



Minnesota Plant Press

The Minnesota Native Plant Society Newsletter

Volume 24 Number 2

Winter 2005

Monthly meetings

Minnesota Valley National Wildlife Refuge
Visitor Center, 3815 East 80th St.
Bloomington, MN 55425-1600
952-854-5900

6:30 p.m. — Building east door opens
6:30 p.m. — Refreshments,
information, Room A
7 – 9 p.m. — Program, society business
7:30 p.m. — Building door is locked
9:00 p.m. — Building closes

Programs

The MNPS meets the first Thursday in October, November, December, February, March, April, May, and June. Check the Web site for more program information.

Feb 3: “Botanical Survey of Lyle-Austin, Minn., Wildlife Management Area: Prairie Remnants of the Chicago Great Western Railroad,” by Paul Bockenstedt, restoration ecologist, Bonestroo Natural Resources. **Plant-of-the Month:** Sweet coneflower, by Bockenstedt.

March 3: “Wetland Restoration at Pioneer Park, Blaine, Anoka County,” by Jason Husveth, Critical Connections Ecological Services, Inc. **Plant-of-the Month:** Jason’s choice.

April 7: “Hardwood forest decline syndrome: The synergistic impact of deer and invasive earthworms,” by Lee Frelich, U of Minn.; **Plant-of-the Month:** *botrychium*.

May 5: Native Grass Identification Workshop, by Anita Cholewa, Ph.D, curator of temperate plants, J.F. Bell Museum of Natural History. POM: TBD.

June 2: Program TBD. **Annual Plant Sale** open to the public.

New MNPS Web site

www.mnps.org

e-mail: MNPS@HotPOP.com

Symposium on bogs and fens to be April 6

by Karen Schik

Registration will soon be open for the 2005 MNPS Symposium: *Bogs And Fens — Minnesota’s Mysterious Mires*. It will be held April 6, 8:30 a.m. to 4 p.m., at Warner Nature Center in Marine on St. Croix. The charming center, just 40 minutes northeast of St. Paul, is surrounded by woods and overlooks a bog – a perfect place for native plant enthusiasts!

Visit the new Web site (www.mnps.org) for registration details and to download a registration form, which will be available soon. Registration brochures will also be mailed to MNPS members. *Please note:* space for the symposium is very limited, so register early for this popular topic. A special attraction this year will be unscheduled time to visit the nature center’s real bog and indoor bog exhibit.

Speakers and Topics:

- Introduction to Bogs and Fens — Paul Glaser, senior research associate, Limnological Research Center, University of Minnesota.
- The Flora of Minnesota’s Last Frontier: Characteristic Vascular Plants of Fens and Bogs — Scott Zager, plant ecologist, Wildlands Ecological Services.
- Hydrology of Bogs and Fens — Jeanette Leete, hydrogeologist supervisor, DNR Waters.
- Patterned Peatlands — Paul Glaser.
- Saving Savage Fen — Steve Eggers, senior ecologist, U.S. Army Corps of Engineers, St. Paul.
- Large-Scale Bog Restoration for Wetland Mitigation — Thomas Malterer, program director, University of Minnesota Duluth Natural Resources Research Institute.
- SNA Program: Successes and Opportunities — Bob Djupstrom, program supervisor, DNR Scientific and Natural Areas Program.

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Century College accepts Think Native seed grant

by Dianne Plunkett Latham, chair of the MNPS Think Native program

Horticulture Instructor Ginny Coyle and 11 of her students in the Century College Horticulture Program accepted the MNPS Think Native seed grant at the Nov. 4 MNPS meeting. The seeds will be used to develop native plantings on their campus in White Bear Lake. With the Century College greenhouses, they are able to propagate plants from cuttings, divisions, or seeds to expand campus gardens or to share with other organizations. There are a wide variety of growing conditions on campus, and many areas are visible to the public.

For many years, the horticulture program at Century College was solely represented by satellite programs at Stillwater and Lino Lakes Correctional Facilities. When the Department of Corrections cancelled its contract with the college to provide vocational horticulture education in prisons, horticulture was reopened on campus. Century College now offers a two-year associate of science degree, which

transfers to the University of Minnesota, as well as occupational certificates, diplomas, and an associate of applied science.

