

Minnesota Plant Press

The Minnesota Native Plant Society Newsletter

Volume 25 Number 4 Summer 2006

Monthly meetings

Minnesota Valley National Wildlife Refuge Visitor Center, 3815 American Blvd. East Bloomington, MN 55425-1600 952-854-5900

6:00 p.m. — Building east door opens

6:00 p.m. — Refreshments,

information, Room A

7 – 9 p.m — Program, society business

9:00 p.m. — Building closes

Programs

The MN NPS meets the first Thursday in October, November, December, February, March, April, May, and June. Check the website for more program information.

Oct. 5: "Semi-Natural Grasslands for Biofuel and Ecological Services?" by Dr. Nicholas Jordan, professor, Department of Agroecology, Agronomy and Plant Genetics, University of Minnesota. Plant of the Month: to be determined.

Nov. 2: "The Importance of Native Plants in the Streamside Environment," by Brian Nerbonne, stream habitat specialist, MN DNR Central Region Fisheries. Annual seed exchange.

Dec. 7: "Growth Pressures on Sensitive Natural Areas in DNR's Central Region," by Sharon Pfeifer, regional planner, DNR Central Region.

Feb. 1: "Recent Highlights in the Minnesota County Biological Survey," by Carmen Converse, county biolgical survey supervisor, DNR.

MN NPS website

www.mnnps.org

e-mail: contact@mnnps.org

MN NPS Listserve

Send a message that includes the word "subscribe" or "unsubscribe" and your name in the body of the message to: mn-natpl-request@stolaf.edu

Natural prairies hold key to sustainable fuels

By Deane Morrison. Reprinted with permission from UMNnews, University of Minnesota.

As gas prices inch higher, the search is on for renewable, plant-based fuels that don't require fertilizer or pesticides, which both require energy to produce.

A solution may be at hand, from University ecologist David Tilman and two colleagues: Instead of growing a single fuel-source crop, grow many species together, because such plantations yield more total vegetation — and do it more reliably — than any growing just one species.

The most cited ecologist in the world, Tilman has long been singing the praises of biodiversity, as the coexistence of many species is called.

In May, he and two colleagues (University forest resources professor Peter Reich and Johannes Knops of the University of Nebraska) published a paper in the journal *Nature* in which they sum up 12 years of experiments at the University's Cedar Creek Natural History Area. The longest-running experiment of its kind, it shows unequivocally that plots of land with numerous species produce much more "biomass" and suffer less from fluctuations in productivity than plots with only one or a few species. This makes diverse plantings the likeliest candidates to drive the "bio" revolution.

Think species diversity

The paper is a call to everyone who wants to extract energy from biomass to start thinking in terms of species diversity. Biomass can be either burned for energy or refined to produce concentrated energy in the form of biofuels, such as ethanol, or synfuel gasoline and

diesel. The greater the yield of biomass per acre, the better, and data from Cedar Creek show that diverse plantings fill the bill.

"Diverse prairie grasslands are 240 percent more productive than grasslands with a single prairie species," says Tilman, a Regents Professor of Ecology in the

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From the president

by Scott Milburn

I would first like to start off by recognizing the great job done by our outgoing president, Jason Husveth. The Society has gained a good deal of momentum under Jason's leadership, focusing on exciting field trips, symposia, and monthly meetings, along with increasing membership numbers and revenue. Looking forward, it is important for the Society to keep focusing on what has led to this gain in interest while continuing to grow.

The Society is dependent on the involvement of our membership. Many members have been stepping up in the past few years to lead field trips and organize a social hour before the monthly meetings. In the next year, we should look for ways to maintain our existing members, increase our membership, and increase committee involvement by the membership.

We need to continue to offer our excellent services (programming and field trips), but we also need to modify how we deal with memberships. One idea that has been talked about for the past year at board meetings is to offer three-year

memberships, rather than having to renew each year.

