



Minnesota Plant Press

The Minnesota Native Plant Society
Newsletter

Volume 15, Number 1

Fall 1995

Upcoming Monthly Meetings

Minnesota Valley National Wildlife Refuge
Visitor Center, 3815 East 80th Street
Bloomington, MN 55425-1600 612-335-2323

6:00 PM—Board Meeting, Room B
6:30-7 PM—Socializing, Room A
7-8 PM—Regular Meeting, Auditorium
8-9 PM—Refreshments, Room A
9 PM—Doors close sharply at 9 PM

October 5—Shirley Shirley, author of *Restoring the Tall Grass Prairie*; Mike Marxen, *Landscaping MVWR Building*.

November 2—Margaret Kuchenreuther
Topic to be announced; Seed Exchange

December 7—Bea Smith, author of *The Painted Herbarium*; POM: Lisa Mueller—Leedy's roseroot.

January 4—Kathy Boleen, *Exotic and problem plants in Minnesota state parks and natural areas*

February 1—John Tester *Ten Thousand Years and Fifty Miles*; POM: Hannah Dunnevit.

March 7—Susan Galatowitsch *Wetland Restoration: Sedges have edges but edges don't have sedges*; Annual Meeting.

April 4—David Augustine, *Effect of Deer Browse in the Big Woods*;

POM: Bill Capman, *Silphium*

May 2—Plant Sale and Slide Show

Deadline for Winter Issue is December 1, 1995.

To pool rides to the **Minnesota Valley National Wildlife Refuge**, please call—well in advance—Grace Gray who will coordinate pooling

Biodiversity and Native Plants: What's the Connection?

by Char A. Bezanson

Biodiversity, native plants, introduced species, exotic plants—if you are interested in natural areas or even in gardening or landscaping, these are words you have probably run across. But exactly what are the issues here, and how are they related?

What is Biodiversity? Biodiversity refers to the genetic variation of all life on Earth. The diversity of life is what makes it sustainable; when conditions vary, some individuals in a population may possess traits that will help them to survive and reproduce. If you collect seeds from the wild, for example, you know that often it won't germinate evenly, or under all conditions. Some seeds may germinate soon after maturing. Some may germinate the following year. Some may require a period of cold to break dormancy, whereas others may remain dormant for years. Seeds collected from plants in Minnesota often require a cold treatment: if seeds germinated immediately after maturation, say during a nice warm week in September, the entire generation of seedlings could be killed by an early winter frost. But in some years, there might be an extra-long growing season, and seeds that germinated immediately might have had time to grow, flower, and set seed before winter. Because plants can't predict the weather with any more certainty than we can, there is enough variability built in to ensure that at least some plants will survive drought, flood, cool weather, or any number of possible conditions.

Natural vs. economic plants. Natural populations of organisms are more diverse than crop or horticultural cultivars which have been manipulated by humans for their own reasons. A field of genetically identical hybrid corn or vegetatively propagated potato (continued on page 4, *Biodiversity* ...)

Please note that the Minnesota Valley National Wildlife Refuge is only available to us on **Thursday** evenings, so all meetings in the 1995-1996 year will be held on the **first Thursday of the month**.

Editorial

Endangered species revisited

The US Supreme Court in June ruled that altering an endangered species habitat has the same effect as harming the species and therefore can be prohibited under the Endangered Species Act (ESA). This means that the Department of Interior can continue its policy of banning destruction of habitat on private property. Moreover, the Department of Interior includes "significant habitat modification" in its interpretation of harm. This is a signal victory in the environmental movement but Congress has not yet reauthorized ESA. There still are critics of the ESA.

Environmental scientist Daniel Botkin, in his book *Our Natural History*, reminds us that it is difficult to determine whether plant or animal species are endangered when we don't know their populations prior to human settlement. He doubts that there is a "natural abundance"—only a changing abundance—and whether we even know what "natural" means.

We assume that presettlement conditions represent optimum habitats for all species, and that to save an endangered species we need to restore the habitat to those conditions. But what were those conditions? How resilient is nature? The recent eruption of Mt. St. Helens illustrates that life forms have returned to the mountain slopes in just 4 years after the eruption.

How fragile are species? A population that has existed for thousands of years may be resourceful enough to have individuals in that population that can survive daunting conditions. What is the minimum population size that is self-sustainable and still provides sufficient genetic variation, asks Botkin. These are tough questions.

Botkin also concludes that humans must be figured in as part of the balance-of-nature. Lewis and Clark reported that nature alone can be treacherous and unpredictable.

In our zeal to promote the conservation of endangered species, we need to know more about species, their variability and survivability. We need to educate ourselves about plant diversity in relation to human activities. And we still need to support efforts to reauthorize ESA.

