February 1: Dean Lakes Conservation Area Restoration Project: Doug Mensing, Sr. Ecologist, Applied Ecological Services and Matt Lasch, Minnesota Contracting Manager, Applied Ecological Services.

POM: *Dalea villosa* (Silky prairie clover)

March 1: Minnesota Biological Survey Long-term Ecological Monitoring Network in Minnesota: by Hannah Texler, Plant Survey Supervisor, and Erika Rowe, Plant Ecologist/Botanist, - MN Department of Natural Resources.

POM: Mesic Prairie in Kertsonville WMA

April 5: Rusty Patched Bumble Bee: Elaine Evans, University of Minnesota – Bee Lab.

April 21: Annual Symposium - Old Growth Forests: Examining a Disappearing Landscape.

May 3: Jim Manolis, Forest Conservation Program Director, The Nature Conservancy: Collaborating for Resilience in the Face of Climate Change: TNC's Forest Conservation and Restoration Program.

POM: TNC's Upper Manitou Preserve

June 7: A world-class biogeographical oddity: the boreal forests of Door County by Lee E. Frelich

Director, The University of Minnesota Center for Forest Ecology.

POM: *Iris lacustris* (Dwarf lake iris)

Society Leadership

Board members' names are followed with the year their term expires in parentheses.

President: Scott Milburn (2018)

Vice President: Welby Smith (2019)

Secretary: Mike Lynch (2020)

Treasurer/Membership: Ken Arndt (2019)

Board Member: John Arthur (2018)

Board Member: Simba Blood (2019)

Board Member: Tom Casey (2020)

Board Member: Steve Eggers (2018)

Board Member: Otto Gockman (2020)

Conservation Chair: Tom Casey

Program Chair: Jyneen Thatcher

Publications Chair: Open

Symposium Chair: Otto Gockman

Field Trip Coordinator: Mike Lynch

Website: Katy Chayka

Technical/Membership Inquiries:

contact@mnnps.org

The Minnesota Native Plant Society is a Volunteer Organization first established in 1982.

You do not need to be a member of the board to contribute your time and skills. We always need field trip ideas and leaders as well as hospitality and logistics at monthly meetings. Ideas for monthly speakers are always welcome. At this time we are seeking a newsletter editor. We are preferably looking for someone who can write content in line with our mission as well as seek out writings from our membership. As you are aware, the newsletter is an integral part of the Society, serving to not only inform our membership about the goings-on of the Society, but also to educate the membership.

Many thanks for the contributors of this newsletter including John Thayer (*Lobaria* distribution maps), Mike Lee, Otto Gockman, Bruce Carlson, and Minnesota Wildflowers. We hope you enjoy this edition of the Minnesota Plant Press.

Minnesota Biological Survey: 30 years strong and beyond

Bruce Carlson, MBS Supervisor, Minnesota Department of Natural Resources

In 1987, with a handful of staff and start-up funding from The Nature Conservancy and Minnesota's Environment and Natural Resources Trust Fund (ENRTF), the Minnesota Biological Survey (MBS) was launched with a central goal that continues today: conduct a statewide, county-by-county baseline biological survey of Minnesota. Originally called the Minnesota County Biological Survey, it has been guided by a mission to collect and deliver data on native plants, animals, and plant communities to support the conservation and management of biodiversity.

MBS field biologists have climbed hills, roamed valleys, scrambled boulders and cliffs, forded water, flipped logs, and searched countless nooks and crannies to discover and describe Minnesota's natural heritage. The results are impressive: 84 of 87 counties have complete baseline field surveys for vascular plants, small mammals, birds, amphibians, and reptiles; nearly 25,000 rare species locations have been documented; over 50,000 plant specimens have been collected and prepared; over 90,000 plant communities have been mapped; over 10,000 sites of statewide biodiversity significance have been ranked and mapped; and a premier collection of staff have developed extraordinary expertise in Minnesota's native biological diversity.

Along the way, MBS has evolved to include other projects and responsibilities in addition to the statewide survey. Examples include long-term monitoring of state and federally-listed plant species; research into the response of native prairie vegetation to cattle grazing; baseline statewide surveys for aquatic plants, bees, and moths; and, more recently, the launching of a statewide ecological monitoring network to track long-term status and trends of native vegetation.

Today MBS finds itself facing major change. With only three counties remaining, MBS is targeting 2021 as the year that the original survey will be completed. What's next? Should the statewide survey end? Or should it start again, beginning with areas surveyed 30 years ago in order to update and enhance the initial effort? What's changed since the program started? Why are we relevant? What needs to change or improve? These are the questions at the fore as MBS charts its future.