Additionally, we need to look for ways to increase our membership numbers. One way that folks can help with this is to publicize the Society's monthly meetings by posting a list of meeting topics and times at your neighborhood plant nursery or grocery store. The Society must also increase committee involvement by the membership, including the Symposium Committee, Field Trip Committee, etc.

This upcoming year's monthly programming, symposium, and field trips look very promising. I would like to thank Linda Huhn for the great job she has done organizing speakers for this upcoming year. Symposium Committee is also starting to prepare for next year's meeting, with several potential topics, including the Prairie Coteau. Furthermore, it looks like another good year for field trips under the direction of Ken Arndt. In closing, I am looking forward to this opportunity to serve as the president of the Society and welcome input from our members.

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 and ecosystems.
- 6. Preservation of special 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

President: Scott Milburn, president@mnnps.org

Vice President: Shirley Mah Kooyman, vp@mnnps.org

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Minnesota Plant Press editor: Gerry Drewry, phone, 651-463-8006; plantpress@mnnps.org

Updated plant identification CDs are now available

Flora ID Northwest, LLC announces that its Minnesota and Great Plains plant identification CDs for PCs have been updated. MN NPS members who have purchased either or both of these CDs can get the latest update for \$6 shipping and handling. Contact Bruce S. Barnes, Flora ID Northwest, LLC, 731 NW 5th, Pendleton, OR 97801; call 541-276-5547 (FAX 541-276-8405) or email: flora@uci.net

New users may purchase updated CDs from the Society at \$70 (Minnesota) and \$150 (Great Plains).

From the former president

by Jason Husveth, president, 2003 - 2006

Greetings members! I hope you are all enjoying Minnesota's native flora and wealth of natural areas during these warm summer months. I have had the honor of serving as your president for the past three years. With the help of an energized and talented board and enthusiastic members, we have accomplished a great deal in this time. I want to thank all of you for making my term as president so rewarding and, I hope, productive.

As many of you may know, a new slate of officers was elected at the June 2006 board meeting. Scott Milburn will be taking over the reins of president, and I am certain he will excel in this role.

Shirley Mah Kooyman was elected vice president, and her professional skills and considerable experience on the board will serve her and the society well. I am excited to see the new directions that our senior officers will take us.

After several years on the board and serving as secretary, Karen Schik has stepped down to pursue and develop local conservation initiatives in her community. Among her many contributions, Karen has served as an invaluable resource on the board and has volunteered countless hours to planning our annual symposia for the past several years. I wish to thank Karen for her exceptional service to the society. She will be missed (and called upon in a pinch).

Daniel Jones was elected as secretary and continues to offer his talents and passion to the society. Ron Huber will continue to serve as treasurer, and he and Cathy are doing a fine job at managing the society's assets and financial concerns. Ken Arndt continues to raise the bar with field trip planning and coordination, and will continue on the board.

Sandy McCartney is working on developing an annual scholarship for Minnesota students. Many thanks to Gerry Drewry for keeping us on task with the quarterly newsletter, and to Linda Huhn for coordinating fantastic speakers and topics for our monthly meetings.

It has been a pleasure to serve as your president for the past three years. I will continue serving on the board through 2007, and I look forward to helping the society grow well into the future.

Thank you!

Art Hawkins dies

Conservationist Art Hawkins, 92, died on his property at Lake Amelia March 9. As a United States Fish and Wildlife manager in Minnesota, Hawkins developed many of the research protocols and waterfowl management plans used by the agency. He was a member of the Commissioners Advisory Committee to Scientific and Natural Areas for almost 20 years.

Hawkins held a bachelor's degree from Cornell and a master's degree from the University of Wisconsin, where he worked under Aldo Leopold. He was one of Leopold's last surviving students.

Like Leopold, Hawkins restored his land to a wildlife preserve. Hawkins placed some of the first nesting platforms for osprey on his land and kept a diary or journal about the property for nearly 50 years.

The MN NPS has started a memorial fund for Art Hawkins. If you wish to contribute, make your check out to the Society, mark it for the Art Hawkins memorial, and mail it to Minnesota Native Plant Society, P.O. Box 20401, Bloomington, MN 55420.

