



Minnesota Plant Press

The Minnesota Native Plant Society Newsletter

www.mnnps.org

Volume 31 Number 1

Winter 2012

Monthly meetings

Thompson Park Center/Dakota
Lodge

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

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. 2: “Using Plants to Assess Wetland Quality in Minnesota – the Next Generation,” by Michael Bourdaghs, research scientist for the PCA. **Plant-of-the-Month:** Tussock sedge (*Carex stricta*).

March 1: “Natural History of Maple Syrup Production,” by Dr. Stephen G. Saupe, professor, Biology Department, College of St. Benedict and St. John’s University. **Plant-of-the-Month:** Black maple (*Acer nigrum*), also by Dr. Saupe.

March 24: Symposium on Plants of Minnesota. See page 2.

April 5: Stalking rare native plants,” by Malcolm and Rosemary MacFarlane, volunteers, DNR County Biological Survey. **Plant-of-the-Month:** Least moonwort (*Botrychium tenebrosus*).

May 3: “Wild Orchids of Minnesota,” by Welby Smith, botanist, Minnesota DNR. **Plant-of-the-Month:** Case’s ladies’-tresses (*Spiranthes casei*).

La Salle Lake SRA has a landscape to experience

by Erika Rowe, Minnesota County Biology Survey plant ecologist, DNR and former MNNPS board member.

As a plant ecologist with the DNR’s Minnesota County Biological Survey, I have hiked many miles and seen a variety of landscapes in northwestern Minnesota. Yet the landscape surrounding La Salle Lake and Creek, just north of Itasca State Park in Hubbard County, immediately stood out as unique. It felt remote and wild, with steep, rugged slopes with red pine and balsam fir, rocky ravines with streams bordered by white pine and sugar maple, and old-growth cedar seepage swamps. Above the valley, on the flatter terrain, expansive oak, aspen and maple forests frame this stunning lake and valley.

Fortunately, now others can explore this landscape as well. On Oct. 27, 2011, the State of Minnesota purchased approximately 1,000 acres surrounding La Salle Lake, establishing Minnesota’s newest state recreation area (SRA). The Clean Water, Land and Legacy Amendment Act — specifically the Outdoor Heritage Fund — provided much of the funds to acquire this property. In addition, an area adjacent to the SRA, north of Hubbard Co. Rd. 9, has been established as a Scientific and Natural Area (SNA).

La Salle Lake, the highlight of this extraordinary landscape, is a large (224 acres) lake that is one of the deepest (213 feet) in Minnesota. It has 18,600 feet of shoreline, and much of its input is spring-fed. It is remarkably wild and scenic, having never been developed, aside from the very northern edge where a resort caretaker’s home sits along with a few cabins and buildings — remnants of the previous owners.

Several different native plant communities exist in the La Salle Lake area, and because of the significant elevation change throughout the area and the myriad slope aspects, the vegetation of the area is complex. These natural communities support a number of rare species including ram’s-head lady slipper (*Cypripedium arietinum*), northern oak fern (*Gymnocarpium robertianum*), hair-like sedge (*Carex capillaris*), trumpeter swans

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March 24 symposium will feature plants

by Scott Milburn, MNNPS president.

Our approach to the MNNPS Symposium this year differs from that of recent years. We have been focused on regions and landforms, but this is a special year — the Society is marking 30 years as an organization. With that in mind, the most suitable topic is plants.

We have been lining up speakers, and things are moving forward. In addition, we are the benefactors of an anonymous donation of \$5,000. Rather than donating this money to other organizations, as we have been doing over the past few years, we decided that the best use is for the Society itself. I am pleased to say that this allows us to bring two prominent botanists from outside of Minnesota to our symposium.

The first is Dr. Don Farrar of Iowa State University, who is well known for his research of moonworts. The second is Dr. Tony Reznicek, of the University of Michigan. Dr. Reznicek may be best known for his authorship of the sedge component of the Flora of North America series. He has also been hard at work updating the Michigan Flora into a one-volume publication. The symposium should be a very exciting day. Stay tuned for further details.

