Minnesota Plant Press

The Minnesota Native Plant Society Newsletter

Volume 28 Number 1 **Winter 2009**

Monthly meetings

Thompson Park Center/Dakota Lodge
Thompson County Park
360 Butler Ave. E.,
West St. Paul, MN 55118
651-552-7559 (kitchen)

Programs

The Minnesota Native Plant Society meets the first Thursday in October, November, December, February, March, April, May, and June. Check at www.mnnps.org for more program information.

6 p.m. — Social period

7 – 9 p.m. — Program, society business

Feb. 5: "Community Involvement in Restoration of Prairie and Savanna in Wild River State Park," by David Crawford, park naturalist; **Plant-of-the-Month**: *Aristida tuberculosa* (sea beach needlegrass).

Mar. 5: "Natural History of Beltrami Island," by Scott Zager, plant ecologist, Wildlands Ecological Services; **POM**: *Rubus arcticus* ssp. *acaulis* (arctic raspberry).

Apr. 2: "Between the Mississippi and the Missouri, 1838-1839: A new look at the botany of Charles Geyer," by Charles Umbanhowar, Jr., professor of biology, St. Olaf College; **POM**: *Solidago riddellii* (Riddell's goldenrod).

May 7: "Making a Floral Atlas for the Shakopee Mdewakanton Sioux Community," by Victoria Ranua, environmmental assessment specialist for the SMS Community; **POM**: *Solanum rostratum* (buffalo burr).

How will Minnesota spend its outdoor heritage fund?

by Scott Milburn, Minnesota Native Plant Society president

Much has happened since my last column in terms of the national election and the historic passage of the Clean Water, Land, and Legacy constitutional amendment in Minnesota. It was quite a remarkable feat for this to pass as it did, with much economic uncertainty, but this shows where our priorities are.

The next step in the process to determine how this money will be spent is no easy task. We all need to be cognizant of how this dedicated funding is spent, since we all have a vested interest.

Approximately one-third of the revenue generated from this sales tax will go toward the Lessard Outdoor Heritage Fund. As stated, this money is to be "spent only to restore, protect, and enhance wetlands, prairies, forests, and habitat for game, fish, and wildlife." Many groups throughout the state were instrumental in getting the word out and getting this amendment passed. However, along with that come the expectations from these various groups as to how this money must be spent. The fear, when there are so many ideas and expectations, is that there will not be a comprehensive strategy. In order for this to be a success, a landscape approach would likely prove more beneficial than a piecemeal approach.

The Lessard Outdoor Heritage Council has expressed the desire and need for the citizens of Minnesota to speak up. Ultimately, this council will recommend to the Legislature how the money should be spent. My hope is that our Society will be active and vocal in keeping with our mission. It is a time for great optimism, and I encourage your involvement.

There should also be much confidence with the Society itself, as we continue to change and grow as an organization. We are now at full capacity, having nine board members. Elizabeth Heck and Dylan Lueth were appointed at the last

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In this issue

Conservation Tip of the Season

by Elizabeth Nixon

This is the legislative season, and this year it is uniquely important to send ideas to your state legislators.

With an unprecedented constitutional amendment as an act of commitment to the environment, your elected representative and senator should take seriously their jobs of making sure they, as well as their constituents, are "environmentally literate," at least for the next 25 years, the life of the amendment.

What is environmental literacy? Is it knowing the major biomes, the majority of native Minnesota plant communities and their signature species? Is it knowing the difference between sustainable and environmentally damaging public infrastructure when northern Minnesota or sensitive landscapes are under development pressure? Who should be environmentally literate? Perhaps it should be every Minnesota high school graduate.

In essence, what responsibility does the state now have to ensure that as many citizens as possible understand the next 25 years of spending on the environment? Perhaps the Green Jobs Task Force weblog should be the place to carry out a public debate on these questions. It can also be started on the Native Plant Society blog by any energetic individual.

These questions will be topics for the Conservation Committee, and all with views on the issues are invited to participate during the season/session.