Take an evening tour of Hastings Sand Coulee July 18

by Elizabeth Storey, river stewardship coordinator, Friends of the Mississippi River

Join Friends of the Mississippi River Vermillion Stewards for a prairie tour of the Hastings Sand Coulee Tuesday, July 18, from 6:30 – 8 p.m. Karen Schik, restoration ecologist for Friends of the Mississippi River (FMR), will introduce us to this rare dry prairie that has survived since the early 1800s. Karen prepared the stewardship plan that has determined the course of action for efforts to return the coulee to its pre-settlement condition.

Technically a sand-gravel prairie, this special place is home to several rare habitat types; endangered plant species including James' polanisia (Polanisia jamesii), sea-beach needle grass (Aristida tuberculosa), and kittentail (Besseya bullii); and the threatened blue racer snake (Coluber constrictor). The 2.5-mile-long coulee is a former glacial stream valley identified by Minnesota County Biological Survey as one of the most biologically important sites in Dakota County.

Space is limited. To register, contact Elizabeth at Friends of the Mississippi River, estorey@fmr.org or 651-222-2193, ext. 16. This event is free of charge.

Newsletter is available by E-mail or regular mail

This newsletter is available in two formats—printed and e-mail. If you wish to change to the other format, just send an e-mail to memberships@mnnps.org or phone 651-739-4323.

Biodiversity

Continued from page 1

College of Biological Sciences, which operates the Cedar Creek field station. "That means that if a plot with one or two plant species produces 100 pounds of vegetation a year, a plot with 16 species [the most diverse plots planted at Cedar Creek] will produce 340 pounds. This huge advantage comes when you plant numerous grasses and legumes and various prairie flowers together."

Findings from Cedar Creek suggest that plantings of multiple species of prairie plants will produce fuels, such as ethanol, with greater net energy gains per acre than corn, soybeans, or even switchgrass, which has been touted as a promising source for biomass.

But the higher energy gains aren't just from higher productivity. Diverse plantings require little or no inputs of fertilizer or pesticides, both of which require lots of energy to make and apply. Experiments now under way in Germany and the Netherlands are yielding similar effects of diversity on yields, says Tilman, even though they use totally different species.

Also, because prairie plants are perennial, they would not have to be replanted year after year. Farmers would need only to mow their fields in the fall.

Biomass could replace some coal

If burned, biomass could replace some of the coal that now pumps carbon dioxide and mercury into the atmosphere.

"You can burn prairie grass using the fluidized bed technology of existing coal-fired power plants, and can mix it in with coal," says Tilman. "The energy density of biomass is 60 to 70 percent that of coal. If power plants wanted to buy biomass and farmers wanted to grow it, it could happen, but it will take much work to get there."

Now that the value of biodiversity has been shown, the next step should be an economic analysis, says Tilman. It remains to be seen whether biomass farmers, along with energy producers and the people who transport biomass from one to the other, can each make money if they put the vision that he and his colleagues have into practice. For optimal results, each region of the country and the world would have to be studied to determine what mix of plant species would work best in that particular soil and climate.

"In Minnesota, there are over a million acres of abandoned farmland in the Conservation Reserve Program," says Tilman. "That land is mainly planted with just a few grass species" and so may hold potential as a future site of biomass plantations.

Planting more species should allow not only bigger yields of vegetation, but more predictable yields. As the Cedar Creek experiments show, yields of vegetation fluctuate less from season to season if the vegetation contains many species. This kind of reliability is important, because no one wants to see boom and bust years in the energy supply.

"This paper suggests there might be an unsuspected benefit to restoring land to a more native condition," Tilman says. "Restoring land so it can produce biofuels is a new idea, but there are many reasons to do it. We need a stable and productive source of bioenergy. Biodiversity can give us this on abandoned agricultural land around the world, and it doesn't have to be just grasses. As we get away from fossil fuels, we're going to have to have a diversity of approaches."

