



# Minnesota Plant Press

The Minnesota Native Plant Society Newsletter

Volume 29 Number 3

Summer 2010

## 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](http://www.mnnps.org) for more program information.

6 p.m. — Social period

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

**Oct. 7: “State parks: A legacy of preserving history, natural resources and native flora and fauna,”** by Chris Niskanen, outdoors editor, *St. Paul Pioneer Press*.

**Nov. 4:** To be announced. (Check the website.) **Seed exchange.**

**Dec. 2:** To be announced. (Check the website.)

## Bring native seeds for the annual exchange

The Society’s annual seed exchange, which will be held at the Nov. 4 meeting, provides an opportunity for members to obtain seeds of native plants at no cost. Seeds must be placed in marked envelopes — no bulk piles will be accepted.

## MNNPS website

For information about Society field trips, meetings and events, check the website: [www.mnnps.org](http://www.mnnps.org)

# Garden for Butterflies with Native Plants

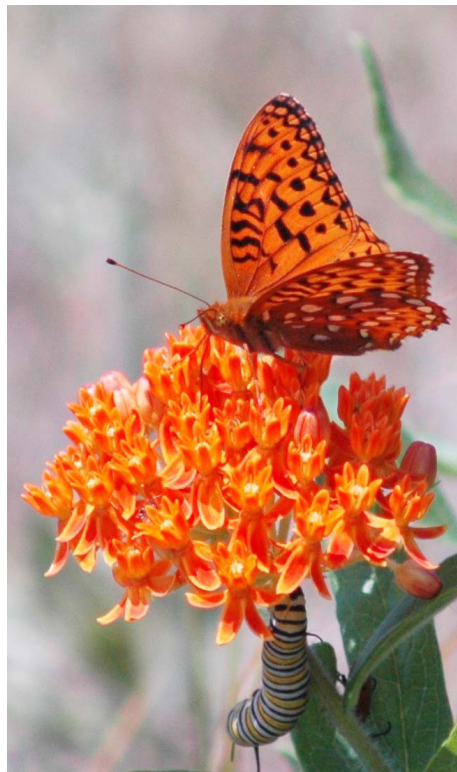
by Pat Thomas, wildlife gardener, educator and photographer. This is a summary of her talk at the May 6, 2010, MNNPS meeting.

Butterflies are beautiful insects with four distinct developmental stages: egg, caterpillar, chrysalis and butterfly. You can enjoy all four stages by providing nectar plants for adult butterflies and larval or host plants for caterpillars. Native plants are the best choice for your butterfly garden. In spring they are an early nectar source, and in fall, despite low temperatures, they continue to supply nectar at a crucial time for migrating butterflies and those that remain. Native plants also serve as food for caterpillars, ensuring new generations of butterflies.

Select plants appropriate for your site conditions. Place at least some of the plants in an area sheltered from strong winds. You can create a windbreak with trees or shrubs or by covering a fence or trellis with vines. Remember that you don’t have to have a large yard to attract butterflies; container gardening is always an option.

Try to have flowers blooming from early spring to late fall, and group plants closer together than in a traditional garden. Plant in masses of color, and keep plants that attract

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*Fritillary on butterfly-weed (Asclepias tuberosa), photo by Pat Thomas.*

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# Conservation Corner

by Elizabeth Nixon

Why value native plants? Conserving native plants as part of natural, healthy ecosystems in a human-dominated and climate-changing world depends on awareness of the many values, uses, and services such plants and ecosystems provide for humans.

More diverse grasslands can be conserved through heightened awareness of carbon sequestration value and through wise harvesting for biofuels. Undrained peatlands can conserve a vast array of native species and provide a very important carbon sink. Policies for native ecosystems as carbon sinks may have potential to go a long way towards valuing and conserving native plants. Local foods, regionally produced, eaten in concert with the seasons, are a popular value that has the potential to be significantly expanded into the realm of regional native plant species.

Victoria Ranua, MNNPS member, recently volunteered to educate Y campers about Minnesota native plant food values. Cattail root starch is a great bread-baking ingredient, and who knows, wise harvesting for this purpose could be a management tool for the invasive hybrid cattail species.

Humans value protection against flooding of urban areas and homesteads. Belief that we can drain entire watersheds and use energy-intensive engineering solutions as a way out of the flood devastation in their wakes is losing popularity to large scale watershed-based, energy-neutral wetland restoration efforts that can also restore native plant diversity to large areas.