Society's balance sheet grew in 2008

Treasurers Ron and Cathy Huber reported that the Society's 2008 income was $2,443.30 higher than its expenses.

Total income for the year was $17,588.37. Total expenses were $15,145.07. Expenses included three grants — Newcomb guides to a school, $271.80; school bussing for field trips, $300; and microscopes for the Herbarium, $1,614.64.

Assets on Nov. 15, 2008, totalled $24,645.89.

Minnesota Native Plant Society's purpose

(Abbreviated from the bylaws)

This organization is exclusively organized and operated for educational and scientific purposes, including the following.

1. Conservation of all native plants.
2. Continuing education of all members in the plant sciences.
3. Education of the public regarding environmental protection of plant life.
4. Encouragement of research and publications on plants native to Minnesota.
5. Study of legislation on Minnesota flora, vegetation, ecosytems.
6. Preservation of native plants, plant communities, and scientific and natural areas.
7. Cooperation in programs concerned with the ecology of natural resources and scenic features.
8. Fellowship with all persons interested in native plants through meetings, lectures, workshops, and field trips.

MN NPS Board of Directors

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MN NPS website

For current information about MN NPS field trips, meetings, and other events, check the website: www.mnnps.org

Introducing…

Dylan Lueth, board member

Dylan Lueth is the Native Plant Society's newest board member. He is a biologist with Midwest Natural Resources and has worked there for two years. His focus is on rare plant surveys, which has brought him to many different locations throughout the state, although much of his time has been spent in Northern Minnesota.

Dylan grew up in the rural town of Arlington, Minn., with an ever growing interest in the outdoors. After graduation, he moved to Trenton, Ohio, and enrolled at Miami University of Ohio. He continued his studies at the University of Minnesota, Duluth, and graduated with a Bachelor of Science in biology and a minor in chemistry. He started his career as a coatings chemist in Rockford, Minn., but soon lost his lab coat. Outside of work, Dylan is an avid ice fisher and continues his interest in chemistry through home brewing.

Dylan has been a member of the Native Plant Society for two years. He decided to become a board member with the goal of helping the Society continue to expand its membership and maintain its prestigious reputation.

Elizabeth Heck, board member

Elizabeth Heck recently joined the Minnesota Native Plant Society Board after volunteering on the Society's Conservation Committee for the past few years.

Elizabeth holds a degree from the University of Minnesota and spent most of her career with a small engineering firm as a proposal writer, GIS specialist and consultant. She transitioned into a graphic designer and will offer those skills to the society, including development of a new website.

Elizabeth has worked as a naturalist for Eloise Butler Wildflower Garden and serves in numerous volunteer capacities as a Minnesota Master Naturalist. Her passion for botanizing, plant uses and conservation led to training as an herbalist, in which education about botanical sustainability is a priority. Elizabeth's painting and photography consume her spare time and reflect the "hand lens view" of nature's plant beauty. She is honored to be a part of the board and the good work of the plant society.

Andrés F. Morantes, secretary

Andrés hails from Plymouth, Minn., and currently resides in Minneapolis. He is a senior at the University of Minnesota and plans to graduate in May 2009 with a Bachelor of Science degree in ecology. He became interested in ecology as a teenager while spending time outdoors working as a summer camp counselor and from traveling into the Costa Rican rainforests when visiting his extended family.

Currently, he works part-time at the Bell Museum of Natural History Herbarium, where he mounts plants. As an undergraduate, he has served as officer and project manager for the University's Fisheries, Wildlife, and Conservation Biology Club. He has been an MN NPS member for one year.

You can be a Lifetime member

by Ron Huber

The MN NPS board recently voted to offer a new category of membership — Lifetime — consistent with those offered by other natural history organizations. Most organizations offering this category make it a 20-year multiple of the standard individual membership. Thus, the Lifetime membership for MN NPS is set at $300. (We will continue to award honorary Lifetime memberships.)

Jason Husveth, our former president, is our very first paid Lifetime member. Thanks, Jason.