To help answer these questions, MBS embarked on a strategic planning exercise. The program looked internally, talking with MBS staff about the program's strengths, weaknesses, opportunities, and challenges. Looking externally, a project team toured the state interviewing regional DNR staff and external partners about their needs for biological survey data, about emerging issues that are or will impact biological diversity, and how MBS might address them. The team reviewed state laws, rules, policies, and major natural resource and conservation initiatives to determine why a biological survey is necessary and why it should be given priority in the ever-increasing competition for limited public dollars.

We wrapped all of this up into a 10-year strategic plan with three overarching goals that speak to the needs, trends, and mandates we identified: 1) collect data and information needed to sustain, protect, and enhance Minnesota's biological diversity; 2) provide ongoing management and delivery of information to meet the needs of DNR and our conservation partners; and 3) exemplify operational excellence in our work. The plan will guide MBS over the next ten years in efforts to collect and deliver statewide biological data and address emerging biological diversity issues. It provides guidance for funding, staffing, partnerships, and integrating our work with other key programs within the DNR. It is intended to increase awareness of MBS and promote collaboration with others who work to manage and conserve Minnesota's biological diversity.

A few examples of MBS priorities over the coming decade include continuation of statewide surveys on bees, moths, and aquatic plants; targeted surveys to update MBS field data that is greater than 20-years-old; surveys for under-sampled taxa such as mosses, lichens, and insect pollinators such as beetles and flies; added attention to monitoring of the long-term status and trends of native biodiversity and also shorter-term monitoring on how biodiversity responds to land and water management actions; and research and analysis of the relationships among biodiversity and climate change, watershed health, and pollination. The complete MBS strategic plan will soon be available on the MBS website (www.dnr.state.mn.us/mbs).

2018 will mark the 31st field season for MBS. The statewide baseline biological survey will soon be realized. The program has grown from a handful of staff and a small start-up budget in 1987 to 30 staff and

an annual budget of \$3.5 million today. Financial support from the ENRTF has been consistent the entire time (with variably other state and federal funding). This strategic plan sets us on a guided course to our future and confirms what many of us have known all along: that MBS, and more broadly, basic biological survey, has been, is, and will continue to be relevant and necessary to the people of Minnesota.

Rare Plant Monitoring News

Michael D. Lee , MBS Plant Ecologist/Botanist

The Minnesota Biological Survey (MBS) is becoming increasingly focused on monitoring rare plant species in Minnesota. Dating back to the days of the Natural Heritage Program, DNR botanists have been conducting long-term monitoring studies on select species for several decades (*Platanthera praeclara*, *Erythronium propullans*, and *Lespedeza leptostachya* since the early-1980's, and *Rhodiola integrifolia* ssp. *leedyi* since the mid-1990's). These species were priorities for monitoring due in large part to their inclusion on the Federal Endangered Species list.

More recently, MBS botanists have begun to expand their monitoring focus to include other rare plants, most of these on the State's Endangered Species List. In response to a requirement of the High Conservation Value Forest principle under DNR Forest Certification, intensive survey efforts the past five years or so have been concentrated in sites of Outstanding Biodiversity Significance in southeastern Minnesota in order to collect detailed data on the population abundance and extent of a suite of rare plants that occur in little-disturbed mesic forests and dry bluff prairies and savannas. This work is intended to serve as a baseline for recurring visits to sites such as Whitewater South Fork, Shattuck Creek (**Figure 1**), Diamond Creek, West Indian Creek, Rushford Sand Barrens, Whitewater Sand Savannas, Whitewater State Park, and Money Creek Woods to assess how rare plant populations are being affected by forest management, exotic species invasion, and other factors.

At Quarry Park Scientific & Natural Area (SNA) on the outskirts of St. Cloud, a new effort to monitor *Platanthera flava* (**Figure 2**) was begun in 2017. This monitoring effort attempts to serve two goals: 1) effectiveness monitoring to assess how the state's largest *P. flava* population responds to restorative