Century College connects students with the community through service learning projects. Last fall, students in Coyle's Biology of Horticultural Crops class collected seed from "Jim's Prairie" for Ginny Gaynor, open spaces coordinator in Maplewood. Students in the Herbaceous Plants class this semester sowed the seed and will return the plants they grew to the Maplewood Nature Center for prairie restoration. Joy Cedarleaf, a biology instructor, teaches field biology and restoration ecology at the college. Coyle will coordinate plantings with Cedarleaf's classes as well, to involve as many students as possible. Last summer a pest management class was also offered. Anyone interested in the horticulture program at Century College should contact Ginny Coyle at 651-773-1726, ext. 2, or g.coyle@century.mnscu.edu

MNPS 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

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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.

MSHS plans June wildflower, forest ecology weekend on North Shore

The Minnesota State Horticultural Society is sponsoring a late spring wildflower and forest ecology weekend in the Grand Marais area on Lake Superior's North Shore Friday, June 3, through Sunday, June 5. They will have a series of exploratory hikes to discover the region's rich diversity of wildflowers and forest ecology.

Naturalist Kent Jones will lead an interpretive tour of some unique habitats that will feature the spring wildflowers of the boreal forest, northernmost maple-basswood forest, northern wetlands and Superior shorelands. Hikes will also include participants' interests in birds, butterflies, charismatic megafauna, geology, cultural history, and general forest ecology.

The program begins Friday with a 7 - 9 p.m. wine and snack social at a location to be announced. Saturday will include two or three hikes (depending on the weather) and a provided lunch. A Sunday morning hike will conclude the program.

Kent Jones worked for over 20 years in the metro area as an interpretive naturalist for a variety of nature centers and the Three Rivers Park District. His love of the north finally got the best of him in 2001, when he moved to the Grand Marais area. He spends his spare time canoeing, kayaking, and hiking the north shore area in search of the best blueberry patches, unusual wildflowers, and rare birds.

The cost is \$125 per MSHS member, \$150 for non-members. This includes snacks and beverages on Friday night, and deli style lunch on Saturday. Participants must be able to hike on uneven ground and be prepared for inclement weather. Transportation is on your own. For

Volunteer Opportunities at Grey Cloud Dunes SNA

by Karen Schik

Funding for the DNR Scientific and Natural Areas Program was drastically reduced in recent years, so the DNR is more than ever in need of volunteers to help manage our highest quality natural areas. In response to that need,

Learn to identify winter woody plants at Falls Creek SNA

by Doug Mensing

On Saturday, March 12, MNPS Board Members Ken Arndt and Scott Milburn will lead a woody plant identification field trip to Falls Creek Scientific Natural Area. This is three miles north of Copas on State Highway 95 in Washington County (between Stillwater and Taylor's Falls).

We will meet at 9 a.m. at the parking lot off of Hwy. 95, where we will enter the SNA and hike until noon. We will be learning how to identify the trees, shrubs, and vines that comprise this type of northern hardwood and coniferous forest by their buds, bark, and form. You will also learn about the history and current management practices that the DNR has implemented for this special SNA.

For more information about Falls Creek Scientific Natural Area and a map on how to get there, go to www.dnr.state.mn.us/snas/sna01057/index.html.

The field trip is limited to 25 people. Steep slopes will be encountered along the walk down to the creek to the bottom of the ravine. Look for more details in the near future at www.mnps.org.

information on lodging or to pre-register, contact Vicky Vogels, community outreach coordinator, MSHS, at 800-676-6747; 651-643-3601, ext. 211; or at www.northerngardener.org

and as part of the core mission of the society, the MNPS board voted in 2004 to "adopt" Grey Cloud Dunes SNA in Cottage Grove. We have committed to work with the DNR and to assist with management activities at this spectacular dry prairie site along the Mississippi. We will post volunteer opportunities in each newsletter, as well as on the MNPS website. Check back often!

Burning Desire

Saturday, Feb. 19, 10 a.m. – 2 p.m. Come to Grey Cloud Dunes to burn brush piles (already stacked). Bring something to roast for lunch!

Brush cutting

Saturday March 26, 9 a.m. – 1 p.m. Cut, treat and stack honeysuckle. Training and tools provided.

