

Iowa Native Plant Society Newsletter

February 1998 Vol. 4, No.1



INPS Spring Meeting

April 4, 1998, 9:00 a.m. to 3:00 p.m.
Indian Creek Nature Center
Cedar Rapids, Linn County

All members of INPS are invited to our first spring meeting. We are going to get right out and enjoy spring with a service project at the Nature Center! If weather permits, we will help the Center staff burn their prairie restoration area. If it is not possible to burn, we will clear brush in the area that is being restored to oak savanna. At noon, we will have a brown bag lunch and a silent auction. After a brief business meeting, Paul Christiansen will speak about his restoration project at the Indian Creek Nature Center. Dr. Christiansen has been testing the benefits of fertilizer application in prairie establishment. Even if you can't attend the morning work session, join us at noon for the afternoon activities.

Meet in the Center auditorium at 9:00 a.m. Wear old clothes with natural fibers, sturdy shoes and work gloves. Protection (hat, scarf, goggles) for your face and hair is advisable if we burn. Bring a rake, saw and clippers, your lunch, and a silent auction item that will be of interest to INPS members. It need not be a new item, but something that might have a more meaningful life with another owner!

Directions: Indian Creek Nature Center is on the east side of Cedar Rapids. From I-380 take Hwy 30 east. Turn north on Hwy 13. At the 4-way stop at Mt. Vernon Road turn west. Drive 2 miles, crossing over Indian Creek. When you come to Bertram Road, turn left. The Nature Center is at the corner of Bertram and Otis.



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Executive Meeting

February 28, 1998, 11a.m. to 3p.m.
Tama County Nature Center
Otter Creek Lake Park

Executive officers, program committee members and all interested INPS members are encouraged to attend. The agenda for the meeting is as follows:

- ☛ Review description of officers in INPS handbook
- ☛ Review plans for Spring meeting
- ☛ Wrap up details on early 1998 field trips, including Eddyville Dunes July 11 field trip
- ☛ Establish fall meeting agenda and discuss program ideas
- ☛ Discuss vacant secretary position
- ☛ Determine how to confirm Ed Freese as president
- ☛ Delegate responsibility for annual meeting

Tama County Nature Center is a relatively new facility located in Otter Creek Lake Park. Along with a brown bag lunch please bring a dish to share as well as any utensils and dishes you may need. Although it is well equipped with the essentials, such as refrigerator, microwave, etc., some miscellaneous items are lacking. If no one else rents the large room for that date we will have access to that as well as the library and will be able to enjoy the fireplace.

Please contact Judy Felder 319-351-7718
or e-mail rfelder@blue.weeg.uiowa.edu
for further information or to add to the agenda.

Directions: Take Rte 63 north out of Tama-Toledo, 1 mile from the city limits turn east (right) on E-43, go 4 miles then turn north (left) on N Avenue, go 1-1/2 miles to Otter Creek Lake Park.

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Leaves from the President's Notebook...



This winter of 1997-98 has been different weather so far, with heavy October snowfall damaging tree branches and sunny, 50 degree weather on January 2. After you are through chipping sleet off the windshield or scooping the snow, it's time to sit down and remember last year's nature outings. But the ground hog has already made his forecast for the end of winter, so it's time to plan ahead. There is still time to get out the natural history books and think about the hikes and family outings ahead. Get the binoculars and camera ready to go.

Another way to make winter more enjoyable is to visit a park or preserve. I walked into Backbone State Park in late December; had to walk, the gates are locked for the winter season. With the leaves off the trees, I could see the rock outcrops and lay of the land. It was very quiet with only the sound of the downy woodpecker, ice shifting in the Maquoketa River, and the call of a bald eagle. It was quite a sight to see these birds in flight in the wooded canyon. The white pines added green to the landscape and some ferns were still green under the snow. I brought home pictures and memories...

The Program Committee met at the Marshalltown Public Library in November and put together an excellent set of events for 1998. Iowa Native Plant Society members and nature lovers in general will have a chance to meet and explore all around the state. There are also additional parks and preserves to visit on your own near each of the field trip sites. On many of our field trips, we will not only have the opportunity to see new plants but also be involved with adding to or creating species lists. Accurate inventories are useful management tools for these preserves. Plans are also being made to look at restorations in progress and have workshops that may help with your questions. Be sure to thank the individuals who make the outings fun to attend.