We encourage you to consider these ideas and promote them in your various professional and community activities. Look into the recently developed Natural Capital Project spearheaded by The Nature

Conservancy and others, recently joined by Minnesota's Institute on the Environment. Those goals can benefit our mission.

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## President's Column

by Scott Milburn

We recently held our quarterly board meeting in June, with Daniel Jones officially joining the board. The board voted Ken Arndt back to serve the remainder of Angela Hanson's three-year term. We also held officer elections, with all four positions remaining the same. This is now my fifth term in this position, and I would like to continue to grow as we have as a society.

Obviously, we would like to continue with our great programs and field trips, but we also need to grow our membership. This can be accomplished in a number of ways, including making membership renewals easier. We have recently opened a PayPal account in order to make renewing easier. This is not on the website yet, but we anticipate that everything will be fully running by the time we all need to renew our memberships. I would like to thank Katy Chayka for setting this up, and also for all of her work on the blog.

The board also discussed possible topics for the 2011 Symposium. For the past several years, we have been focusing on a region or landform, but the board discussed the possibility of exploring large-scale concepts that are being examined worldwide. Discussions will continue for the next several months, with a topic to be announced in the next newsletter. As always, we will be looking for volunteers for the event.

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## Plant sale income up

The June Plant Sale is a source of income for the Society. We received \$566 this year — higher than in 2009 and 2008; lower than in 2007 and 2006. Totals for the last five sales are: 2010 - \$566; 2009 - \$416; 2008 - \$450; 2007 - \$842; 2006 - \$911.

# MNNPS Board of Directors

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# Roadsides for Pollinators

by Laurel Sundberg, interpretive naturalist, Lowry Nature Center.

Our native pollinators, bees and other insects, are unable to find the real estate they need to survive and thrive. They aren't able to enter into a bidding war with developers over land being gobbled up at an estimated rate of four acres per minute across the U.S.

The Minnesota DNR has a new poster advocating use of native plantings along roadsides as a way to combat habitat loss. The studies focus on roadsides because they serve as connections to key habitats and are often set aside from further development. We can't argue that a narrow ditch is comparable to keeping the "back 40" a prairie, but any small positive change can make a difference.

An estimated 60 - 80 percent of the world's flowering plants require some sort of animal pollinator to produce viable seeds. Many of our agriculturally important plant species are dependent on animal pollinators. These pollinators are often insects: beetles, flies, moths, butterflies, and especially bees. We tend to think of the domesticated European honeybee as the key pollinator, but there are many more native bee species that have developed as part of Minnesota's ecology and are adapted to our climate and plants.

These native bee species, along with other insect pollinators, are losing ground when it comes to finding high quality habitat. To support these winged pollinators, we need to provide food, shelter, and space. Food sources for these bees come in the form of pollen and nectar. For shelter, solitary bees will excavate an underground nest, or use an existing tunnel into a pithy or woody stem. Social bumblebees recycle old mouse nests to create

their annual colonies. The main idea is these bees need a diversity of native plants and soil substrates to create their homes.

Here's the encouraging part: studies have found roadsides with abundant native wildflowers and grasses support twice as many bees and about 35 percent more bee species than roadsides with monocultures and/or exotic plants. The more diversity, the higher the number of insect pollinators. A 50/50 mix of grasses to forbs attracted the most pollinators. Leave a few shrubs or trees, and the mix should prove irresistible for native bees, butterflies and many others.

What's a homeowner or native plant connoisseur to do? Keep planting natives. Some plants of very high value to pollinators are: aster, bergamot, Culver's root, goldenrod, giant hyssop, leadplant, milkweed, partridge pea, penstemon, prairie clover, spiderwort, and sunflower. These are plants many of us are already focused on cultivating in our gardens.

If you have a roadside already sporting this kind of diversity, try to reduce mowing to only a strip along the edge, and reduce pesticide and herbicide use. We probably all enjoyed listening to the hum of bees working in the garden. Imagine if we could bring back that kind of beauty to our roadsides — and help our native pollinators in the process.

For more information, a poster based on the article "Pollinators and Roadsides" is available from the MN DNR at <http://files.dnr.state.mn.us/assistance/nrplanning/community/roadsidesforwildlife/beesforroadsides.pdf>

## Field trips

MNNPS field trips are being planned for late summer and fall. Check the website ([www.mnnps.org](http://www.mnnps.org)) periodically for updates.