The symposium will be held March 24 and will be at the Bell Museum of Natural History on the University of Minnesota campus. The cost will be \$42 for members and \$30 for full-time students. I am not sure about the times yet, but they will be in the brochures. These will be mailed in the beginning of February.

Treasurers' report

Treasurers Ron and Cathy Huber report that the Minnesota Native Plant Society's 2011 income totalled \$17,796. This included \$5,384 in donations. Expenses totalled \$9,515, for a net income of \$8,280.

Assets of \$25,388 include \$8,939 in four CDs and \$16,393 in the checking account.

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, ecosystems.
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.

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La Salle Lake SRA

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(*Cygnus buccinator*) and two caddis fly species (*Oxyethira itasca* and *O. ecornuta*). The area's abundant and diverse habitats are also rich with common plants, including 12 species of orchids; animals including river otter, gray wolf, fisher, bald eagle, osprey, loons; and many species of

woodland warblers.

This extraordinary landscape doesn't stop at the SRA's southern boundary, however. The entire landscape I outlined for the biological survey, a mix of public and private ownership, is a 3,200-acre corridor stretching from the confluence of the Mississippi River and La Salle Creek to Itasca State Park. La Salle Creek, originating

near the east arm of Lake Itasca, meanders north 11 miles along a narrow valley floor through wet meadows, shrub swamps and lowland seepage forests.

Four lakes of varying size and depth occur along the creek's route. The creek eventually joins the Mississippi River just north of La Salle Lake, within the newly acquired SNA. This narrow valley is noteworthy, as it has been identified as a tunnel valley formed during the Quaternary Period and is present at the juncture of two distinct areas of glacial deposits, the Itasca Moraine and the Guthrie Till Plain.

Besides the extraordinary natural resources of the La Salle Lake area, named after the French explorer René-Robert Cavelier, Sieur de La Salle, it is rich in cultural resources as well. A Native American prehistoric site was discovered in the early 1990s adjacent to La Salle Creek in what is now the new SNA. Ceramic shards recovered from the site have been dated about 3,180 years old, one of the earliest known dates for an Elk Lake Culture occupation in Minnesota.

The DNR has initiated the process to create a master plan to guide development, management of natural and cultural resources, tourism, and recreation for La Salle Lake SRA for the next 15 to 20 years. I encourage those who are interested in providing input on the project to go to: www.dnr.state.mn.us/state_parks/la_salle_lake and click on the "Get Involved!" hotlink. La Salle Lake State Recreation Area is now open to the public, but recreational opportunities are limited to day use.

Wild Ones conference

Wild Ones 2012 "Design With Nature" conference will be Saturday, Feb. 25, 8 a.m. to 4:30 p.m. at the Plymouth Creek Center, 14800 34th Ave., Plymouth, MN, 55447. More information is available at www.designwithnatureconference.org/



La Salle Creek winds south the new SRA.



La Salle Lake, is the highlight of the new State Recreation Area. Both photos by Erika Rowe.

Pagami Creek fire shows how tree mortality from fire varies with species

by Lee Frelich, Ph.D., research associate and director, The University of Minnesota Center for Forest Ecology. This is a summary of his talk at the Dec. 1, 2011 Minnesota Native Plant Society meeting.

On Aug. 18, 2011, the Pagami Creek fire was ignited by lightning in The Boundary Waters Canoe Area Wilderness, about 14 miles east of Ely. The fire was allowed to burn because it met the Forest Service criteria for WFU (Wildland Fire Use.) Under this policy, fires in certain locations and under certain conditions are not suppressed, to help restore the natural role of fire in wilderness areas.

As the fire smoldered and burned little forest for more than three weeks, a drought developed, and on Sept. 12, dry conditions combined with high winds caused the fire to blow up. It grew rapidly to about 93,000 acres in size over the next two days. The smoke was noticeable in Chicago, and the plume was traced through Poland and eventually to China.