Surfing the Internet for information about native plants and landscaping

Various postings include lists of native plants, sources for seed, discussions of the value of native plants and descriptions of individual projects. Much of this information comes from Australia where there is a large native plant movement and many native plant nurseries! Here are some examples of some sites closer to home that you might want to try if you have access to the World Wide Web.

<http://www.umich.edu/~nplummer/Nativeorchids.html>
Photos of native Michigan orchids.

<http://www.prairienet.org/~fletcher/prairie/tgp-09.htm>
Discussion and pictures of tallgrass prairie plants in Illinois

<ftp://h2olily.rain.com/pub/water/ppskcab.txt> An essay about skunk cabbage (not a WWW site per se).

<http://www.uoguelph.ca/CBS/Botany/fraser1.htm> Information about American Ginseng

<http://gause.biology.ualberta.ca/devonian.hp/research.html>
Description of research and activities at the Devonian Botanic Garden in western Canada.

<http://www.netins.net/showcase/bluestem/ipnapp.htm>
Information about an Iowa tallgrass prairie advocacy group.

<http://dataadmin.irm.r9.fws.gov/servers.html> Server for the Minnesota Valley National Wildlife Refuge. Includes access to information about wetlands.

—compiled by Charles Umbanhowar Jr., St. Olaf College, Northfield, Minnesota.

Minnesota Native Plants is online. See *Minnesota Plant Press*, summer issue 1995 for details. For correspondence to the group send E-mail to MN-NATPL@vm1.spcs.umn.edu

The Minnesota Native Plant Society

Minnesota Plant Press
Thor Kommedahl, editor

Membership dues are \$10 per year for regular members and includes subscription to the newsletter; dues for students and seniors are \$8, for family \$12, for institutions \$20, and donors \$25. Checks can be made out to: Minnesota Native Plant Society, and sent to: Minnesota Native Plant Society, 220 Biological Sciences Center, 1445 Gortner Avenue, St. Paul, MN 55108.

Four issues are published each year.

MNPS Board of Directors

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The Minnesota Native Plant Society is a tax-exempt 501 c3 organization as determined by the US Internal Revenue Service.

MNPS to meet on first Thursdays of the month

The Minnesota Native Plant Society, after years of meeting on the first Wednesday of each month from October through May, is changing its meeting night to the first Thursday of each month, from October through May. This change is due to Federal cutbacks which are making it necessary for our hosting location, the Minnesota Valley National Wildlife Refuge, to eliminate evening hours for the general public, and open for reserved groups such as the MNPS on Thursday evenings only.

Late in July, a letter was sent to the MNPS membership asking members to vote for one of two options: meet at the Refuge Center on the first Thursday of the month, or, meet in a room on the St. Paul Campus on Wednesdays.

As of August 21, the president had received 104 postcards in favor of the Refuge Center on Thursdays, and 31 postcards in favor of the St. Paul Campus on Wednesdays; 21 people indicated that they had no preference, for a total of 156 cards received—a return rate of 50%. Several votes were received by E-mail and tallied separately: 2 for the Refuge and 1 for the St. Paul Campus.

No date, time, or location is ideal for everyone; nevertheless, this response makes the decision of the Board to meet on Thursdays at the Refuge Center a clear one. In comments made, a few people indicated that they would be unable to attend if the day were changed. Some indicated the opposite. We regret any inconvenience this change will cause, but welcome those who will be able to participate as a result of the change. We thank all who responded.—*Char Bezanson, President MNPS*

When Europeans settled Minnesota, the Big Woods—a maple-basswood forest—covered more than 3,400 square miles from St. Cloud to north-eastern Iowa, into Indiana. Mature trees were more than 100 feet tall.—*Minnesota Volunteer 58(342):49, 1995*

Environmental Action Grants for Minnesota Schools

The School Nature Area Project (SNAP) offers grants to K-12 schools for projects benefiting school nature areas and environmental education. Any public or private K-12 school in Minnesota may apply for these grants.

Project grants fund the improvement of native vegetation and wildlife habitat on or near school grounds. Schools or individual classes may apply for cash awards of \$500 to \$1500. Twenty-four (24) awards are available.

All grants promote participation of local community members in school projects. This is a great opportunity for MNPS members to become involved in native plant education at a local school as advisors and project participants; consider working with teachers at a school near you on a project!

SNAP Environmental Action Grants are made possible through the financial support of the Blandin Foundation of Grand Rapids, Minnesota, and the Minnesota Legislature as recommended by the Legislative Commission on Minnesota Resources from the Natural Resources Trust Fund.

Applications are due December 1, 1995. To receive an application, contact The School Nature Area Project, St. Olaf College, 1520 St. Olaf Avenue, Northfield, MN 55057. Phone 507-646-3599. fax 507-646-3930. E-mail: lamarche@stolaf.edu —*Char Bezanson, St. Olaf College.*

MNPS Display Board Use

All members are welcome to show our display board at events, museums, and schools, if an attendant is present or it is safely displayed. This 3 by 5 foot, 2-sided board holds information on the Society, native plants, and stewardship. Call Don Knutson.