President's column

Continued from page 1

board meeting to fill two vacancies. Both new board members bring energy and enthusiasm, and I look forward to their future efforts. We also have a new secretary serving the Society, Andrés Morantes. One other change you will soon notice is a remodeled website. Besides being a board member, Elizabeth Heck has graciously taken over as webmaster.

I would like to remind everyone that this group is solely dependent and run through volunteer effort. By utilizing the talents and skills of our membership, we are able to put our financial resources towards other efforts.

The board has been watchful to not frivolously donate excess resources. Just recently, the board approved the purchase of two new dissecting microscopes, which were donated to the Bell Museum of Natural History Herbarium. The two scopes are now at the herbarium and are available for anyone who stops by.

In closing, I would like to thank the folks who made our last meeting in December a memorable event. I first would like to thank Lifetime MN NPS member Welby Smith for his great contribution with his book, *Trees and Shrubs of Minnesota*. I would also like to thank Carmen Converse and Jan Wolff for their help at the event. Lastly, I would like to thank Erik Anderson at the University of Minnesota Press for making sure we had the books in time for the meeting.

We had more than 100 folks in attendance and sold over 120 books. This was likely our best attended monthly program in years. We are always hoping to build on the momentum, and Linda Huhn has been doing a great job lining up the remaining talks for the year. I look forward to these programs and hope to see those who can attend.

Inventory shows extent of non-native invasive plants in Minnesota forests

by W. Keith Moser, Mark D. Nelson, and Mark H. Hansen, U.S. Forest Service, Northern Research Station, Forest Inventory and Analysis. This article summarizes Keith Moser's presentation at the Minnesota Invasives Species conference in Duluth in October 2008.

Readers are no doubt aware of the impact that non-native invasive plants (NNIP) present to Minnesota's ecosystems. The U.S. Forest Service's Northern Research Station (NRS) Forest Inventory and Analysis (FIA) Program is studying what determines where these plants are found, including forest type, tree density, disturbance, productivity, and topography.

Over the past decade, the NRS-FIA program has measured NNIP over a large network of inventory plots. Minnesota's forest inventory is "double intensity," meaning that there are two plots for every 6,000 acres, and field crews search for 25 species that are considered the worst NNIP on four 24-foot-radius subplots at each forested plot location.

The following list represents those species our stakeholders believe are likely to have a significant impact within 11 states of the Upper Midwest, including Minnesota. Inventory results provide information on individual tree species, diameter, and height. Measurements of overstory basal area and stand density index provide estimates of density.

Non-native invasive plants surveyed on FIA plots, 2005-2006

Woody species

Multiflora rose, *Rosa multiflora*
Japanese barberry, *Berberis thunbergii*
Common buckthorn, *Rhamnus cathartica*
Autumn olive, *Elaeagnus umbellata*
Nonnative bush, *Lonicera* spp.
European privet, *Ligustrum vulgare*

Vines

Kudzu, *Pueraria montana*
Porcelain berry, *Ampelopsis*
Asian bittersweet, *Celastrus orbiculatus*
Japanese honeysuckle, *Lonicera japonica*
Chinese yam, *Dioscorea*
Black swallowwort, *Cynanchum louiseae*
Wintercreeper, *Euonymus fortunei*

Grasses

Reed canary grass, *Phalaris*
Phragmites, Common reed, *Phragmites*
Nepalese browntop, Japanese, *Microstegium*

Herbaceous

Garlic mustard, *Alliaria petiolata*
Leafy spurge, *Euphorbia esula*
Spotted knapweed, *Centaurea*
Dame's rocket, *Hesperis matronalis*
Mile-a-minute weed, Asiatic, *Polygonum*
Common burdock, *Arctium minus*
Japanese knotweed, *Polygonum*
Marsh thistle, *Cirsium palustre*

The locations of NRS-FIA plots with non-native invasive plants in Minnesota's forests are shown in the map. Woody invasive species were particularly common, while the few herbaceous NNIP observed were located along the oak/prairie ecotone.