At 145 square miles, this was larger than the 112-square-mile Ham Lake Fire of 2007, and the largest fire in the BWCAW since 1875. However, it was small compared to the largest fires in the 400-year history of fire reconstruction in the BWCAW. Five fires were larger, including fires of 275, 257 and 434 square miles in 1875, 1755 and 1865, respectively, as documented by Bud Heinselman in his 1996 book, *The Boundary Waters Wilderness Ecosystem*.

The fire burned some old, unlogged forests of red, white and jack pine, but mostly it burned second-growth birch and aspen forests with substantial amounts of spruce, fir and pine mixed in. These

forests were part of the controversial "Portal Zone" in the south central BWCAW, which had active logging within the wilderness during the middle of the 20th century.

Perhaps this fire will help push this second-growth forest towards more natural conditions. It was a very severe fire during late summer and early fall, a common pattern for historical fires in the BWCAW, so that it fits right in with the fire occurrences of the 18th and 19th centuries.

The unusual time period in the history of the BWCAW was the 20th century, which had less fire due to climate change, fragmentation of the landscape surrounding the wilderness, and fire suppression. With the three large fires of the last decade, the fire regime of the BWCAW has reawakened. Whether this heralds a return to the old regime, or a much more frequent fire regime that we expect with

a warming climate remains to be seen.

Fires kill trees by: (1) total crown scorch and char of the entire above ground portion of the tree in crown fires (like most of the Pagami Creek fire); (2) by scorching the roots in places with very shallow or dried-out organic soils; (3) by girdling the base of the trunk by scorching cambium under the bark (Note that scorch means exposure to heat that kills live tissue while char means death and blackening of tissue by direct contact with flames.); and (4) scorching the foliage of conifers through convection and radiant heat rising through the canopy from intense surface fires. (Deciduous trees can be crown-scorched but usually survive loss of foliage.)

Jack pine is susceptible to intense crown fires, sacrificing adults and surviving as seeds from serotinous cones.

In contrast, red and white pine do not have several years' seed production stored up in the canopy waiting for a fire. Instead, they grow in areas that are more likely to have surface fires, have well insulated trunks with thick bark, and hold their foliage high above scorching heat, thereby surviving fires as adults that can live for centuries and continue to reseed the area.

The duration of radiant heat



Aerial view of Pagami Creek fire, showing smoke plume crossing Lake Superior. Photo courtesy of NASA.

around the base of the trunk is key for tree survival. Trees with bark 1, 2, and 3 cm thick can survive heat for three, 12 and 26 minutes, respectively. (Old red and white pines usually have bark 3 cm thick.)

Heat can last much longer on the leeward side of a tree trunk from an approaching fire, so that trees are often fire-scarred on that side. Under typical conditions, surface fires with flame lengths of one, five, and 10 feet, can scorch foliage two, 23 and 63 feet above the ground. Red and white pines with less than 50 percent of their foliage scorched usually survive, but mortality rates go up dramatically as the percent scorched rises above 50 percent.

Like most fires over the last four centuries, The Pagami Creek fire killed or severely burned most of the landscape, killing the jack pine, spruce, and above-ground trunks of birch and aspen, but also had small inclusions of less intense fire along lakeshores, cliffs and swamps, where mature pines will survive.

Steve Saupe is new MNNPS board member

by Stephen G. Saupe

Ever since reading Euell Gibbon's books when I was in high school, I have been a self-professed "plant wienie." After learning that so many wild plants were edible, I became fascinated by what made other plants and fungi poisonous and decided to conduct graduate studies in phytochemistry. I received my Ph.D. in botany from the University of Illinois (Urbana-Champaign), where the main focus of my research was cyanogenesis, the production of hydrogen cyanide, by fungi, bacteria and plants.

Following my graduate studies, I accepted a faculty position in the joint biology department of the College of St. Benedict and St.