Above all don't forget that we not only look at plants, but many of us enjoy watching the birds, butterflies, and other wildlife. Rock outcroppings, marshes and Loess Hills are pleasing to the eye and tell us a story of our past. The fresh air, sounds, sights and smells are good medicine for all of us. And just the cure of winter

We all need to thank the people who gave their time and energy to serve as officers during 1996-1997 for the Iowa Native Plant Society: President Christine Kirpes, VP Bill Thomas, Secretary Jane Clark, Treasurer Mary Brown, and especially Bill Norris and Deb Lewis for all the work they do.

See you in the field...

Ed Freese

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Thanks Christine!!



INPS President 1995-1997

The Iowa Native Plant Society was born in 1995. During that year, four field trips were scheduled from late April to early October to advertise this organization to potential members around the state. About 20 people attended the last of these, at Woodman Hollow State Preserve. That evening most participants met at a restaurant in Fort Dodge to eat dinner and lay the groundwork for the Society. Of course, filling a slate of

officers was a must, and I nominated Christine Kirpes of Cedar Rapids to serve as the first president of INPS. I knew Christine from her days as a graduate student at Iowa State University in the early 1990s, and I knew that she would be a good leader of INPS during its infant years. The nomination carried, and Christine has since set a standard of hard-work and achievement to be envied and followed by future INPS officers.

Most of you have read the 'Notes from the President' written by Christine which appeared in most INPS newsletter issues. Of course, she presided at the last two INPS annual meetings in 1996 and 1997. However, Christine will tell you that most of her work as INPS president was spent doing unglamorous work behind the scenes. For instance, she was instrumental in setting the wheels in motion to establish INPS as an incorporated, non-profit organization. Christine made contact with several other native plant societies in adjacent states to gather ideas for our own organization in Iowa, and worked hard to build a network of communication for INPS members around the state. She has worked together with several other INPS members to put together a traveling display to advertise this organization. Most recently she put together an INPS handbook which describes in detail the duties and responsibilities of each INPS officer and committee for 'future generations.'

If you asked Christine, she will tell you that she most enjoyed the field trips and meeting people during her tenure as the first president of INPS. If you see her bending over a wildflower at a field trip sometime this year, please take a few minutes to let her know how much we appreciate all of her hard work on behalf of this organization.

William Norris

Important Notice to Members

We are happy to announce that beginning with this issue, we present "Iowa's Very Own...", a continuing series of articles by Tom Lammers of the Field Museum in Chicago and a Burlington native, on the plants endemic to Iowa. Look for his exciting new series beginning on the next page. It should continue for several years as Tom presents the many species that make Iowa's wild flora special.

Our success in soliciting articles suggest that this publication could easily be 'growing' for Iowa plant enthusiasts. Until now, we sent the Newsletter by first class mail by carefully managing its size. We would like to continue sending the Newsletter by first class so you receive it in a timely manner, but it will cost us more.

Here's **the** deal! There are currently over 400 addresses receiving the quarterly newsletter from INPS. Everyone on the mailing list will receive the February issue, but by May it will be restricted to paid members. Of course, we will continue to send complimentary copies to county conservation boards, divisions of the Iowa Department of Natural Resources and other environmental organizations. It's one of the best ways to bring the activities of INPS to the attention of fellow plant enthusiasts. It also demonstrates the concerns and issues of interest to our membership.

It's time to remind everyone that the dues schedule for the Iowa Native Plant Society is on a calendar year basis. That is, it runs from January 1 to December 31.

Check your mailing label. The date after the name indicates the last year for which we received dues.



Iowa's Very Own: I

Iowa Golden Saxifrage, *Chrysosplenium iowense* Rydb.

by Thomas G. Lammers

Edward Willet Dorland Holway (1853-1923) was a banker by profession, an employee of the Winneshiek County Bank in Decorah, Iowa. But his true love was botany. On his days off from the teller's cage, he roamed the rugged hills and valleys of northeastern Iowa, collecting specimens of plants and fungi. Though he was completely self-trained, with no formal degree in the plant sciences, he was widely regarded for his botanical expertise, particularly in rust fungi (Uredinales). Eventually, in 1904, Holway retired from banking to pursue his botanical interests full time. He moved to St. Paul, where he accepted a position as Assistant Professor of Botany at the University of Minnesota.

In 1888, while still an Iowa banker, Holway made a wonderful discovery. A few days before the Fourth of July, he was botanizing along Canoe Creek, about six miles north of Decorah in section 8 of Canoe Township. On a steep north-facing slope, in deep wet moss, he found a most unusual little plant. It was a member of the Saxifrage Family (Saxifragaceae), a small delicate herb a few inches high with erect stems from creeping stolons, shallowly lobed alternate leaves, and a sessile terminal cluster of three to five golden yellow flowers, each less than a quarter-inch across. These tiny flowers bore four recurved sepals, no petals, two to eight stamens, and a one-chambered ovary with two styles and numerous seeds less than a millimeter long on a pair of parietal placentas. He recognized it as Golden Saxifrage, *Chrysosplenium*, a genus with 55 species in the colder parts of the Northern Hemisphere plus two in Chile.