Plant sale results

Treasurer Ron Huber reported net income from the June 2006 plant sale was \$789. Non-auction plants sold for \$749. Profit from the auctioned orchids was \$40. The late Tim Wallace's trees brought in \$73, which has been added to his memorial fund.

Hastings turns industrial park into a prairie

by Karen Schik

A drive on Eddy St. from downtown Hastings to Lock and Dam Number Two used to include a drive past a series of petroleum storage tanks owned by Flint Hills Resources. In 1995, the tanks were removed and a portion of the land was given to the City of Hastings. What was once an unsightly industrial park is now being slowly transformed into mesic prairie through a native planting completed in 2003 by Friends of the Mississippi River (FMR).

Although some Minnesotans are able to recognize the hallmark native plants of a wet prairie and meadow, others may only recognize the former tank farm as a grassy field. In an effort to raise consciousness of the area as a restoration site, the City of Hastings erected a sign welcoming visitors to the Hastings Nature Preserve.

In the spring of 2006, a group of Hastings High School students, in partnership with the city and FMR, planted native grasses and forbs around the sign. Now a sign surrounded by beautiful native plants will highlight the area and attract visitors even more effectively.

The project partners would like to thank the Minnesota Native Plant Society for the "Think Native" grant, which helped in purchasing the plant materials.

This was a great educational project for the students and something they can take pride in every time they pass the park. Getting students and other community members to participate in restoring their local natural areas is one of the best ways to ensure long-term protection of such areas.

Protecting native plants in southeastern Minnesota

by Daniel Tix, biodiversity area review team leader, MN Chapter of the Society for Conservation Biology

At this year's MN NPS annual symposium in April, we explored the incredible biological riches of the "land that glaciers forgot," the driftless area of southeastern Minnesota and adjacent portions of Wisconsin and Iowa. For native plant enthusiasts, this region is a treasure trove of rare species and interesting native plant communities.

It is also a region whose management could significantly benefit from the input of Native Plant Society members. In fact, there have been few better opportunities for those interested in native plant conservation to inform management decisions impacting rare plants and diverse native plant communities.

In southeastern Minnesota, the County Biological survey highlighted 13 areas with biological values that merit special protection on state lands. Having been selected from 917 sites surveyed in six counties of southeastern Minnesota, these are truly exceptional areas for their large concentrations of rare species and highest quality examples of the rare native plant community types.

These communities include moist, moderate cliffs, algific talus slopes, dry oak savanna, maple-basswood forest, and northern hardwood-conifer forest and occur on land already owned by the Minnesota Department of Natural Resources. Rare plant species include false mermaid (Floerkea prosperpinacoides), goldenseal (Hydrastis canadensis), Jame's sedge (Carex jamesii), and roughseeded fameflower (Talimum rugospermum).

As part of regional forest management planning, the DNR is

writing plans to guide management of these areas. The draft plans have proposed such management activities as timber harvest, prescribed burns, and set aside of small areas around rare species. In some cases, especially in the forested communities, proposed management will unduly jeopardize the quality of some of the highest quality native plant communities in the region.

The public comment period on these management plans presents a significant opportunity for MN NPS members to voice support for strong protection of native plant species and communities. Voicing support is as easy as reading an 8- to 12-page draft management plan and writing a comment letter during the 30-day public comment period. Unlike many other issues, these plans receive few comments, so each letter can be very important. Six plans have already been completed, but seven are still to be released for public comment.

If you are interested in reviewing these plans, go to www.dnr.state.mn.us/forestry/subsection/blufflands/index.html From this link, you can e-mail Jon Nelson and ask to be notified about the public comment period for each high biodiversity area management plan in southeastern Minnesota. If you would like more information or talking points to inform your comment letter, feel free to contact me at dtix@greatrivergreening.org

Seedling plant guide will be printed in August

The Prairie Seedling & Seeding Evaluation Guide will be available in August 2006. It is expected to cost about \$5, plus shipping and handling and will be available through the Bonestroo & Associates website. For additional details, contact author Paul Bockenstedt at 651-604-4812 or pbockenstedt@bonestroo.com

Botany

by Berton Braley, "Science News Letter," March 9, 1929 There should be no monotony In studying your botany; It helps to train And spur the brain — Unless you haven't gotany.