John's University. I teach a variety of classes, including introductory biology (for majors and non-majors), plant systematics, plants and human affairs, and plant physiology. I've also taught plant systematics at the University of Minnesota Lake Itasca Biological Station. I've completed numerous floristic studies in Minnesota, including field work to help establish a local nature preserve, served as the chief botanist for a local BioBlitz, and have even helped with a few DNR grassland surveys. My current research is focused on the airborne pollen and mold spores that occur in Central Minnesota, as well as the ecophysiology of plants and fungi.

I am currently the curator of the CSB/SJU Bailey Herbarium, which just celebrated accessioning our 30,000th specimen. I also serve as the director of our Melancon Greenhouse, the chair of the St. John's Arboretum Council, and I recently completed a term as a member of Minnesota DNR Commissioner's Advisory Committee to the SNA program. As you will learn at the March meeting, I have been involved with making maple syrup at St. John's for more than a decade. I even teach a course on maple syrup production at St. John's/St. Ben's and serve as the newsletter editor for the Minnesota Maple Syrup Producers.

In my spare time, I am the clerk of Avon Township and have a small hobby farm where my wife Linda and I raise sheep, hazelnuts, blueberries and other assorted fruits and veggies. Although I've been a member of the MNPS for as long as I remember, I'm sorry to say that I haven't been able to attend too many meetings. I hope to change that and look forward to meeting you in the coming months and years.

Field trips planned

For information on upcoming field trips, go to the website: www.mnnps.org

MNNPS is 30

by Scott Milburn, president

This year marks the 30th anniversary of the Minnesota Native Plant Society. The idea was first formulated by Peg Kohring, Emily Nietering, Heidi Van't Hof, Jan Grew, and Chris Soutter. That first board consisted of six members, with Peg serving as the first president and Welby Smith as vice president. In 1982, the individual membership fee was \$7. The current individual fee, \$15, is slightly cheaper, when inflation is considered.

Much has changed during this time, yet much has remained the same. The mission of the Society is as important as ever, particularly for the conservation of native plants.

During these 30 years, we have seen the formation of the Minnesota County Biological Survey, the development and modifications of the official state rare species list, and the passing of the Legacy Amendment. This amendment was extremely important, given the political opposition by various anti-tax groups. These three items will have a lasting influence in the next 30-year period.

Of concern today is the Outdoor Heritage Fund (OHF) portion of the Legacy Amendment. There is supposed to be a common vision shared by those on the OHF council, which is responsible for appropriating the funds generated by the new sales tax. Perhaps this initial vision is too grandiose, considering the anticipated revenue stream.

It is time to reassess the goals and vision at this early stage and determine what is realistic. We need the best and brightest involved — individuals who think beyond their own lifetimes, rather than those more concerned with pressure mounted by special-interest groups. The question should be: Are we truly leaving a legacy for future generations?

Do we love our lakes?

by Darby Nelson. He earned his Ph.D. in aquatic ecology from the University of Minnesota and taught biology and environmental science at Anoka-Ramsey Community College for 35 years. Dr. Nelson served three terms in the Minnesota Legislature, is the former board president of Conservation Minnesota, and also served two years on the Lessard-Sams Outdoor Heritage Council. This article is an excerpt from his talk at the Nov. 3, 2011 MNNPS meeting.

We say we love our lakes, and the crowded shores and the crush to buy lakeshore at astronomical prices suggest we speak truth. Yet our lakes deteriorate, and much of the deterioration results from our own actions. What gives?

The Environmental Protection Agency's National Lake Assessment discovered that 45 percent of our nation's lakes and 80 percent of urban lakes do not meet water quality standards.

Normally, we protect what we "love." My puzzlement over this paradox finally bubbled over. I undertook a journey of exploration to investigate this, a journey that led to the writing of my book, *For Love of Lakes*. The journey takes us to large lakes and small, from Minnesota to Canada, Illinois, New England, and ultimately, Walden Pond. Thoreau's ghost peaked over my shoulder throughout.