Of the 2,445 plots sampled in this study so far, only about 5 percent had one or more of the 25 invasive species of interest. Only nine of the NNIP on our list were observed and only one — common buckthorn (125 plots) — was found in large numbers. Some of the most prominent forest types in our state, such as aspen, black spruce, and paper birch, had few instances of the invasive plant species. The forest types with the most observations of invasive plants in Minnesota — white oak/red oak/hickory and sugarberry/hackberry/elm/green ash — are either mid-shade tolerant species that rely upon disturbance to maintain their position, or riparian species subject to frequent anthropogenic disturbance over their range.

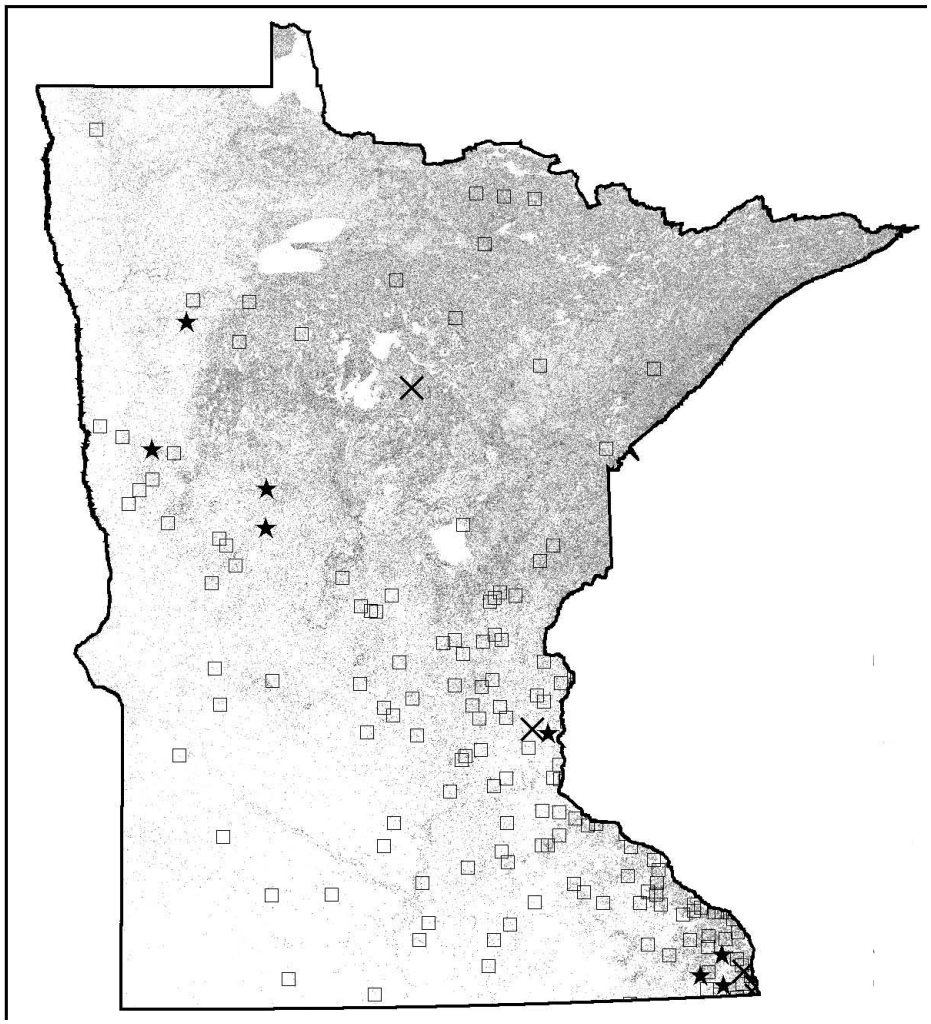
Species of NNIP found in Minnesota forested plots, 2005-2006.

The number of forested plots on which each species was found is in parentheses.