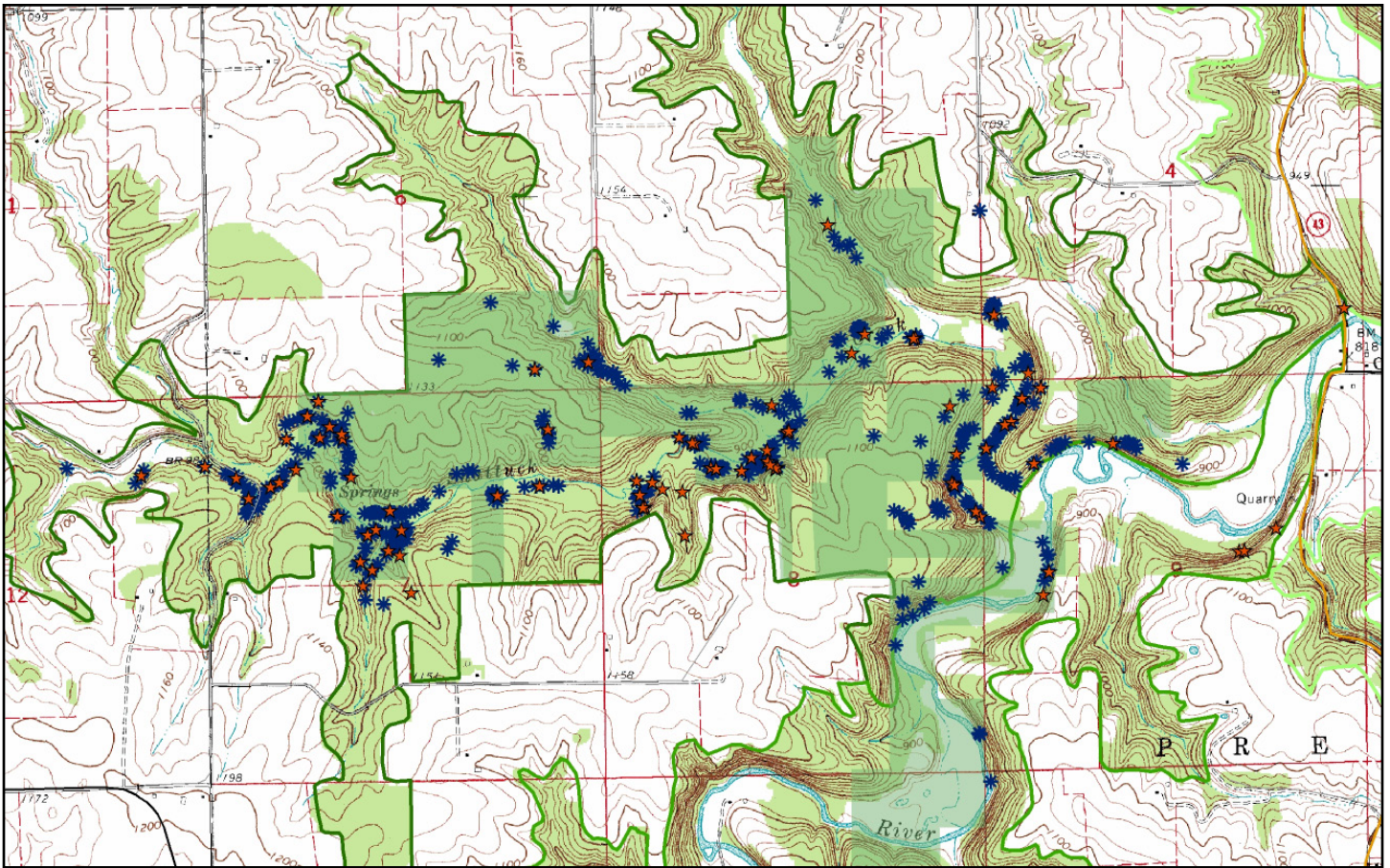


Figure 1. Shattuck Creek with monitoring plot locations - Fillmore County, Minnesota



Figure 2. *Platanthera flava* – Photo from Quarry Park SNA

management actions including buckthorn and other woody species removal, and 2) assessing long-term population trends. Ten plots were established on the SNA and two additional plots were established on populations in nearby St. Cloud. Each plot consists of a 50 meter belt transect 5 meters wide that runs along the ecotone between sedge meadow and oak woodland; this moist but not too wet zone being the preferred habitat for this orchid in this part of its range. In the absence of fire, much of this ecotone has been overgrown with buckthorn and other woody species to the detriment of *P. flava* and other native wet prairie species. SNA management staff, in conjunction with Stearns County Park staff, plan to remove the brush in several of the plots. Prescribed fire will be used in some of those same plots and in some others where no woody cutting takes place. The monitoring of these managed plots and the unmanaged control plots will help to assess the effects of each of these management prescriptions on the orchids and their sedge meadow margin habitat.

Other species currently receiving monitoring attention by MBS staff include *Aureolaria pedicularia*, *Cypripedium candidum*, *C. arietinum*, and *Polemonium occidentale* ssp. *lacustre*. In conjunction with the ongoing update of the Rare Species Guide, and periodic

review of the State's Endangered Species list, a review of all state-listed plants is planned to help prioritize which ones might see monitoring efforts in the near future.