My bio as an academic, not surprisingly, led me to expect that maybe people simply lack adequate understanding of lake ecology. Maybe essayist Scott Russell Sanders, has it right: "We protect what we love and we love what we understand."

So, let's take a highly selected peek at lake natural history and at some of the less familiar aquatic life forms: plankton, micro-crustaceans, aquatic insects, and freshwater sponges. It was during snorkeling experiences that I discovered Eden, the aquatic plants.

An excerpt from the "Discovering Eden" chapter addressing pondweeds: "I now enter a gathering of skinny stemmed aquatic plants

of a group called 'pondweeds.' 'Weed.' What an unfortunate and misleading name for these plants. Language matters. Before being seen, before revealing anything about their lives and relationships, they stand condemned. Useless. Nuisance. Undesirable. 'Pondweed' is ... the name of a large and grand family of aquatic plants known more technically as the *Potamogetons* (from Greek: Potamos, river and geiton, neighbor). How different our perception of these plants might be had we retained the Greek root and called it 'pond neighbor.' What power the namers-of-things can have over attitudes."

Perceptions determine behavior. Do we perceive lakes differently than terrestrial systems? The contrast between the two is stark. Expose beginning ecology students to a woods and, in a matter of a few hours, they typically come to understand the basic ecological dynamics of the place — because they can see it. Take them to the shore of a lake and they typically see shore vegetation, often shore birds. They also see the lake's surface. But they are unable to see the remaining 99 percent of the lake. We are visual creatures. Our perceptions of lakes are grossly inadequate to produce accurate lake understandings.

Surely, lack of understanding of lake ecology contributes to the paradox. But it soon became clear that to understand the lake-human paradox required a peek into human nature. My discoveries are surprising.

So what are the problems our

lakes face? And what can we do about them?

The EPA National Lake Assessment identifies major stressors: lake shore habitat loss, loss of physical habitat complexity, excess nitrogen and especially phosphorus, lake shore disturbance including sedimentation, aquatic invasive species, non-point pollution in general, among others. The Lake Volney story shows we can make a difference for lakes.

Is a buckthorn disease here?

During research to identify biocontrol insects for buckthorn, a phytoplasma disease was detected in potential biocontrol insects and *Rhamnus* species in Europe. Researchers need to know if this phytoplasma is already present in North America.

Roger Becker, Ph.D., Extension agronomist and weed scientist, Department of Agronomy and Plant Genetics, University of Minnesota, is leading the search for the disease on common/European buckthorn (*Rhamnus cathartica*) in Minnesota.

Symptoms of the disease include witches' brooms, red or yellow leaves, and deformed or crinkled leaves. If you spot a buckthorn with these symptoms, contact Dr. Becker at becke003@umn.edu

Gift expands refuge, will fund easements

The Nature Conservancy has given 95 acres of land in Burnsville to the U.S. Fish and Wildlife Service. This land will be added to the Minnesota Valley National Wildlife Refuge. The gift is valued at \$515,000.

A credit of that amount will be used by the USFWS to purchase easements for prairie and wetlands in South Dakota.

Plant Lore

by Thor Kommedahl

What is pasque flower?

Pasque flower is *Anemone patens* in the buttercup family, native to Minnesota. It is also called *Pulsatilla patens* (USDA).

How did it get its names?

Pasque comes from the French passé-fleur but was changed to pasque (from an Old French word for Easter) because of its early flowering. *Anemone* was a name used by Theophrastus, possibly a corruption of Naaman, a Semitic name for Adonis, or a corruption of an invocation to the goddess of retribution, Nemesis. *Patens* means spreading out from the stem (clumps). *Pulsatilla* (quiverer) describes the pulsating movement of plants in the wind, so it had an alternate name of windflower.

What does the plant look like?