This board, displayed again at the State Fair, received another ribbon.

Char Bezanson is the new President of the MNPS, and has been a board member since 1991. She has an MS degree in botany from the University of Minnesota, and works at St. Olaf College in Northfield, currently as an instructor in Science Education and as Site Ecologist for the School Nature Area Project. She has conducted numerous workshops for teachers on plant-related topics, and has recently converted 400 square feet of her lawn to prairie plants by using transplants, growing more than 300 of those plants from collected seed.

Seed Exchange is planned for November 2

MNPS sponsors a seed exchange every autumn. This year, the exchange will take place immediately following the November regular meeting. Seed should be from native plants collected from member's gardens or from the wild. If you are collecting seeds from the wild, please use appropriate conservation measures and collect only a low percentage of mature seed. Seeds should be dry; avoid storing seeds in plastic bags that retain moisture and can cause seed degeneration. Please package the seed for one person, not as a bulk supply, whenever possible.

Label the seed as completely as possible, including scientific and common names, collection site, habitat, date of collection, and the collector's name. Any cultural information you can provide with the seed will be appreciated. First choice of seed will go to the seed contributors, and then the exchange will be opened to all.

Contributors often provide envelopes but members are encouraged to bring their own supply.—*Char Bezanson.*

A seed is a ripened ovule; a fruit is a ripened ovary. Ovaries contain ovules.

Biodiversity and Native Plants

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is convenient for the farmer who wants to harvest the crop mechanically, all at once, because all the plants will germinate together, grow at the same rate, and ripen together. Likewise, the nursery that sells ornamental perennials wants to ensure that the plants you buy will have the characteristics that are advertised for the variety: large flowers, double blooms, or lack of thorns, perhaps. They're interested in "quality control", not diversity. The traits favored by humans may affect the plant's function, of course: many garden flowers have increased petals in the flower at the expense of stamens, making them less functional. The color or fragrance may no longer attract pollinators, or the sterile flowers may no longer produce seed, making the plants truly domesticated and dependent on humans for propagation. It's hard to imagine florist's carnations or Thompson's Seedless grapes reproducing in the wild!

Maintaining diversity. One downside of this reduction in diversity is that a disease or disaster that affects one plant is likely to affect them all: this is what happened in the Irish potato famine, in which waves of Irish immigrants came to the United States in the last century. Species extinction, which has been estimated by E.O. Wilson of Harvard University to be occurring at the rate of 70 species per day, reduces diversity. The reasons for this can be summarized by the acronym HIPPO: Habitat destruction, Introduced species, Pollution, Population growth, and Overconsumption. As biodiversity declines, the web of life which supports us all is weakened, and is less able to respond to environmental changes such as global climate change or increased ultraviolet radiation. Managing land to preserve habitat and native species helps maintain the biodiversity we all depend on.

Native Plants. A plant is native to a locality if it evolved in that place. It is fully integrated

into the local biotic community. Native plants differ from non-native plants in that they have complex relationships with other local organisms. A native plant may depend on a particular local soil fungus for its nutrition. It may produce a chemical product to protect it from certain local insects; this product in turn may be eaten by a caterpillar, which is then protected from predators because of a bitter taste. It may produce nutritious pollen or nectar as payment for the pollination services of a particular bird or bee, and have a flower adapted to pollen transfer by that animal. It may produce special nutrient packets on its seeds which entice a local species of ant to hoard the seeds underground, planting the seed in just the right place. Because of these many complex relationships, native plants are an integral part of the community, both depending on and essential to many organisms. Native plants seldom grow "out of control", since they regulate and are regulated by populations of these other organisms. Of course, all organisms continue to evolve, and plants have been moving around the world for many centuries. When people talk of native plants, they usually mean plants that are documented to occur in an area before there is extensive disturbance by human activities. In Minnesota, most of these records were made within the last two centuries, especially at the time of the public land survey (1847-1907). Sometimes native plants, or native wildflowers, may be used to mean "native to the United States", such as "native wildflower" seed mixes that include California poppies and Texas bluebonnets. Even within Minnesota, a plant may be native to the state but not native to the locality. Red and white pines, for example, are native to northern Minnesota, but not to the southern half of the state.

Exotic plants. It's hard to discuss native plants without defining a few more terms. A plant is *exotic* if it is from somewhere else. The common plantain that grows along-

side the dandelion in our yards came to this continent with Europeans, probably hitching a ride on animals, clothing, and shoes. Because it appeared wherever Europeans went, it received one of its common names "white man's footprint". Although a particular exotic plant may not be a problem—for example exotic orchids in a hobbyist's collection—the word is often used to refer to a plant from somewhere else that is causing a problem as a weed or pest.