The Bell Museum also conducts field trips. They are posted at [www.bellmuseum.org](http://www.bellmuseum.org)

## MNNPS welcomes new members

The Society gives a warm welcome to 30 new members who joined during the second quarter of 2010. Listed alphabetically, they are:

Lynnette S. Anderson, St. Croix Beach;  
Paul D. Anderson, Edina;  
Sara Barsel, Roseville;  
John Berquist, Rochester;  
Karin Ciano, Minneapolis;  
Jordan and Miranda Curzon, St. Paul;  
Ken Graeve, St. Paul;  
Holly Hamilton, Plymouth;  
Brooke Karen Haworth, St. Paul;  
Carol Hepokoski, Rochester;  
Erica Hoaglund, St. Paul;  
Mari Ito, Shoreview;  
Susan Jones, St. Paul;  
Tara Kelly, Afton;  
L. Alden Kendall, Duluth;  
Alexis McCarthy, Minneapolis;  
Randall Neprash, Roseville;  
Melvin M. Prantner, Duluth;  
JoAnn and Richard Schnitzus, Minnetonka;  
Dan Shaw, St. Paul;  
Greg and Pam Spar, Big Lake;  
Laurel Sundberg, Minnetonka;  
Evelyn Timm, Duluth;  
Joe White, Minnetonka;  
Karin Wolverton, Richfield;  
Jason Yadley, Oakdale;  
Estella Yeung, Oakdale.

## Treasurers' report

The 2010 second quarter treasurers' report from Ron and Cathy Huber shows income of \$8,918.79 and expenses of \$7,319.52. They estimate that expenses for the remainder of the year will be about \$3,700. Assets total \$26,368.40, including \$8,794.69 in CDs.

Major sources of income for the year were the symposium (\$5,275), memberships (\$2,728) and the plant sale (\$566). Expenses included the symposium (\$3,857), grant to digitize film (\$1,300), printing (\$728), new display stand (\$354) and postage (\$322).



## Butterfly gardening (Continued from page 1)

butterflies away from busy streets. Select the widest variety of plants possible, and incorporate different layers of vegetation. Trees, shrubs, grasses, wildflowers, groundcovers and leaf litter are all important. Use natural areas near your home to inspire your garden design.

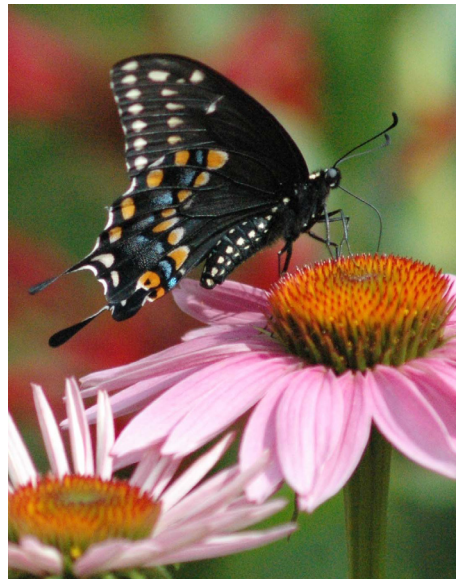
Designate one area in your yard that can remain undisturbed (no mowing, weeding or digging). Place the larval plants there with leaf litter as mulch. Allow those plants to remain standing throughout the winter. In spring, if necessary, gently cut back the plants. If possible, let the old plant material remain on site to let overwintering stages continue their life cycle.

You can also attract butterflies by providing very shallow drinking areas with rocks and twigs so butterflies can perch and drink. Overripe fruit such as bananas, watermelon, oranges, peaches, and apples will be appreciated by some butterflies. Others may come to a salt lick.

Butterflies are cold blooded and cannot fly until their muscles are warmed. Some, like monarchs, can shiver to warm flight muscles, but most need to use the sun. Locate part of your garden in a sunny, warm location. Butterflies will bask on rocks, tree trunks, stone or concrete paths, mulch, evergreens and bare soil.

Do not use any insecticides or pesticides. These products kill all insects including butterflies. Encourage neighbors to stop spraying.

Our yards are important, but they cannot replace butterflies' natural habitats. Do everything you can to protect trees, wetlands, air and water, grasses and flowers so we may always be blessed with butterflies.