Flowers appear before leaves and consist of five to seven white to blue or purple, petal-like sepals. Stems (hollow), leaves, and buds are covered with silky hairs. Leaves are deeply cut. Plants are six to 10 inches tall and bear fruits (achenes) with feathery plumes. As a perennial, the plant grows in clumps from a thick taproot.

Where do these plants grow?

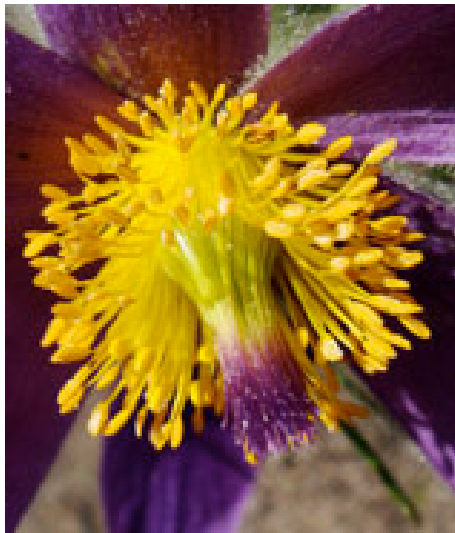
They grow in dry prairies in southern and western counties of the state.

Is the plant medicinal or poisonous?

Once used in homeopathic preparations, it is no longer recommended for human use. Blackfoot Indians used plants to induce abortions and childbirth. The leaves cause skin to blister. Taken internally, cardiogenic toxins slow the heart rate.

Has it any economic uses?

It is grown in gardens in full sun as an early spring flower and thrives in rock gardens.



Close-up of Anemone patens shows stamens and pistils. Photo by Elizabeth Heck.



Anemone patens (pasque flower) loose and tight clumps of flowers. Photos by Peter Dziuk.

Prairie Enthusiasts plan conference

The Prairie Enthusiasts' annual conference, "The Journey to Prairie Preservation," will be Saturday, Feb. 25, at UW-Stout in Menomonie, Wis. It will combine technical and basic prairie restoration information and education.

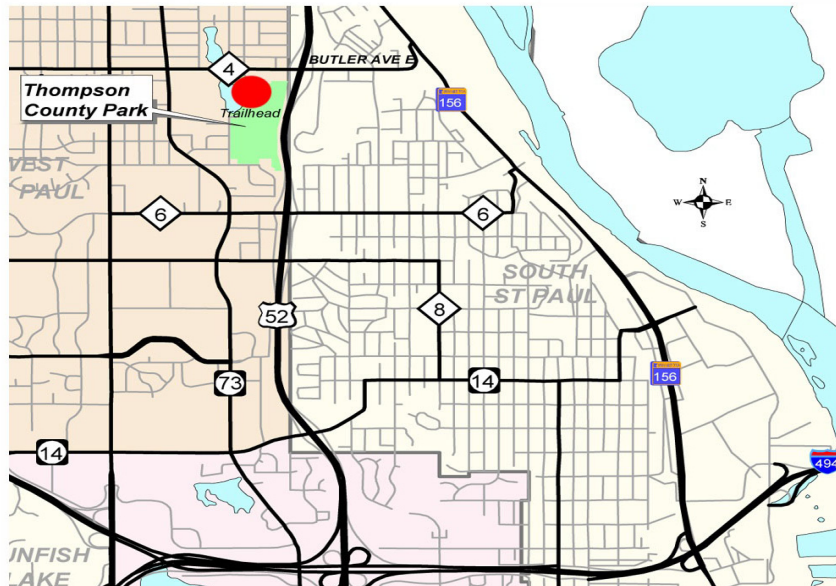
Featured speakers will be Stephen Packard, conservationist leader of the Chicago Wilderness, and Dr. Doug Tallamy, author and professor at the University of Delaware. For additional information and to register, go to <http://theprairieenthusiasts.org>

Minnesota Native Plant Society
P.O. Box 20401
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Winter 2012

Thompson County Park

360 Butler Ave. East, West St. Paul, MN 55118



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.