But which species was this? No *Chrysosplenium* had been collected in Iowa before, or anywhere nearby. The closest known was *C. americanum* Schwein., an eastern species found no farther west than Indiana. But that plant was quite different, with opposite leaves and solitary flowers. Holway sent a specimen to Harvard University's Gray Herbarium, where Sereno Watson identified it as *C. alternifolium* L., a Eurasian species

thought to extend into Canada and Colorado. It was under this name that the genus was first reported from Iowa, in the sixth edition of Gray's Manual of Botany (1890). Seven years later, J. N. Rose revised the North American species of *Chrysosplenium*. He regarded *C. alternifolium* as strictly Old World in distribution, and used the name *C. tetrandrum* Fries for the North American plants formerly identified as such, including those from Iowa. This revision was accepted in the seventh edition of Gray's Manual (1908).

Pehr Axel Rydberg (1860-1931), a curator at the New York Botanical Garden, disagreed. He carefully examined Holway's specimen at Gray Herbarium and concluded that it was neither *C. tetrandrum* nor *C. alternifolium*. In 1901, on page 483 of Nathaniel Lord Britton's Manual of the Flora of the Northern States, he described the populations in Iowa as a distinct new species, *Chrysosplenium iowense* Rydb. Originally, Rydberg gave the specific epithet feminine gender, as "iowensis". But *Chrysosplenium* is grammatically neuter, and he corrected his mistake four years later in his monograph of the family for North American Flora. Some later authors altered the spelling to "ioense", reasoning that the letter W was not used in classical Latin. But under current rules of nomenclature, that point is irrelevant and the correct spelling thankfully is "iowense".

At first, it was believed that *Chrysosplenium iowense* was found only in Iowa, i.e., that it was endemic to the Hawkeye State. In the 1940's, however, identical plants were found elsewhere -- over 600 miles to the northwest, in Canada! In fact, the species proved to be rather widespread there, growing in conifer forests from southwestern Manitoba and Alberta to the Northwest Territories. Populations were also discovered just across the border from Iowa in Fillmore County, Minnesota. So northeastern Iowa was not the sole home of Iowa Golden Saxifrage, but merely a southern outlier of a widespread

northern species. How did this enormous disjunction take place? To answer that question, we have to understand the habitat of *C. iowense*.

In Iowa, *Chrysosplenium iowense* is known from Allamakee, Clayton, Dubuque, Fayette, Howard, Jackson, and Winneshiek Counties. These sites and those in Minnesota all lie in the famous "Driftless Area," a region that escaped most of the glaciers that covered the Midwest. Here, the plants grow on steep north-facing dolomite and limestone talus slopes where cold water and cold air drain down slope from subterranean ice caves. This natural refrigeration, combined with the shading afforded steep north-facing slopes, creates a micro-climate far colder than the norm for the state. Soil temperatures here seldom exceed 60°F, even in summer. In these frigid spots, a number of plant species normally found far to the north are able to grow and flourish--among them, the Iowa Golden Saxifrage. Apparently, such species migrated south into Iowa ahead of Ice Age glaciers. Most populations perished as the climate warmed again and the glaciers receded. But on the cold talus slopes of the "Driftless Area", they found a refuge in special places that simulated conditions much farther north. Thus, the Iowa populations are relicts--die-hards left behind in favored sites when their comrades retreated northward.

Over the years, botanists differed in their opinions on the distinctness of *Chrysosplenium iowense*. Some preferred to subordinate it to *C. alternifolium*, i.e., as *C. alternifolium* var. *iowense* (Rydb.) B. Boivin or *C. alternifolium* subsp. *iowense* (Rydb.) Hulten. Others treated the name as merely a synonym of *C. tetrandrum*. A Japanese botanist suggested that it was the same as plants from Siberia known as *C. alternifolium* var. *sibiricum* Ser. Even individuals have wavered in their opinion. In 1905, C. O. Rosendahl treated it as merely a form of *C. alternifolium*, i.e., *C. alternifolium* forma *iowense* (Rydb.) Rosend. In 1947, after studying more material in greater depth, he thought better of it and restored *C. iowense* to specific rank. Rosendahl's conclusion was supported by J. G. Packer, who re-examined the case in 1963. In addition to morphological differences that were discernible even in seedlings, he found that *C. iowense* has the highest known chromosome number in the genus: 60 pairs, compared to 24 in *C. alternifolium* and only 12 in *C. tetrandrum*. *Chrysosplenium iowense* thus appears to be a polyploid derivative of *C. tetrandrum*.