**Black swallowtail on purple coneflower (Echinacea angustifolia), photo by Pat Thomas.**

## Some host plants for caterpillars

### Trees

Juneberry and Serviceberry, *Amelanchier* species;  
Birch, *Betula* species;  
Pagoda dogwood, *Cornus alternifolia*;  
Poplar and aspen, *Populus* species;  
Wild plum, *Prunus americana*;  
Pin cherry, *Prunus pennsylvanica*;  
Chokecherry, *Prunus virginiana*;  
Oak, *Quercus* species;  
Staghorn sumac, *Rhus typhina*;  
Willow, *Salix* species.

### Flowers

Pearly everlasting, *Anaphalis margaritacea*;  
Columbine, *Aquilegia canadensis*;  
Smooth Rock Cress, *Arabis glabra*;  
Milkweed, *Asclepias* species;  
Aster, *Aster* species;  
Turtlehead, *Chelone glabra*;  
Goldenrod, *Solidago* species;  
Violet, *Viola* species;  
Golden Alexander, *Zizia aurea*.

### Shrubs

Dogwood, *Cornus* species;  
Smooth wild rose, *Rosa blanda*;  
Prairie rose, *Rosa arkansana*;  
Nannyberry, *Viburnum lentago*;  
Blueberry, *Vaccinium angustifolium*.

### Vines

Hog peanut, *Amphicarpa bracteata*;  
Wild cucumber, *Echinocystis lobata*;  
Hops vine, *Humulus lupulus*.

## Some nectar plants for butterflies

### Perennial flowers

*Allium* species (including common garden chives);  
Yarrow, *Achillea*;  
Anise hyssop, *Agastache foeniculum*;  
Milkweed, *Asclepias* species;  
Aster, *Aster* species;  
Turtlehead, *Chelone glabra*;  
Prairie thistle, *Cirsium flodmani* (a native thistle);  
[Note: Thistle is both a nectar and larval plant, but can be invasive. Plant only native species.]  
Coreopsis, *Coreopsis* species;  
Coneflower, *Echinacea* species;  
Joe Pye weed, *Eupatorium maculatum*;  
Boneset, *Eupatorium perfoliatum*;  
Blanketflower, *Gaillardia* species;  
Sunflower, *Heliopsis* species;  
Blue flag iris, *Iris shrevei*;  
Liatris, blazingstar, *Liatris* species;  
Wild bergamot, *Monarda fistulosa*;  
Black-eyed Susan, *Rudbeckia hirta*;  
Rose, *Rosa* species;  
Compass plant, *Silphium laciniatum*;  
Cup plant, *Silphium perfoliatum*;  
Goldenrod, *Solidago* species;  
Vervain, *Verbena* species;  
Ironweed, *Vernonia* species;  
Violet, *Viola* species.

### Shrubs and trees

New Jersey tea, *Ceanothus americanus*;  
Chokecherry, *Prunus virginiana*;  
Sumac, *Rhus* species;  
Basswood, American linden, *Tilia americana*;  
Wild plum, *Prunus americanus*;  
Blueberries, *Vaccinium* species;  
Blackberries, raspberries, and dewberries, *Rubus* species.

## Field guides

### Butterflies

Jim P. Brock and Ken Kaufman, *Butterflies of North America*; Houghton Mifflin Company, N.Y., 2003.

Jeffrey Glassberg, *Butterflies through Binoculars: The East*; Oxford University Press, N.Y., 1999.

Larry Weber, *Butterflies of the North Woods*, 2nd edition; Kollath-Stensaas, Minn., 2006.

### Caterpillars

Thomas J. Allen, Jim P. Broch, and Jeffrey Glassberg, *Caterpillars in the Field and Garden*; Oxford University Press, N.Y., 2005.

David L. Wagner, *Caterpillars of Eastern North America*; Princeton University Press, N.J., 2005.

### Butterfly Gardening

Claire Hagen Dole, editor, *The Butterfly Gardener's Guide*, Brooklyn Botanic Garden Guides, N.Y., 2003.

Judy Burris and W. Richards, *The Life Cycles of Butterflies*; Storey Publishing, Mass., 2006.

Xerces Society and the Smithsonian Institution, *Butterfly Gardening*:

*Creating Summer Magic in your Garden*, 2nd edition; Sierra Club Books, San Francisco, 1998.