Site Steward

Any time, any day. In addition to group events, individual volunteers are needed to be site stewards at Grey Cloud Dunes. Site stewards typically make regular (e.g. monthly) site visits and report their findings to the DNR. They record things like new invasive species locations and evidence of illegal activities, and do simple activities like picking up trash. Being a site steward is a good excuse to do what most of us want to do anyway — get out to a beautiful natural area on a regular basis. And you'd be doing something valuable in the process.

To sign up for any activity, please e-mail Karen Schik at: kschik@fmr.org or call: 651-222-2193, ext. 15 (w) or 651-433-5254 (h). More instructions and directions will be provided.

Research evaluates little bluestem varieties for state

by Mary H. Meyer, associate professor, Department of Horticultural Science, University of Minnesota. This is an abstract of her talk at the May 6, 2004 meeting.

Schizachyrium scoparium, or little bluestem, is native to most of the United States, with the exception of the far western states and Florida. Typically an upland grass, little bluestem is known for its drought tolerance and ability to grow on sandy and poor soils. It is a dominant grass in tall- and short-grass prairies and is found throughout Minnesota.

The USDA has released several varieties of *Schizachyrium scoparium*, beginning in the 1960s. 'Aldous,' 'Blaze,' 'Camper,' 'Cimarron,' and 'Pastura' were the result of breeding programs to improve grasses available for forage and range use in the central United States. In 1997, the USDA Plant Materials Center in Bismarck, N.D., released 'Badlands,' an ecotype selected from collections from North and South Dakota. 'Badlands' is adapted for range seeding, prairie restoration and prairie landscaping. None of these selections are from Minnesota native little bluestem.

At the University of Minnesota, we have conducted research on little bluestem in five projects that are described below. All of these projects, except the competition study, have been published.

Seeding date and establishment

In this research, the best planting dates for little bluestem were May 1 through July 20. Dormant seedings were not successful for the two years, 1996 and 1997, of the project. As expected, rainfall influenced the success of most seedings.

Field seedling identification

Identification of grasses without floral parts can be a challenge. In prairie restoration, the ability to

identify grass species in the seedling stage is necessary to determine if the planting has been successful. Little bluestem was one of 15 native and introduced grasses that were analyzed and described in a vegetative key to identify seedlings. Little bluestem seedlings have a flat sheath, are folded in the bud, have no auricles, the culm base is often tinged pink or maroon, and the first tillers fan out in a plane.

Minnesota population and new selections

A spaced planting of 35 Minnesota little bluestem populations was established in 1996 and 1997. Collections were made from parks, nature preserves, railroad rights of way, and other natural areas. Seed was germinated, and plants were established in three replications of eight plants each on the St. Paul campus. Plants continue to be evaluated for variation in flower time, height, color, and lodging. In 2004, a selection from Benton County that has been evaluated at several Research and Outreach Centers was advanced to a new release, and a plant patent has been applied for *Schizachyrium scoparium*, 'Blue Heaven.'™ This selection is taller, with dark blue summer foliage color and bright blue to pink fall color. Commercial growers interested in propagating this new release should contact the U of M for a nonexclusive license. Work will continue to identify other new ornamental forms of little bluestem.

Propagation time and aeration porosity

Little bluestem plugs and field divisions grew equally when propagated in the fall or spring in another study. Both over-wintered well and grew adequately in all aeration porosities from 5-41

percent. Little bluestem appears to be well adapted to diverse growing conditions and methods of propagation.

Competition study with *Miscanthus*

This study has not been finalized for publication, but in an additive competition study, little bluestem was not affected by adding *Miscanthus*, a non-native ornamental grass that has been shown to be invasive in Middle Atlantic States. Little bluestem was not reduced in root or shoot growth when grown with one or two *Miscanthus* plants in this 22-week greenhouse competition study. Thus little bluestem is a competitive, adaptable native grass.

Study predicts broad changes from global warming

Global warming won't affect just a few species of plants and insects — it will challenge many interdependent species, according to a report recently released by the Wildlife Society.

Some results of early springs are already visible, such as the shrinking Porcupine herd of caribou, whose migration patterns have been disrupted. Seasonal ponds in the Midwest are drying up earlier in the year, affecting ducks. Sugar maples may disappear from this country as their range moves northward.

Time factors, such as arrival of predators and pollinators, will be major concerns. The surging population of timber-destroying spruce budworms in Minnesota's boreal forests has been attributed to a northward shift of warblers that once held the worms in check.