Most prominent species:
Common buckthorn (125)
Non-native bush honeysuckles (22)
Common burdock (10)
Reed canary grass (4)
Japanese barberry (3)
Multiflora rose (2)
Garlic mustard (2)
Glossy buckthorn (1)
Autumn olive (1)
European privet (2)
Marsh thistle (1)

Given the history of natural and human-caused disturbance and forest types whose shade tolerance means the growing space might not be completely occupied, the authors expected to find multiple relationships between NNIP and forest and site characteristics.

In a regional study, Moser et al. (2008) found that measurements of disturbance and fragmentation were significantly related to NNIP presence and cover. The percentage of total county area in forests was very closely related to the presence of almost every one of the 25 species; the higher the percentage of forest, the less likely one would



Cartographer Mark Nelson, Forest Inventory and Analysis, USDA Forest Service, Northern Research Station, prepared this map, using FIA and ESRI data and maps.

find invasive plants.

A combination of fragmentation measures (Heilmann et al. 2001) was positively associated with the presence of common buckthorn, multiflora rose, and non-native bush honeysuckles, as well as reed canary grass. Distance from the nearest road seemed to have a significant negative association.

These results suggest that site productivity was good for multiflora rose coverage in the Upper Midwest and was negatively associated with non-native bush honeysuckle coverage. While certain measures of density and stand age seemed to be negatively correlated with (any) NNIP presence and abundance, Moser et al. (2008) did not find as strong relationships with individual invasive plant species.

Our challenge is separating human influence from some ecological advantage of the invading plants. One could easily argue that our results reflect the heavily disturbed nature of Minnesota's second- and third-generation forests. The characteristics of the landscape that we found to influence invasive species presence may also be a significant influence on homestead choice by settlers.

Analysis of invasive species at one point in time is usually not sufficient to evaluate trends in regeneration, expansion, or growth. The FIA database tracks disturbance and silvicultural treatments, but only in the interval since the previous inventory. The human activities that resulted in the establishment of these non-native invasive species likely occurred many years ago. We are presently conducting a region-wide analysis using inventory and weather data and other information sources to follow up on our initial measurements and analysis.

Prairie restoration techniques studied at Lamberton

How can native prairies be more successfully recreated? Reseachers at the University of Minnesota's Southwest Research and Outreach Center at Lamberton are seeking answers.

Experiments at test plots in the center's 30-acre native prairie restoration site will help determine better ways to restore native grasses and forbs. So far, inclusion of cool-season grasses in seed mixes seems to be critical, and fall planting works best.

How can non-native, invasive Canada thistles be best controlled? Researchers are testing whether herbicides can be used selectively to reduce thistle growth without excessive damage to native forbs.

A third project seeks to stop native grasses, which grow quickly, from preventing slower-growing forbs from being establishd. The solution to this problem has not yet been found.

New book describes Minnesota trees, shrubs

"Trees and Shrubs of Minnesota," *by DNR botanist Welby Smith, published by the University of Minnesota Press; 703 pages; $59.95. The following book description is by Welby Smith.*

This new book covers all the native and naturalized woody species in Minnesota. That includes 92 native tree species, 131 native shrubs, and 12 native vines. Add to this 15 naturalized species, and the total reaches 250.

The book begins with a 14-page introduction that includes descriptions and maps of the soils and climate of Minnesota, and discussions of ecological regions. This section also has maps of tree distribution based on bearing tree data from the Public Land Survey that was conducted at the time of settlement. This part is followed by a key to the genera of woody plants in Minnesota.