## Threatened species list still stalled

Minnesota's list of endangered, threatened, and special-concerned plants, animals, and other species has not been updated since 1996, although the law requires an update every three years.

Hearings were held on a proposed revision in 2000, but then the process stopped. The latest revision was completed in December 2009. It includes 180 new species and delists 29. This list has been discussed within the DNR, but it has not been approved by Commissioner Mark Holsten, according to an article by Tom Meersman in the July 6 Minneapolis StarTribune.

Once Holsten approves the list, it will be sent to Gov. Tim Pawlenty for his approval. After that, it can be published in the state register and assigned to an administrative law judge for public hearings. This process is expected to take from six months to a year. Until then, the new list cannot be used for enforcement against developers.

## Plant Lore

by Thor Kommedahl

### What is hoary puccoon?

Hoary puccoon is *Lithospermum canescens* in the forget-me-not family and is native to Minnesota.

### How did it get its names?

The genus name comes from the Greek *lithos*, a stone, and *sperma*, a seed, referring to the hard seeds (nutlets) that resemble small, polished stones. Hoary describes its hairy leaves and stems, and *canescens* means "turning hoary white." Puccoon is an Algonquian name for the reddish dye extracted from the stout roots.

### Where does it grow?

It thrives in prairies, open woods, and on roadsides, often in dry, sandy soil, in almost all counties in Minnesota except the Arrowhead.

### What does the plant look like?

It is a perennial nine to 18 inches tall with alternate, narrow, silky gray leaves, each with a prominent mid-rib. Flowers have five yellow-orange petals in forget-me-not-like lobes that flare out from a tube that also hides the stamens (with brown anthers). It blooms April through June.

### Is it medicinal or poisonous?

Captain John Smith (1612) saw Indians beat dried roots to a red powder, which was applied to soothe aches and swellings. Indians also brewed a leaf tea for treating fevers and seizures. Shikonin derivatives able to combat bacterial infections of human skin have recently been isolated from roots. It is not poisonous or edible.

### Has it economic uses?

Indians used the red dye for pottery, basketry, and personal ornaments. It can be grown in wildflower gardens, in sunny and dry locations, and from cuttings collected in July.



*Clump of hoary puccoon (Lithospermum canescens), photo by Peter Dziuk.*



# A genetic conservation program for Minnesota ash

by Andrew David, Michael Reichenbach and Julie Hendrickson, associate professor, adjunct assistant professor and graduate student respectively, Department of Forest Resources, University of Minnesota, This article is a summary of a talk given at the March 4, 2010, meeting of the MNNPS.

## Minnesota's ash resource

Minnesota is host to three species of ash: white ash (*Fraxinus americana*), green ash (*F. pennsylvanica*) and black ash (*F. nigra*). White ash is an upland species at the northern edge of its range in extreme southeast Minnesota; both black and green ash are common lowland hardwoods. Green ash is found throughout the state as individual trees in the forest; black ash is found primarily in the northern third of the state in larger densities.

Minnesota's 900 million ash trees have cultural, ecological and economic value. Black ash is very important in native cultures as a source of wood for ash baskets and specialty products. Ecologically, black and green ash are the most important hardwoods in the lowland forest community, representing 51 percent of the lowland hardwood cover type in Minnesota. The next closest species is silver maple, which represents 11 percent of this cover type. The most recent economic information from the Minnesota Department of Natural Resources estimates annual ash stumpage at \$15 million. Although Minnesota's ash resource is primarily small diameter trees, both black and green ash provide a source of pallet, saw and veneer logs to manufacturers that promote employment in rural portions of the state.

## Emerald ash borer

These important species are

threatened by an exotic invasive insect species, *Agrilus planipennis*, or emerald ash borer. EAB was introduced from Asia, most likely on dunnage associated with an overseas shipment. It was first noticed in 2002 in the Detroit, Mich./ Windsor, Ontario, area.