It teaches you, does Botany,
To know the plants and spotany,
And learn just why
They live or die —
In case you plant or potany.

You learn, from reading Botany, Of wooly plants and cottony That grow on earth, And what they're worth, And why some spots have notany.

You sketch the plants in Botany, You learn to chart and plotany Like corn or oats — You jot down notes, If you know how to jotany.

Your time, if you'll allotany, Will teach you how and whatany Old plant or tree Can do or be — And that's the use of Botany!

Note: Thor Kommedahl submitted this poem, which he found in his files.

Bluffland management guide is available

Conserving Your Blufflands, a management guide for the St. Croix River bluffs, has been completed by Great River Greening ecologists. Its goal is to help decision-makers and landowners conserve the bluffs' ecological value and beauty and help halt the decline of the water quality.

Great River Greening developed the guide under a contract with the Minnesota DNR. It will be distributed by the DNR and the National Park Service in the St. Croix Valley. Copies are available through the DNR Information Center, 651-296-6157 or 888-MINN DNR, and from Deb Gagner at Great River Greening, 651-665-9500, ext. 10, or dgagner@greatrivergreening.org

Plant Lore

by Thor Kommedahl

What is mad-dog skullcap?

Mad-dog skullcap is *Scutellaria lateriflora*, a Minnesota native plant in the mint family.

How did it get its names?

It was reported in the 1770s as a cure for rabies; hence, the name maddog. Scullcap refers to the flower shape, which resembles a helmet with the visor raised. *Scutellaria* means dish, referring to the pouch on the fruiting calyx. *Lateriflora* refers to the one-sided flower racemes borne in leaf axils.

Where does the plant grow?

It grows in moist woods, meadows, and swampy areas throughout the state.

What do plants look like?

They are perennials; one to three feet tall; paired, opposite, toothed leaves on four-sided stems; and have slender rhizomes. Its blue (sometimes, pink, violet, or white) flowers appear in one-sided racemes from leaf axils (distinguished from common skullcap which has a single bloom in the axil). It flowers from July to September.

Has it any medicinal value?

Its use for rabies treatment has since been discredited; however, plants contain scutellarin, a flavonoid with sedative and antispasmodic properties. It has been used for treatment of epileptic seizures. Skullcap was once listed in the *US Pharmacopeia* and the *National Formulary* for treatment of nervous disorders.

Is it poisonous?

Not likely. Where cases of toxicity have been reported, the poisoning has been attributed to adulterants such as wood sage added to commercial supplies of skullcap.

Restoration of Arden Hills site studied

by Wade J. Hammer, wetland ecologist, Svoboda Ecological Resources. This is an abstract of his talk at the April 6 meeting.

The Arden Hills Army Training Site (AHATS) is a 1,786-acre military installation in Arden Hills, Minn. It is located in Township 30N, Range 23W, within Sections 9, 10, 15, and 16 in Ramsey County. The Original Land Survey, completed in the late 1800s, makes note of bur oak and white oak woodlands, with some tamarack swamps in the low areas in the approximate vicinity of the property.

Thirty home sites were displaced when the land was purchased in 1941 by the federal government for use as a military installation. The majority of the construction at the site began prior to World War II. Active munitions production took place there for 22 years, through the Vietnam War. At its peak, 26,000 people were employed as part of the military munitions facility. Due to the industrial use of the site and the solvents discarded on the property, it was listed as a superfund site in 1983. Clean-up of remnants of the industrial production at the site continues.

Tallgrass prairie restoration projects have occurred at the AHATS since the early 1990s. As part of a masters of science project, a study assessing the relationships among management (seeding and burning), vegetation, and environmental factors (soil, aspect, and slope) was completed.