***Lobaria* species in Minnesota**

Otto Gockman, MNNPS Board Member

Lichens do not stand out to most people and are often subconsciously treated as extensions of the substrate on which they grow. As examples, think of the bright orange color of the crustose lichen *Xanthoria elegans* along the North Shore of Lake Superior or the various species of *Usnea* (old man's beard) that can cover conifers (particularly dead balsam fir and black spruce) in the northern portions of the state or the abundance of *Cladonia* (cup lichen) and *Cladina* (reindeer lichen) species that cover many northern rock outcrops. To the casual observer, these species are just colored rocks or parts of a tree, but if one stops to examine them closer, they will find a remarkable assemblage of highly diverse organisms. The genus *Lobaria* tends to be an exception to this. It is rarely seen and ignored, it is often confused with vascular plants, and those that find them are typically in an interesting place and appreciate the uniqueness of the organism they see.

According to the most recent version of A Cumulative Checklist for the Lichen-forming, Lichenicolous and Allied Fungi of the Continental United States and Canada, by Theodore Esslinger (2016), there are fifteen species of *Lobaria* in North America. Most of these species are relatively large, charismatic, foliose (leaf-like) macrolichens. In Minnesota, we have these species, *L. pulmonaria*, *L. quercizans*, and *L. scrobiculata*. All of our *Lobaria* species tend to grow in stable, high-humidity, communities in close proximity to wetlands or bodies of water. *Lobaria quercizans* tends to be more tolerant of drier conditions, and can often be found in rich maple basswood forests. However all of the species, including *L. quercizans*, can be found on moist rocks and cliffs, or on various trees in wet forest and forested peatland communities.

Lobaria pulmonaria is probably the most charismatic and recognizable of our species (see **page 6** for images and distribution in Minnesota). As suggested by the specific epithet, this species has a lung-like appearance. With its broad lobes, covered in a network of ridges and dips, it is often recognized on sight. When

L. pulmonaria is provided with humid, stable conditions, it can cover trunks of trees or large patches of exposed rock. These colonies can be very impressive and can stop someone in their tracks if they are lucky enough to spot one. The species occurs throughout the Laurentian Mixed Forest Province in Minnesota. There happen to be a number of historical records of it from the Wisconsin and Iowa portions of the Paleozoic Plateau, so there is potential for this species to occur in the southeastern corner of the state. Interestingly the lone Iowa collection was made by Bruce Fink, a well-known lichenologist who spent a number of years in Minnesota and wrote the first treatment of the state's lichens, *The Lichens of Minnesota* back in 1910.

Lobaria quercizans is arguably the least charismatic of the three species in the state (see **Page 7** for images and distribution in Minnesota). The lobes of this species often hug the substrate on which it occurs making it superficially look like a large species in the genus *Parmelia*. This species is also the only species of *Lobaria* in the state that regularly produces apothecia, which are fruiting bodies that are dark red-brown. The nondescript appearance of this species has likely led to it being overlooked and under-collected in the state for many years. As a result, this species was added to the state's rare species list and designated as threatened in 1984. The status of this species was dropped to Special Concern in 1996 due to an increase in collected specimens since the initial listing and it was eventually delisted in 2013. This species appears to be secure in Minnesota, but it still remains under-collected.

Lobaria scrobiculata is the only species in the genus which is currently listed by the DNR, with the status of threatened (see **Page 8** for images and distribution in Minnesota). In North America, this species is found primarily in coastal regions and at higher elevations. The main, though not the only, exception being a series of records of this species from the north shore of Lake Superior in Minnesota, Ontario, and on Isle Royale (Michigan). In Minnesota, *L. scrobiculata* appears to be extremely rare. The species has only been collected four times in the last 30 years and only four times prior to that. Typically *L. scrobiculata* occurs mixed with *L. pulmonaria* and a group of other old-growth preferring lichen species such as *Parmotrema* and *Cetrelia*.

Special thanks to Minnesota Wildflowers for the use of their camera equipment and digital editing of the for the close-up images of the three species of *Lobaria*.