The life cycle for EAB is fairly simple. Adults emerge in late May through August, leaving a characteristic D-shaped hole in the bark. As adults, they are active potentially for a month while they eat only the foliage of ash trees, mate, and lay eggs under the bark of ash trees. The developing larvae then girdle the tree by eating the phloem. Most larvae then become prepupa and spend the winter in shallow chambers in the sapwood or in thick bark. However, research has shown that some larva do not turn into prepupa until the following fall, requiring two years to complete their metamorphosis. Thus, although adults emerge during summer, larvae may be under the bark during any time of year. Therefore, because of the possibility of two-year larvae, we must assume that all wood from an infected tree is infected. Unlike most borers that target larger trees, EAB is capable of utilizing seedlings down to as small as one-half inch in diameter. Depending on the number of beetles infesting a tree, death occurs within one to five years.

As of March 2010, EAB has been found in Michigan, Illinois, Indiana, Ohio, Kentucky, Wisconsin, Minnesota, Missouri, Pennsylvania, New York, Maryland, Virginia, West Virginia, Ontario, and Quebec. Currently, all of the lower peninsula of Michigan is considered infected, and new outbreaks are no longer reported or tracked. It is estimated that EAB already is responsible

for the death of over 20 million ash trees, with roughly 10 million ash trees having succumbed in the southeast Michigan/northwest Ohio region. In May 2009, EAB was detected near Victory, Wis., across the Mississippi River from Houston County, Minn. A short while later, EAB was confirmed in a little over 60 trees in St. Paul's South St. Anthony Park area, then on the University's St. Paul campus, and most recently in Prospect Park in Minneapolis, about one-half mile west of the original infestation. Because it is usually three to six years before an EAB infestation is identified, early detection and strict adherence to quarantines on moving nursery stock and firewood are key to limiting EAB movement.

Biological efforts to control the spread of EAB have been largely unsuccessful because EAB does not appear to use long-range pheromones that would be useful in trapping the insect, and there are no known biological control agents. Without effective pheromones, monitoring activities are reduced to watching and waiting for new outbreaks. Once a new outbreak is located, the common practice has been to eradicate every ash tree in a half-mile radius and then establish a quarantine area.

Due to the lack of an effective control for EAB, the number of ash species affected, the range of susceptible tree sizes, and the fact that no natural resistance to EAB has been detected, it is prudent and proactive to prepare for an invasion of EAB in Minnesota. This preparation should take the form of a gene conservation effort in black and green ash to capture the genetic variation of these two species. This gene conservation effort would preserve the genetic variation for a future point in time when EAB can be controlled and both species can be reintroduced to Minnesota using locally adapted seed sources.

In an effort to combat EAB

in Minnesota, the Minnesota Department of Agriculture has established an EAB action team and a scientific panel to advise on the best management practices in and around infection areas. With assistance from the University of Minnesota's Agricultural Experiment Station Rapid Agricultural Response Fund, we have initiated a genetic conservation program for ash species in Minnesota. The two goals of this project are to:

- Capture the genetic variation of Minnesota's black ash (*F. nigra*) and green ash (*F. pennsylvanica*) resource by collecting open pollinated seed from these species, creating an *ex situ* seed bank, and
- Evaluate different seed collection strategies using molecular tools to determine the most efficient method. The ideal collection strategy will capture more than 80 percent of the genetic variation in a population as well as capture traits that allow adaptation to local growing conditions.

Both green and black ash are wind-pollinated and disperse seed via wind. Green ash is dioecious, meaning there are male and female trees, while black ash is dioecious or polygamous, with male and female flowers on the same tree. Based on the life history traits of these species and information found in provenance trials, it would be appropriate to collect seed from unrelated individuals in different portions of the state to meet the two goals of the seed collection project.

#### **Genetic conservation via seed collections**

The ash seed collection project actually has three different sampling strategies — population collections, ecoregion collections, and volunteer collections. Population collections involve collecting 15-20 different populations per species, with at least 20 individuals per population. A minimum of 50 viable seeds per tree are collected, typically one to two inches of seed in the bottom of

a grocery bag. Trees are separated by a distance of 150 feet or more to decrease the possibility of being related, and the collected seed is sent to the Natural Resource Conservation Service Plant Introduction Station in Ames, Iowa, where it is put into long-term storage.

Ecoregion collections utilize the Omernik Level III ecoregions to define seed collection areas. There are seven such ecoregions in Minnesota. The goal is to collect two to four inches of seed in the bottom of a grocery bag from 10-15 individuals per ecoregion. This seed is sent to the National Seed Laboratory in Dry Branch, Georgia, where it is put into long-term storage.