The study also shows that some ecosystems will not move, but will vanish. For example, if rising sea levels flood coastal zones, physical and man-made barriers will prevent wetlands from re-creating themselves further inland.

What is effect of habitat on bird numbers?

by Tom Cooper, wildlife biologist, Minnesota waterfowl Association. This abstract of his talk at the Dec. 2, 2004 meeting is based on research for his South Dakota State University Ph.D. thesis, "Forest and grassland bird occurrence and habitat selection in the prairie-forest transition zone of Minnesota."

Some forest and grassland birds have experienced population declines in the midwestern United States due to habitat loss and fragmentation. Wildlife managers need to understand habitat requirements at multiple spatial scales for these birds when planning habitat protection and restoration efforts.

Our objectives were to assess bird use of grassland/forest patches in the prairie-forest transition zone of Minnesota and to model species occurrence at multiple spatial scales. We conducted more than 180 point counts in 2003 and 2004 to determine bird species presence in each cover type. Local vegetation variables were measured on site, and landscape variables were determined with a geographic information system.

Models incorporating landscape and local variables were developed to predict the probability of occurrence for bird species of management concern. Akaike's *Information Criterion* was used to rank candidate models. We counted 53 different bird species in grasslands and 71 species in forests. Thirteen bird species were U.S. Fish and Wildlife Service resource conservation priority species.

Common yellowthroats (*Geothlypis trichas*), bobolinks (*Dolichonyx oryzivorus*), and sedge wrens (*Cistothorus platensis*) were the most common birds in

Winter is easiest time to find and kill garlic mustard

by Dianne Plunkett Latham

Garlic mustard, *Alliaria petiolata*, looks innocent on the forest floor of a local park, or at the edges of your property — but it is not innocent. This rapidly spreading alien displaces native wildflowers and other flora in woodlands. Check your property — garlic mustard is easy to spot now because it is one of the few green plants on the forest floor from late fall until wildflowers break dormancy in early April.

In its first season, garlic mustard has rosettes of three or four rounded or kidney-shaped, dark green leaves with scalloped edges two to six inches tall. In May and June during its second year, the rosettes send up flower stalks, one to four feet tall, with alternate, sharply toothed leaves. Clusters of small white flowers top the stem. New leaves smell like garlic when crushed. The fragrance fades by fall. The seed capsules are one to two inches long, with 100 or more seeds per plant disseminated mid-July to August.

Because this biennial overwinters as a green plant, it gets a head start on native plants in the spring and aggressively monopolizes light, moisture, nutrients and soil. If not controlled, it can carpet a woodland floor. Garlic mustard threatens not only woodland plant diversity, but also the wildlife whose sources of

grasslands. Eastern wood-pewees (*Contopus virens*), red-eyed vireos (*Vireo olivaceus*), and great crested flycatchers (*Myiarchus crinitus*) were the most common birds in forests. Modeling indicated that different species responded to habitat conditions on various spatial scales. Thus, scale needs to be considered when planning habitat protection, management, and restoration projects to benefit grassland and forest birds.

food are the foliage, pollen, nectar, fruits and seeds of our native plants. Garlic mustard has no known natural enemies in North America, is self-fertile, and is difficult to eradicate once established. Thus, the best and most effective control method is to prevent its initial establishment. Garlic mustard is on the State of Minnesota's Prohibited Noxious Weed list requiring its control or elimination (Rule 1505.0730).

To remove garlic mustard from your property, you may either hand-pull, spray with three percent RoundupÆ (glyphosate), or place mulch over seedlings. If you hand-pull, remember that this biennial has a taproot like a dandelion and will regenerate if any part of the root remains in the ground. Seedpods may ripen even after pulling, so if flowers and seedpods are present, bag the plants immediately and send them to the landfill, not to the compost pile.

If you choose to spray, the best time to do it is when native plants are dormant between mid September and mid March. Glyphosate is a non-selective herbicide and will kill any plant that is photosynthetic (actively growing). Because garlic mustard stays green all winter, you can spray it whenever the temperature is above 32 degrees.

Garlic mustard seeds remain viable for five to seven years, continuing to sprout after removal of the colony. As a consequence, it is critical that the area be mulched with two to four inches of leaves or grass clippings. This should continue until the seed bank is exhausted in five to seven years.