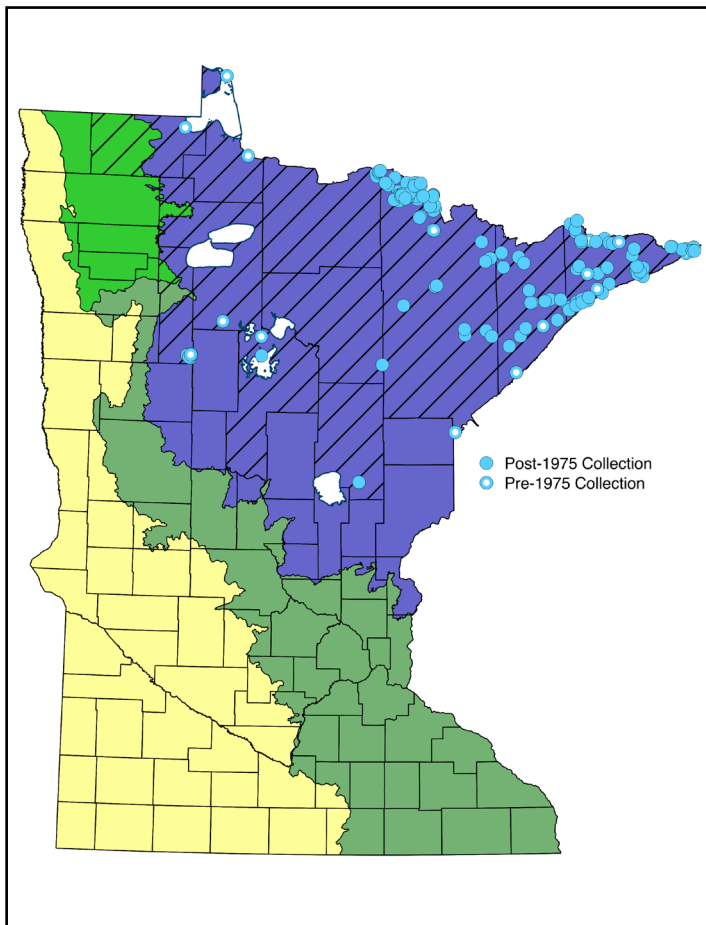
Lobaria pulmonaria - Field



Lobaria pulmonaria - Surface



Lobaria pulmonaria - Underside



Lobaria pulmonaria - Distribution



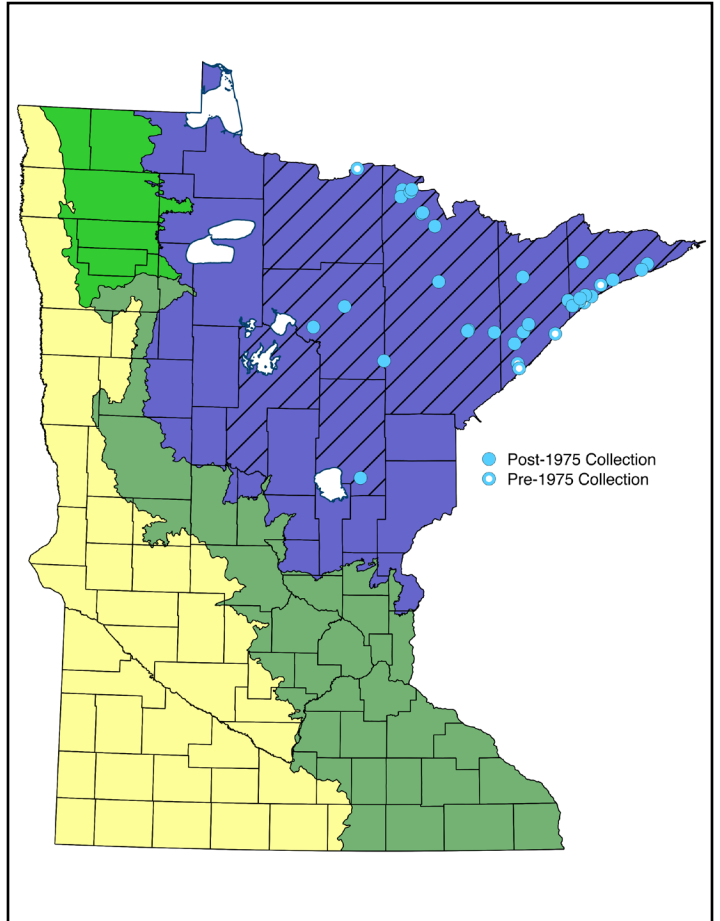
Lobaria quercizans - Field



Lobaria quercizans - Surface



Lobaria quercizans - Underside



Lobaria quercizans - Distribution



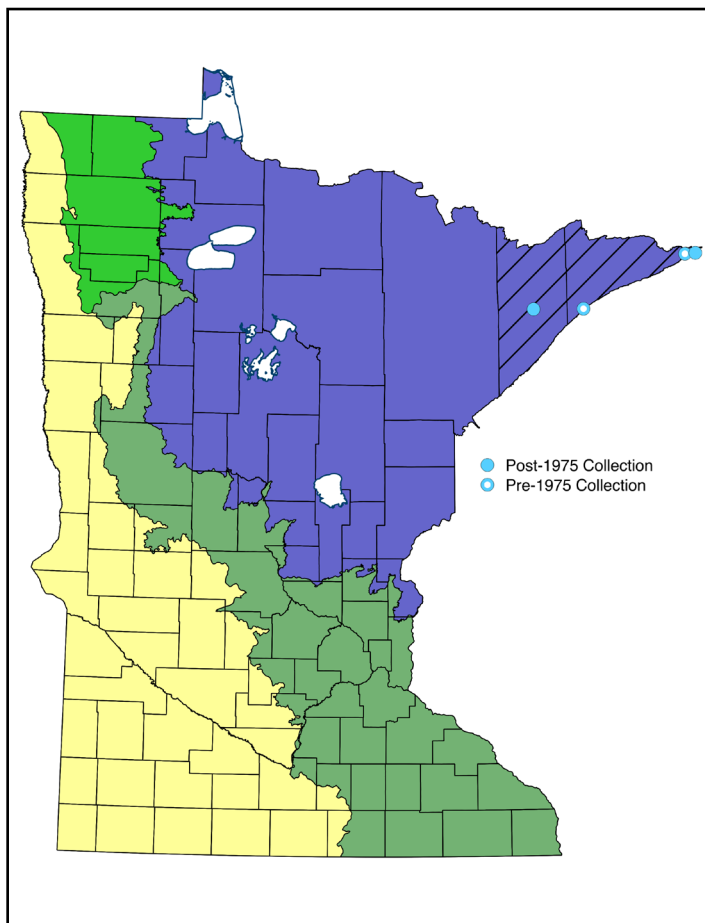
Lobaria scrobiculata - Field



Lobaria scrobiculata - Surface



Lobaria scrobiculata - Underside



Lobaria scrobiculata - Distribution

Scientific and Natural Areas Profile

- Mound Spring Prairie SNA

Scott Milburn, MNNPS President

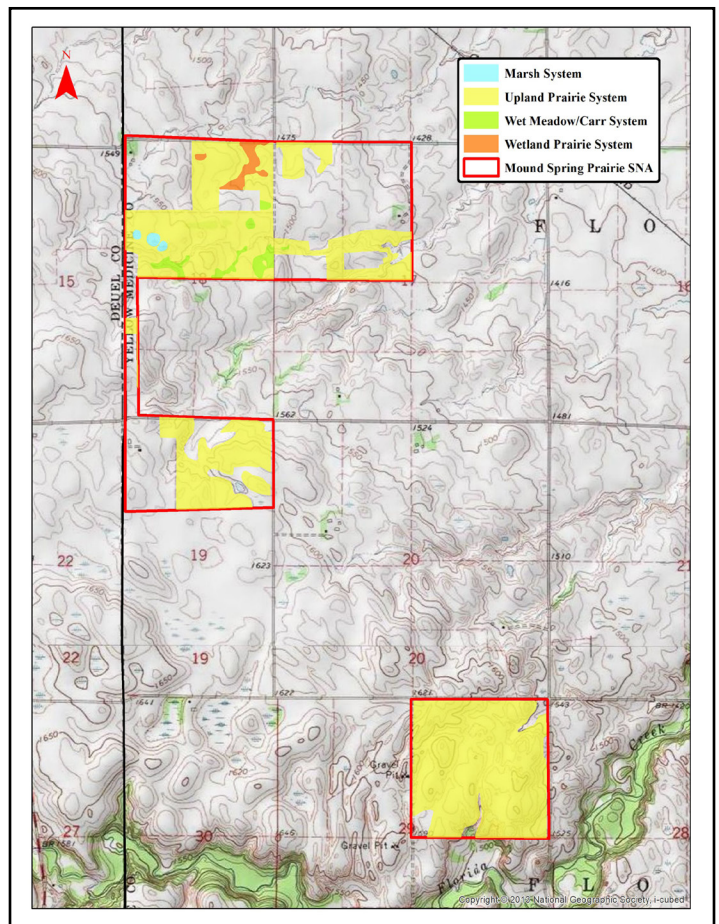
Directly bordering South Dakota, Mound Spring Prairie SNA is one of the largest remaining expanses of prairie remaining in the Coteau Moraines Subsection. The visual landscape is stunning with considerable topography, typical for much of Yellow Medicine County. The SNA is in two separate units, with the northern unit officially designated as an SNA in 2001 and the southern unit added in 2012. This SNA is mostly mapped as a site of biodiversity significance (high) due to the number of rare native plant communities and species.

Native plant communities present include the Dry Sand – Gravel Prairie (UPs13b), Dry Hill Prairie (UPs13d), Mesic Prairie (UPs23a), Seepage Meadow/Carr (WMs83a), Wet Prairie (WPs54b), and Calcareous Fen (OPp93b). The fens in this part of the state are referred to as domed fens.

Rare plant species documented at Mound Spring Prairie includes Missouri milk-vetch (*Astragalus missouriensis*), yellow-fruit sedge (*Carex annectens*), small white lady's slipper (*Cypripedium candidum*), western white prairie clover (*Dalea candida* var. *oligophylla*), and yellow prairie violet (*Viola nuttallii*).

The Missouri milk vetch is restricted to southwest Minnesota and is one of eleven *Astragalus* species in Minnesota. The species is found in dry prairie and is associated with the yellow prairie violet. As noted in the DNR's rare species guide, this species is similar to prairie milk-vetch (*A. adsurgens*) but can be differentiated from the latter based on the size of the stem in comparison to the leaves and flowers.