Volunteer collections come from seed collectors who may have been trained at one of our seed-collector workshops or may have heard about our collection effort through articles in local newspapers, or were linked to our collection efforts on the Internet. These collections are primarily single-tree collections and can range from a handful of seed to half a grocery bag. These smaller collections are shipped to the USDA Agricultural Research Service facility in Fort Collins, Colo., where they are stored.

Once seed is collected or is mailed to our laboratory in Grand Rapids by volunteer collectors, it is cleaned and shipped out to one of the three storage sites, based on how it was collected. There it is dried to an internal 8 percent moisture content and stored at -20° C. In this low-moisture, frozen state, the seed can remain viable for upwards of 20 years. This process is not meant to be a solution; rather, it serves as a method for storing the genetic variation found in the ash species until such time as EAB can be controlled. Once EAB can be controlled, this seed can be used to reintroduce ash to areas where it has been extirpated, or used for some other research or breeding purpose.

#### **Evaluating the collection strategies**

The three collection strategies (population, ecoregion and volunteer) represent three very different methods for gathering genetic variation in these two ash species. To determine which of these methods results in adequate levels of genetic variation to meet the goals of the ash-seed collection program, we will use molecular tools to test the efficacy of the collection strategies to determine the level of genetic variation that each strategy captures. This information can assist our collection project focus on a collection strategy that allows the greatest amount of genetic variation with the least amount of time and effort expended for seed collection. It will also provide other seed collection efforts with guidelines for collecting from similar or additional ash species.

We have chosen to work with microsatellite markers, which are a class of molecular marker that has been used successfully in the past to identify levels of genetic variation in tree species. Seventeen different microsatellite markers have been derived from European ash (*F. excelsior*), and we are checking their ability to identify genetic variation in black and green ash. The goal is to have six to eight fully functional microsatellite markers before we proceed with the analysis of the three seed-collection strategies. Currently, of the 17 microsatellite markers, six are optimized in black and green ash, two look promising for black and green ash, four more are promising for black ash only, and five show no amplification in either species. Once the fully functional markers have been identified, the genetic assessment will begin. In the meantime, we will continue to collect ash seed as it is available in regions of the state where we have not made collections.

Minnesota Native Plant Society  
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## Summer 2010

### 40 years ago

# Dwarf trout lily goes to Kew

[This article about *Erythronium propullans* was printed in the March 1970 issue of *The Minnesota Horticulturist*, the magazine of the Minnesota Horticultural Society. The endangered dwarf trout lily is the flower on the logo of the Minnesota Native Plant Society. John Masengarb, a Society member, submitted the article; the MSHS gave permission to reprint it.]  
by Julius Wadekamper

The *Minnesota Horticulturist* published an article on *Erythronium propullans* in the April 1968 issue. I was interested in locating and studying this species and perhaps adding it to my collection of Minnesota plants. It is said to be endemic to a few areas along the Cannon and Zumbro rivers in Rice and Goodhue counties.

I located *E. propullans* in Rice County. It was growing in a low

area mingled with *E. albidum* [white trout-lily or dogtooth-violet]. *Propullans* has smaller flowers, less than one-half the size of *albidum*. The pedicels are very fine, and the leaves are smaller. The distinguishing characteristic is an offshoot from the stem of the plant just below the ground level. This offshoot is said to produce a single bulblet. *E. albidum* produces an offshoot below its present bulblet.

A few specimens were collected with the intention of adding one to my collection as well as to that of the University. Since I was going to London that summer to attend the International Lily Conference, I thought I would take one to the Royal Botanic Gardens at Kew and maybe make an original contribution.

Mr. Green, the officer of the day at the Kew Herbarium, welcomed me. We went through the herbarium

in search for *Erythronium*. There was one specimen. It had been contributed by Asa Gray in 1871. The specimen was collected by the botany teacher at St. Mary's School in Faribault. Apparently she knew Professor Gray and collected plants for him. Gray, in turn, presented the type specimen to the Royal Botanic Garden.

Ninety-eight years later, I had the honor to present Kew with the second specimen. On returning from England, a letter was waiting from Sir George Taylor, director of the Gardens, which stated in part: "We are most grateful to you and particularly appreciate receiving recently collected specimens of *Erythronium propullans* Gray, previously represented in our collection only by type material sent here 98 years ago by Professor Asa Gray."

[According to a photo caption, the presentation was made in front of the building because the specimen had not yet been fumigated.]