Garlic mustard needs to be controlled before buckthorn is removed in proximity to it. This will prevent a burst of garlic mustard germination upon opening the forest floor to light, after removal of the buckthorn canopy.

American lotus is state's largest wildflower

by Dianne Plunkett Latham. This is an abstract of her Oct. 7, 2004 Plant-of-the-Month talk.

There are only two species in the lotus genus *Nelumbonaceae* — *Nelumbo lutea* (zone 4a) and *Nelumbo nucifera* (zone 5). The American lotus, *N. lutea*, occurs in Minnesota along the Mississippi River between St. Paul and Iowa. It is also found in a few lakes in the vicinity of the Twin Cities, where Native Americans may have planted it for food. It grows in quiet waters, including ponds, lakes, and on the edges of slow moving streams and rivers.

It ranges from Iowa and Minnesota to Ontario and New York, and south to Oklahoma, eastern Texas and Florida. It also occurs in the West Indies and Central America, and south to Columbia.

The American lotus produces the largest flower of any plant in North America, just edging out *Magnolia grandiflora* and *Hibiscus grandiflora*. *N. lutea*'s stately pale yellow flowers measure 6-10 inches in diameter. Leaf platters grow up to 20 inches in diameter, on stalks of up to six feet in height.

Lotus was an important food source for Native Americans. The rhizomes produce starchy tubers that can be baked like sweet potatoes and are said to be delicious. The young leaves, before they unroll, can be steamed or boiled like spinach. Immature seeds can be eaten raw.

Mature seeds can be shelled and the kernels roasted and eaten like nuts or ground into flour. Today, the interesting seedpods are often used in dried flower arrangements. Lotus spp. are protected in Minnesota,

however. Under the Conservation of Certain Wildflowers (Minn. Statutes 18H.18), "No person shall distribute ... lotus (*Nelumbo lutea*), which have been collected in any manner from any public or private property without the written permission of the property owner and written authorization from the commissioner."

Lotus plants require several weeks of sunny weather with temperatures above 80 degrees F in order to bloom. *N. lutea* is suitable for zone 4a and is not as sensitive to cool summer temperatures as is its zone 5 cousin, *N. nucifera*.

Lotus can only be cultivated in circular containers. If the growing tip gets caught in a square corner, it will die. Great care must be exercised in transplanting so as not injure the growing tip, or it will die. Lotuses grow rapidly and typically have to be subdivided at least every other year in containers. Because *N. lutea* is a large lotus, it requires a large container if you want to cultivate it.

In August 2004, I visited the Missouri Botanical Garden's Linnean House reflecting pools, where their *N. lutea* is grown in 15-gallon concrete containers. With such a large container, the Linnean House *N. lutea* had not been subdivided for four years. There it overwinters outdoors in the Linnean House pool. St. Louis is in zone 5b, and their pools do not freeze solid during the winter as do ours in zone 4. Lotus cannot be grown in containers in zone 4 without winter protection.

On our mid-August 2004 trip I also observed *N. lutea* profusely flowering at peak bloom along the Mississippi River outside of Nauvoo,

Illinois, as well as entirely filling an earthen pond on the grounds of the St. Louis Jewel Box Conservatory. Profuse is an understatement, as *N. lutea* was moving into the lawn along the earthen pond embankments where mowing appeared to be the Jewel Box ground keeper's only defense!

If planted in a favorable location, lotuses will quickly take over. Water gardeners should not plant lotuses in private earthen ponds or in private natural areas they don't want them to take over. Most lotus varieties are at least marginally hardy in zone 4 and would rapidly take over if not killed by the pond going dry and then the dry ground freezing solid during a winter without snow cover.

Lotus seeds excavated from Chinese tombs have been found viable after 2,000 years! Lotus seeds would not remain viable that long when exposed to nature's forces, however.

Pests and diseases that sometimes trouble lotuses include leaf spots, caterpillars, spider mites and white flies.

Would you like to help the MNPS as a board member or officer?

The MNPS is actively looking for officers and board members to serve terms beginning July 1, 2005. If you are willing to serve on the board of directors (three-year term), or as treasurer, secretary, vice president or president, contact Dianne Plunkett Latham, nominating committee chair, at 952-941-3542 before Feb. 15.

We are in particular need of a treasurer. To find out more about those duties, contact our current treasurer, David Johnson, at 763-571-6278.