Even though *Chrysosplenium iowense* is now known to occur outside the borders of our state, it was here that it was first discovered, and so it will always remain one of Iowa's Very Own!

The Eddyville Dunes and Wetlands

submitted by Pat McAdams, Diana Horton and Glenda Buenger

The wind-blown sands of the Eddyville Dunes were deposited 12-15,000 years ago in a process very similar to the formation of Iowa's Loess Hills. The 1200 acres of sand deposits, up to 60 feet thick, are punctuated by closed depressions underlain by silts. These silt-floored depressions create basins forming the numerous open-water wetlands and wet meadows of the Eddyville Dunes. Quercus Wilderness Area (Mahaska County Conservation Board) is located in the northernmost extent of the Dunes. Most of the land is privately held with the exception of Quercus and a recently acquired Iowa Department of Transportation (IOOT) right-of-way towards the southern end of the Dunes, near Eddyville. The IOOT has proposed a four lane highway on this site as a segment of Highway 63 corridor from Des Moines to Burlington.

The Dunes are either dry hills or wet swales; not good farmland. Some small patches of the Dunes have probably never been plowed. Areas that have been tilled were not farmed continuously. Large areas of the Dunes

have been in permanent pasture. The native plants and animals have persisted in places where tractors could not enter or grazing animals did not congregate. Based on incomplete studies, the Dunes and Wetlands are home to 33 percent of the State's plant species, 34 percent of the reptiles, 55 percent of the amphibians, 60 percent of the small mammals, and 50 percent of the nesting birds

A preliminary draft flora of the Dunes and Wetlands has been prepared by William Pusateri, IOOT botanist. Thus far, he has documented the occurrence of over 600 species in the project corridor and Dunes area. They include the state endangered pale-green or tubercled orchid (*Platanthera flava* var. *herbiola*) and seven species of special concern: broomsedge grass (*Andropogon virginicus*), buttonweed (*Diodia teres*), slender fimbriatylis (*Fimbristylis autumnalis* var. *mucronulata*), soft rush (*Juncus effusus*), northern adder's-tongue fern (*Ophioglossum pusillum*), toothcup (*Rotala ramosior*), and Great Plains ladies'-tresses orchid (*Spiranthes magnicamporum*). The *Platanthera*

population is extensive and consisted of approximately 200 blooming individuals in 1997. Pusateri also located a hybrid swarm that he has preliminarily identified as nodding ladies'-tresses (*S. cernua*) X Great Plains ladies'-tresses. The proposed construction area also supports showy orchis (*Galearis spectabilis*) and twayblade (*Liparis* sp.) within easy hiking distance of the *Spiranthes* and *Platanthera*.

It is clear that the remarkable diversity of native species on this area reflects habitat diversity from the interspersed wetlands among sand dunes. Among species recorded from the wetlands or associated with wet sand are: false indigo (*Amorpha fruticosa*), willows (*Salix exigua*, *S. humilis*), seedbox (*Ludwigia alternifolia*), field milkwort (*Polygala sanguinea*), sensitive fern (*Onoclea sensibilis*), marsh fern (*Thelypteris palustris* var. *pubescens*), several species of nutsedge (*Cyperus erythrorhizos*, *C. rivularis*, *C. strigosus*), and several species of rush (*Juncus accuminatus*, *J. dudleyi*, *J. effusus*, *J. interior*, *J. torreyi*). In addition, there is not an unusually high number of alien species. Pusateri notes that aliens represent approximately 15-20 percent of the flora, which is typical for the state.

The upland and/or sandy habitats are characterized by such grass species as June grass (*Koeleria macrantha*), several species of dropseed grass (*Sporobolus asper*, *S. cryptandrus*, *S. heterolepis*), bead grass (*Paspalum setaceum* var. *ciliatifolium*), several species of lovegrass/lacegrass (*Eragrostis capillaris*, *E. spectabilis*, *E. trichodes*), and sandbur grass (*Cenchrus longispinus*). Forbs include sand milkweed (*Asclepias amplexicaulis*), hairy puccoon (*Lithospermum carolinense*), Virginia plantain (*Plantago virginica*), blue-eyed grass (*Sisyrinchium campestre*), several violets (*Viola pedatifida*, *V. rafinesquii*, *V. viarum*), slender-leaved pinweed (*Lechea tenuifolia*), ground plum (*Astragalus crassicaarpus*), frostweed (*Helianthemum bicknellii*), and windflower (*Anemone cylindrica*).