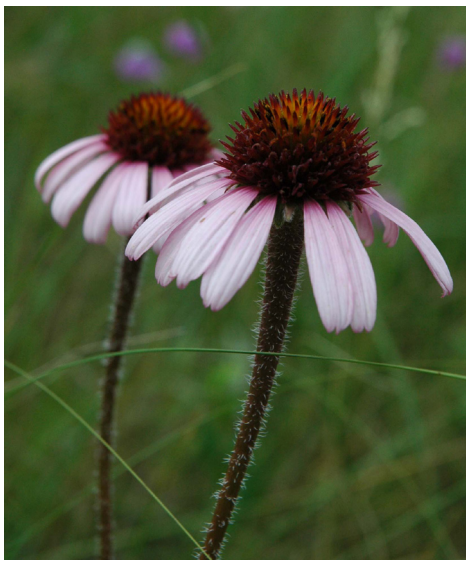
The next part (the main body of the book) contains the detailed species accounts. Each species gets two pages. The left page has the text, including a scientific description, tips on identification, and a discussion of natural history. This page also has a North American range map and a Minnesota distribution map.

The facing page has color photographs of the leaves, flowers, fruit and bark. There is also an ink drawing of the winter silhouette of each tree species and most of the larger shrubs. If a genus has more than one species, then it is preceded by an identification key to the species. The large and difficult genera of willows, oaks and hawthorns have comparison pages where life-size drawings of the leaves are compared side-by-side.

At the end of the species accounts is a seven-page glossary that includes illustrations of different leaf shapes and leaf margins. There is also an eight-page bibliography of scientific papers cited in the species accounts.

This is not a small book; it measures 8.5 by 10.25 inches and weighs in at slightly over five pounds. It is bound in a sturdy green embossed hardcover with a dust jacket. The author will tell you that he worked on it for 14 years, but in truth it is the work of a lifetime.

Most online sources are selling it at a discount, which brings the price down to around $50, which is not insignificant in these days of recession. So, if you can't afford to buy a copy, check it out from your local library or borrow a copy from a friend, and let the author know what you like about it and what you don't. He just might live long enough to write a second edition.



Purple coneflowers,* Echinacea angustifolia, *are found in the Aspen Parklands.

Orchid photos needed for book

The University of Minnesota Press has decided to publish a new edition of the the out-of-print 1993 book *Orchids of Minnesota* by Welby Smith. The first edition had a small section of color photographs in the center of the book.

The second edition is to have color photographs throughout the book. Toward this goal, they are soliciting high-quality photos of 49 orchids from local photographers. The photos can be film or digital but must be sharp and show fine detail.

For a list of orchids or for additional information, direct inquiries to Todd Orjala at t-orja@umn.edu

Symposium to be April 4 at Bell Museum

The Aspen Parklands subsection in northwestern Minnesota will be the topic of this year's MN NPS symposium.

This subsection is part of the greater Tallgrass Aspen Parklands Province that expands north into Canada. This region is a transitional landscape between the Laurentian Mixed Forest and the Prairie provinces that had once been Glacial Lake Agassiz.

The symposium will be April 4 at the Bell Museum of Natural History on the University of Minnesota campus in Minneapolis.

The Symposium Committee is finalizing the speakers for the event. Brochures will be mailed in February to Society members and will also be available online at our website, www.mnnps.org

Plant Lore

by Thor Kommedahl

What is anise root?

Anise root is *Osmorhiza longistylis* in the carrot family *(Apiaceae/Umbelliferae)*. Another name is sweet cicely; *O. claytonii* is also called sweet cicely, but not anise root. Style length and root scent separate the species. Both species are native to Minnesota.

How did it get its names?

The genus name comes from a Greek word *osme* meaning scented or fragrant and *rhiza* meaning root. *Longistylis* refers to the long style— longer than the petals. Cicely comes from a Latin and Greek word *seselis*, and sweet refers to the anise-scented root. *Osmorhiza claytonii* has roots with little or no anise scent and is named after John Clayton, a Virginia botanist (1694-1773). Anise smells like licorice.

What do the plants look like?

Anise root is a perennial, herbaceous plant one to three feet tall, with insect-pollinated, white flowers borne in clusters (umbels). Styles are longer than the petals. It has fern-like leaves, three times compoundly divided with egg-shaped leaflets. The dark purple fruits (schizocarps) cling to clothing. *Osmorhiza longistylis* is smooth, whereas *O. claytonii* is hairy. Plants bloom April to June.