The study included completion of 75 vegetation surveys, consisting of three random plots in 25 purposively placed grids. The surveys consisted of cover class data for all plant species. The surveys were completed

twice during the summer of 2002 (late June/early July and mid-August). Multivariate statistical analyses of the vegetation survey data revealed relationships between vegetation and soil texture, vegetation and shallow depth to ground water (within one meter), and individual plant species and fire frequency. The intended use of the findings is to improve management of designated tallgrass prairie restoration sites at the AHATS.

Pale or cream gentian

This is a summary of the April 6 Plant-of-the-Month talk by Wade J. Hammer

Gentiana flavida, pale or cream gentian, grows one to three feet tall and is typically unbranched. The leaves and stems are yellowish-green and glabrous; the flowers are cream or white. It is found in moist prairies and open woodlands in the Upper Midwest and Great Lakes states.

Pale gentian flowers in late summer to early fall, and bumblebees are its primary pollinators. Its small seeds are dispersed by wind and water.

Bob Djupstrom retires as head of SNA program

Bob Djupstrom retired March 2 as head of the Scientific and Natural Areas Program. He led it for 24 of its 33 years and oversaw the acquisition of 125 of its 140 sites. The program now encompasses 184,635 acres — more protected acreage than any other state.

In the SNA newsletter, Bob sent "an open thank you to the many folks who volunteered their time and energy to the SNA program over the years. I hope the cadre of volunteers out there will continue, will expand, and take an even greater interest in preserving our existing sites as well as assisting in having new sites established."

Hastings High School, Oakdale receive grants

by Karen Schik

The Minnesota Native Plant Society has awarded two Think Native Grants.

Hastings High School Biology Class

A \$200 grant was awarded to Joe Beattie's biology class for the purchase of native plants to install in a prairie planting at the entrance to the Hastings River Flats Park. Beattie's students have worked on a lakeshore planting at the same location in the past two years, as well as other restoration projects in Hastings.

As part of a class project, they installed prairie plants at the site entrance and will return to help weed and water them over the next year. The City of Hastings will maintain

Nature exhibits at Bell Museum

Botanical art and Jim Brandenburg's prairie photos are featured in exhibits at the Bell Museum of Natural History, University of Minnesota.

"Bloom," an exhibit of botanical art, will be on display at the museum through Aug. 27. It features approximately 60 drawings, paintings, prints, books, botanical models, and fine crafts from public and private collections.

the planting in the long term. Friends of the Mississippi River, which has conducted the restoration work at the park since 2003, will manage the grant and oversee the project.

City of Oakdale

The City of Oakdale received the leftover plants from the plant sale and will receive the leftover seed from the seed exchange to be used at their restoration sites. They will utilize them to enhance the public wetland buffer areas adjacent to the community streetscape projects and/or as ground cover materials in their buckthorn removal areas. The contact person is Ron Rogstad, administrative services director, City of Oakdale.

"Bloom" includes magnificent handcolored prints and books from the golden era of botanical art in the 18th century; stunning botanical wall charts, beautiful in themselves and an important means of teaching plant science; and contemporary drawings and paintings that exemplify the living traditions of botanical art as well as imaginative interpretations of plants and ecosystems.

"Touch the Sky," an exhibit of Jim Brandenburg's photos of the American prairie, will be displayed from Oct. 1 – Dec. 31. This exhibit is a tribute to the vistas and creatures that live in the tallgrass prairies of Minnesota, Nebraska, Iowa and North and South Dakota.

Minnesota Native Plant Society Member Registration

Nam	e			
Addı	ress			
City		State	Zip	
Phone (work)				ewsletter? YesNo
E-Ma	ail			
Mem	bership category (New	Renewal)		
	Individual			
\$15	15 Family (2 or more people at same address)			
\$8	Student (full time)			
\$8	Senior (over 62 or retired)			
\$20	Institution			

The membership year starts Oct. 1. Please fill in this form and check the appropriate membership category. Make your check payable to the Minnesota Native Plant Society. Bring the completed form and your check to the October meeting, or mail them to the Minnesota Native Plant Society, P.O. Box 20401, Bloomington, MN 55420.

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

Summer 2006