The small white lady's slipper is a rather iconic prairie species. It can be observed in the wet prairie components in the SNA. This species as noted in Welby Smith's *Native Orchids of Minnesota* book can hybridize with both varieties of the yellow lady's slipper (*C. parviflorum*) adding to the confusion in identifying specimens with only vegetative characteristics. Fortunately, the small white lady's slipper is the only *Cypripedium* species known in this region of the state. The DNR has an active monitoring program for this species which provides an excellent volunteering opportunity for those with an interest.



Mound Spring Prairie Boundaries



Green milkweed- *Asclepias viridiflora*

The yellow-fruit sedge is found in the southern third of the state and generally distributed in the eastern half of the United States. This species is found in open communities (wet meadow to prairie communities) with varying moisture regimes. Similar in appearance to the common fox sedge (*C. vulpinoidea*), but differs in that the flowering culm extends above the leaves in *Carex annectens*. Observation of such should bring one's attention to further examination of the individual, evaluating other diagnostic features.

The western white prairie-clover can also be seen at this SNA. It is was of two varieties in the state. One of the key diagnostic field traits that distinguishes this variety is the growth form. The stems on this variety are diffuse versus virgate. The purple prairie clover (*Dalea purpurea*) is also present at the SNA, but they are easy to distinguish from one another based on the leaf size.

The yellow prairie violet is only known from three counties in the state. This is one of our many stemless violets and one of two native yellow violet species in Minnesota, the other being *Viola pubescens*. Like *Astragalus missouriensis*, this species inhabits dry prairie systems having coarse substrate but does well with reduced vegetative cover. The leaf shape can be used to differentiate this species from other possible prairie violets, *V. peditifida* and *V. palmata*. The latter two species have palmate leaves where the yellow prairie violet has leaves that range from elliptic-lanceolate to ovate and are not lobed.

The calcareous fens in this part of the state are convex features associated with slopes. These fens also tend to have a different vegetative composition in comparison to fens of the Minnesota River valley or Glacial Lake Agassiz. Most of the state-listed calciphiles are absent with the exception of hair-like beak rush (*Rhynchospora capillacea*). This species has yet to be detected at the SNA, but a great example of a fen with this species is found three miles directly south. The fen, Fortier 6, is an extensive carpet of hair-like beak rush and unlike other regional fens in that sense.

The SNA is also host to a number of other rare species including Loggerhead Shrikes (*Lanius ludovicianus*), prairie vole (*Microtus ochrogaster*), and regal fritillary (*Speyeria idealia*). A BioBlitz is planned for the SNA on August 11, 2018, so perhaps more rare species will be discovered. Please contact Brad Bolduan, SNA Specialist (brad.bolduan@state.mn.us) with the DNR for more information.



Prairie coneflower - *Ratibida columnifera*



Carolina delphinium - *Delphinium carolinianum*



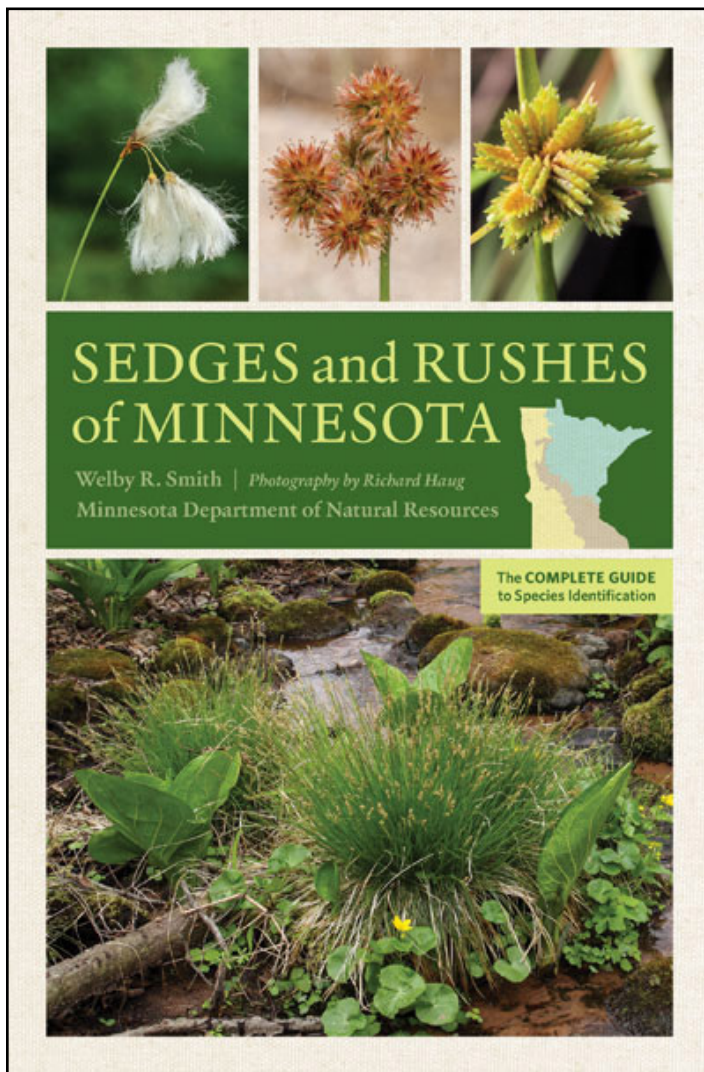
Landscape image of Mound Spring Prairie SNA