Where does it grow?

Both species grow in moist woodlands throughout the state.

Does it have any medicinal properties?

American Indians made a poultice from roots to apply to boils and wounds. They also made a root tea for general debility and as a tonic.

Is it edible or poisonous?

Leaves, fruits, and roots have been added to salads for the anise flavor. Plants are not poisonous but have been confused with poison hemlock in the same family.

What other features are there?

It has been grown in wild flower gardens, and hybrids have been developed. Black swallowtail butterflies feed on plants. Bees suck nectar and collect pollen from them. Horses have been attracted to roots.

Osmorhiza longistylis *(anise root), photos by Peter Dziuk.*

Rare Species Guide is online

Profiles of more than 430 Minnesota endangered, threatened, and special concern species are available in a new, searchable database from the Minnesota Department of Natural Resources Division of Ecological Resources.

The guide is Minnesota's authoritative reference for the state's endangered, threatened, and special concern species and serves as an update to the 1988 book, *Minnesota's Endangered Flora and Fauna.*

The list was last revised in 1996, but it is currently undergoing a formal rule revision process. Once that has been completed, additional species profiles will be added to *The Rare Species Guide*, and status designations and taxonomy information will be updated.

Information on the website includes:

- Taxonomic information;
- State, federal status designations;
- State and North American range maps;
- Color photos and/or illustrations;
- Reason a species is listed;
- Description, habitat, life history;
- Conservation, management issues and recommendations;
- Life form, longevity, leaf duration, water regime, soil and light requirements, phenology for all vascular plants.

There are three ways to search for species information:

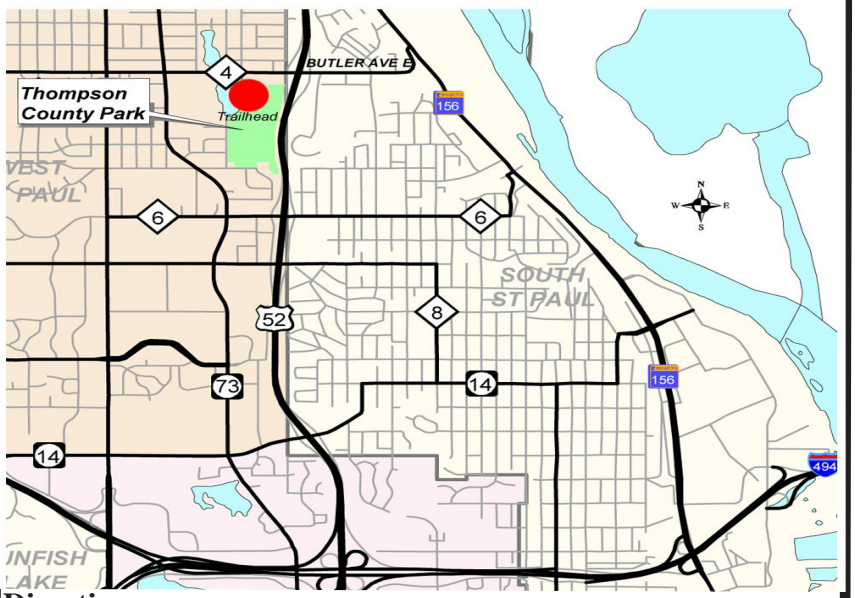
- A-Z list — find by either common or scientific name;
- Filtered search — find groups of species by broad taxonomic group;
- Keyword search — find a word or phrase within species' profiles.

To access the guide, go to www.mndnr.gov/rsg

Minnesota Native Plant Society
P.O. Box 20401
Bloomington, MN 55420

Winter 2009

Thompson County Park:
360 Butler Ave East, West St. Paul, MN 55118



Directions:
Take MN Hwy. 52 to the Butler Ave. E. exit in West St. Paul.
Go west on Butler 0.2 miles to Stassen Lane.
Go south on Stassen Lane to Thompson County Park.