Winter botany field trip was devoted to plant identification

by Doug Mensing

On Nov. 13, the Minnesota Native Plant Society sponsored a winter botany field trip at Tamarack Nature Center in White Bear Township. About 15 native plant enthusiasts met in one of the nature center's classrooms, where the society's president, Jason Husveth, began by reviewing a variety of field guides and other resources useful for winter plant identification.

We then proceeded to walk outside into the chilly air and applied what we had learned in a variety of natural and restored ecosystems, including prairies, wetlands, and forests. Jason showed the group persistent late fall and winter characteristics, and explained how habitats and associated plant species can assist with plant identification. Ken Arndt, a MNPS board member, led the forest portion of the walk, where we focused on woody species. Numerous wildflowers, grasses, sedges, shrubs, and trees were identified by the group.

Following the walk, participants met back inside the classroom to warm up with tea, coffee, and conversation. The MNPS would like to thank Tamarack Nature Center for their hospitality at the event, which was thoroughly enjoyed by all.

In early March the society will sponsor another winter field trip, at Falls Creek SNA. An article about that trip is on page 3.

Prairie restoration handbook is available online from DNR

Going Native: A Prairie Restoration Handbook for Minnesota Landowners is available online at www.dnr.state.mn.us and at DNR offices. Ellen Fuge edited the 63-page book, which was illustrated by Rebecca Kilde.

Lance-leaved violet is rare in Minnesota

by Scott A. Milburn, M.S., P.W.S., wetland ecologist/botanist, Critical Connections Ecological Services, Inc. This is an abstract of his *Plant-of-the-Month* talk at the Dec. 2, 2004 meeting.

Viola lanceolata, the lance-leaved violet, is a member of the violet family, having the characteristic zygomorphic flowers, a five-parted corolla, and a spurred anterior petal. The genus is represented by 17 native species and two introduced species in this state. The species is one of several in the group of stemless or acaulescent white flowered violets present in Minnesota. The stem appearance can be somewhat deceiving, with the stem actually below ground. Keys to aid in the identification of the species are the narrow, strap-like leaves, which are often three to six times longer than wide. The species is known to flower in May and June, but it can continue flowering late into the year.

This violet is a "state threatened" species that tends to inhabit saturated to wet habitats with sandy or organic substrates, including lakeshores, sedge meadows, and open bogs. These habitats typically experience some sort of disturbance event, which benefits this species due to its inability to compete with larger species.

Lance-leaved violet is a pioneering species with a reproductive strategy that incorporates self-fertilization, cross-fertilization, and vegetative reproduction. As competition for light and nutrients increases within the community, the size of the population decreases, and the population waits for the next disturbance event. The species is adapted to follow a disturbance event by quickly germinating from the seed bank or by colonizing an open area vegetatively.

In Minnesota, this violet is commonly found in the Anoka Sandplain, with the greatest threat to

Plant Lore

by Thor Kommedahl

What is New Jersey tea?

New Jersey tea is a shrub in the buckthorn family. Its name is *Ceanothus americanus*.

How did it get these names?

Although native to Minnesota and many other states, *Ceanothus* species are distributed worldwide. Theophrastus used this name, which means thistle in Greek, probably because of *C. spinosus*, which has spiny stems. It was called New Jersey tea because of its use during the American Revolution as a substitute for tea after the Boston Tea Party.

What does the plant look like?

It is a shrub up to three feet tall; it has white five-petaled flowers in cluster, and its fruit is a three-lobed, capsule-like drupe. It grows in dry, open areas, dry gravelly banks, and in open woods in the state.

Does it have any medicinal uses?

Tea made from its leaves is an excellent beverage, and American Indians made tea from leaves. The Indians also made tea from roots as a treatment for colds, stomachaches, and lung ailments. An alkaloid in its roots has been used for lowering blood pressure.

Are there other economic uses?

The roots harbor nitrogen-fixing actinomycetes, which are useful in soil improvement. Horticulturally, other species have been grafted to roots of *C. americanus* to produce garden hybrids.

this species statewide being loss of habitat via development. The species is further negatively affected by fire suppression, altered hydrology, and competition from invasive species. Until recently, there was great concern regarding the dwindling number of populations of this species. However, due to recent intensive botanical work in the Anoka Sandplain, numerous populations have been located.

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Winter 2005