Western white prairie clover - *Dalea candida* var. *oligophylla*



Purple prairie clover - *Dalea purpurea*



Society News

It is an exciting time for those who are interested in sedges and rushes. The Vice President of our Society and state botanist, Welby Smith, has a new book coming out this summer on *Sedges and Rushes of Minnesota*. The book is scheduled for release during the heart of sedge and rush season in July and will be available through the University of Minnesota Press. This is a must have resource for any plant enthusiast in the region. Users will be amazed by the detailed and useful content, including the stellar photographic work by Rick Haug. We will be hosting Welby at our October meeting where he will discuss the book.

In other news, the Board of Directors will be proposing an amendment to our Articles of Incorporation at the June monthly meeting. The Board is proposing to add the following sentence to Article IX: “Any action permitted to be taken at a meeting of the Board of Directors may be taken by written action, signed or consented to by electronic communication, by a simple

majority of all Directors.” If approved by a 2/3 vote of the members, this amendment gives our Board of Directors greater ability to make decisions between board meetings. Without an amendment to our Articles of Incorporation allowing a majority vote, Minnesota Statute 317A.239 requires a unanimous vote of all board members to make a decision between meetings, an onerous requirement for a volunteer board.

2018 Symposium

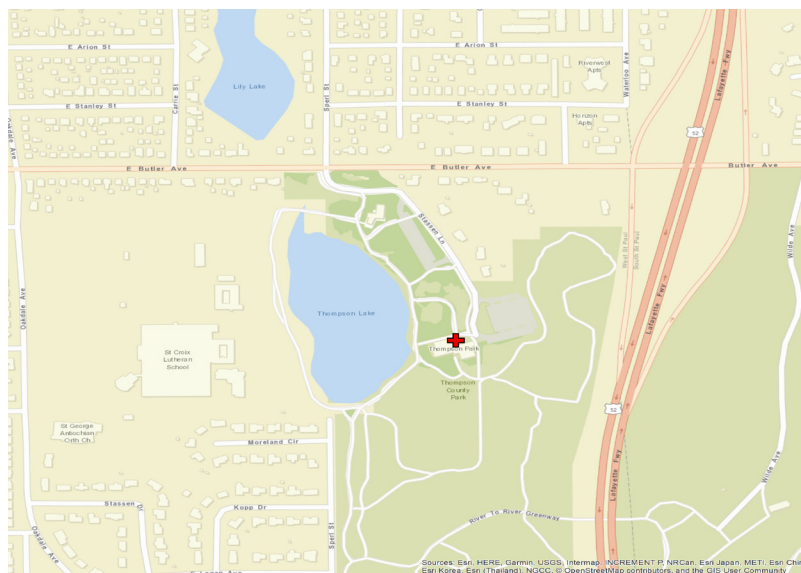
Registration is now open for our annual symposium. The event will be on Saturday, April 21, 2018 at the Minnesota Landscape Arboretum. Kind thanks to David Remucal and the Minnesota Landscape Arboretum for co-sponsoring the event. This year’s topic will be on old growth forests. We will be taking a look at the ecology of these systems as well at several case studies with talks on the Porcupine Mountains and Sylvania Wilderness, and the Magney-Snively Natural Area. Other talks will include the fire dependent red pine dominated forests in the Boundary Waters and the use of lichens in assessing forest systems. The symposium brochure is available on our website. All questions can be directed to Shirley Mah Kooyman at smkooyman@gmail.com or 763-559-3114.



Minnesota Native Plant Society
P.O. Box 16237
St. Paul, MN 55116

Winter 2017-2018

**Dakota Lodge, Thompson County Park
1200 Stassen Lane, West St. Paul, MN 55113**



Directions:

Take Highway 52 to the Butler Ave. E. exit in West St. Paul.
Go west on Butler 0.2 mile to Stassen Lane.
Go south on Stassen Lane to Thompson County Park.