Introduced plants. A plant is *introduced* if it was brought here by humans. Often these are cultivated garden plants, both crops and ornamentals; the Norway spruce in many Minnesota wind-break plantings is from Europe. Many culinary and medicinal herbs were also introduced into this country by Europeans.

Naturalized plants. A plant that escapes from cultivation and thrives on its own in the wild is considered *naturalized*. Catnip and motherwort are examples of plants that were introduced by Europeans as medicinal herbs, but which now grow everywhere. Queen Anne's Lace is actually the second-year flower of the carrot, escaped from gardens and growing wild. Wild parsnip is also a garden escapee that grows very well in ditches in Minnesota.

Invasive plants. Some plants are *invasive*, displacing the native vegetation because they compete well, and are not kept in check by balanced relationships with other organisms. If they displace the native vegetation, lack of native plants may reduce the populations of other organisms in the community which depend on them, causing displacement or local extinction. Examples of invasive exotic species that are major problems in Minnesota include European buckthorn, a shrub that was introduced as a hedge-forming shrub and is now displacing native vegetation in woodlands, and purple loosestrife, which escaped from flower gardens and is now taking over

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native plants and riverbanks, eliminating diversity in these areas.

Native plant sourcebook. How can we tell if a plant is native to a place? Practically speaking, the easiest way is to find a copy of Ownbey and Morley's *Vascular Plants of Minnesota*. This wonderful resource was prepared by two long-time University of Minnesota botanists—both members of MNPS! The book lists all the Minnesota-collected plants in the University of Minnesota herbarium, and provides distribution maps for each species. The authors indicate when a plant is known to be introduced or naturalized. If you can't find a copy in your local library, a call to the University herbarium can probably help you out.

Planting native plants. One way to help preserve both biodiversity and natural habitats for all kinds of organisms is to use native species in landscaping. If chosen appropriately, native species have the advantage of being adapted to local soils, climate, insects, and other conditions, so they are usually quite easy to care for, once established. Prairie grasses and flowers, for example, have extensive root systems going as deep as 15 feet, which enables them to survive summer dry spells without supplementary watering. There are potential pitfalls to consider, however. As native plants are not substantially altered by humans, they have the potential to interbreed with local populations of the same species, producing viable seed. If the plants in your prairie planting, for example, are of a species native to Minnesota but from a seed source in Nebraska, your planting has the potential to affect the genetic makeup of a nearby native prairie. Professional opinion differs on the importance of this issue. What may be an important consideration when enhancing or restoring a sizable native plant prairie may be less important in a backyard butterfly garden, but it is generally a good idea to obtain

plants and seeds from sources close to your site whenever possible.

Learning native plants. Studying a state or county park or local natural area as a model for your site is an approach to designing a native planting; working with reputable native plant nurseries and consultants is another way. Courses, lectures and books on native plants, field trips with MNPS and other organizations, and your own observational skills will help. Choosing and using native plants is not as easy as a trip to the local garden center, but the process of learning about plants of your area and their relationships with other organisms is a rewarding one, and a process that MNPS is all about.

Char Bezanson is an instructor in St. Olaf College, in Northfield, Minnesota, and site ecologist for the School Nature Area Project.



Smilax hispida
bristly greenbrier

A prickly vine native to Minnesota
Stems are bright green in winter.

What is vervain?

Vervain is a member of the genus *Verbena* which means "sacred plant". Blue and white vervains are abundant and native in Minnesota.

Why was it thought of as sacred?

Verbenae, in Latin, were the sacred boughs of laurel, olive or myrtle used in religious ceremonies. The plant also had many uses in medicine and even as a love potion.

What are the common vervains in Minnesota?

Blue (*Verbena hastata*) and white (*V. urticifolia*) are two kinds frequently found in the state, but not in the same habitat. Blue vervain is found in poorly drained, wet soils whereas white vervain grows in dry soils. Blue vervains are surrounded by joe-pye-weed, reed canary grass and maybe alders whereas white vervains have goldenrod and dryland grasses as neighbors.

What kind of a plant is vervain?

Both of these species are perennials and grow from two to six feet tall. They begin to flower in midsummer and continue for up to three months, ending around September. Flowers are small and numerous on stems and seeds are dispersed by simply falling to the ground.

Can white vervain be confused with nettle?

Not really. True, the leaves resemble nettle leaves; however, stems of nettles are grooved and covered with hairs whereas vervain stems are square and smooth. The whitish down seen on vervain stems in fall is powdery mildew—a fungus.

What medicinal uses are there?

Native Americans used blue vervain tea for colds, coughs, fevers, bowel complaints, dysentery, stomach cramps, and in large doses, an emetic. Roots were said to be more active than leaves.

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