The Dunes' flora is complemented by its animal inhabitants. Dr. Jim Christiansen (Drake University) performed a survey for the IOOT in 1997. The Eddyville

site represents "one of the most complete, although fragile, prairie communities present in Iowa," he wrote, "a community that has disappeared from Iowa except for a few small areas around the state." The fauna includes the ornate box turtle, a state threatened sand inhabiting species, and Blanding's turtle, a marsh species of Federal special concern. Also present are southern bog lemming, six-lined racerunner, prairie king snake, prairie ring-necked snake, and other vertebrates.

A four lane highway with two interchanges through the Dunes is the IOOT's preferred route for the Eddyville bypass portion of the project corridor. The IOOT's proposal would directly impact about 100 acres of the Dunes, including protected species and their diverse habitats. The Dunes and Wetlands were completely overlooked during the environmental assessment process. The Federal Highway Administration (FHWA) approved the project in 1991 with a Finding Of No Significant Impact (FONSI). The IOOT proceeded with design and right-of-way acquisition and scheduled bid letting for culvert work in October 1996. In July 1996, Glenda Buenger and Pat McAdams serendipitously discovered a population of state endangered pale-green orchids in the project right-of-way, and notified the IOOT and Iowa Department of Natural Resources. They subsequently recognized the unique landform and biological potential of the Dunes. Because of the potential impacts of the proposed construction, they also notified the FHWA and U. S. Army Corps of Engineers.

This past December, the FHWA required the IOOT to prepare an Environmental Impact Statement (EIS) for the bypass project. The purpose of an EIS is to assess alternate routes which would avoid and/or minimize environmental impacts. Despite the IDOT's bias for the original alignment, we remain hopeful that an alternative avoiding the unique resources of the Dunes can be agreed upon. Protection of the Dunes and its natural communities has gained considerable support from Iowa's environmental community. Reasonable alternatives have been proposed, and with continued advocacy for the Dunes and Wetlands, one could be selected.

A Chicago consulting firm is preparing the Draft Environmental Statement (EIS) at this time. The FHWA should sign-off on it any day. A meeting for receiving comments from the public and organizations on this preliminary EIS will be held March 25, 1998, in Eddyville.

Watch the Des Moines Register for the official announcement of time and location. A Chicago consulting firm is preparing the draft Environmental Impact Statement at this time.

On the Horizon...

Schedule of 1998 INPS events

**ALL FIELD TRIPS BEGIN AT 10 a.m., UNLESS OTHERWISE NOTED
BRING A SACK LUNCH
For more information, call 515-294-9499**

Saturday, February 28 (11 a.m. - 3 p.m.) - INPS EXECUTIVE MEETING at Tama County Nature Center, Otter Creek Lake Park. Meeting of INPS Executive Officers, Program Committee Members, and all interested INPS members. Tama (Tama County). Plans are to finalize the 1998 field trip schedule, plan the spring and fall meetings and other business as needed. Brown bag lunch; please bring a dish to share and necessary dishes/utensils.

Coordinator: Judy Felder (319) 351-7718,
rfelder@blue.weeg.uiowa.edu

Directions: Take route 63 north out of Tama - Toledo, 1 mile from the city limits turn east (right) on E-43, go 4 miles then turn north (left) on N Avenue, go 1 1/2 miles to Otter Creek Park.

Saturday, April 4 1998 - SPRING INPS MEETING at Indian Creek Nature Center in Cedar Rapids (Linn County). 9:00 a.m. to 3:00 p.m. Help burn/clear brush from a prairie restoration and hear Dr. Paul Christiansen talk about his research on the effects of fertilizer application in prairie establishment at the Nature Center. Meet at the Nature Center at 9:00 (see feature article in this newsletter for more details). Brown bag lunch. Program: Dr. Paul Christiansen.

Coordinator: Mary Brown (319) 338-3875,
mlbrown@blue.weeg.uiowa.edu

Directions: Indian Creek Nature Center is on the east side of Cedar Rapids. From Interstate 380 take Highway 30 east. Turn north on Highway 13. At the 4-way stop at Mt. Vernon Road turn west. Drive 2 miles, crossing over Indian Creek. When you come to Bertram Road, turn left. The Nature Center is at the corner of Bertram and Otis.

Saturday, May 2 1998 - DUTTON'S CAVE / PRIVATE FOREST (Fayette County). Wildflower Hike. Dutton's Cave Park contains forty-six acres and has a heavily timbered, deep ravine ending in a fifty foot vertical limestone wall directly above the cave opening. Many spring ephemerals should be in bloom, including squirrel corn. In the afternoon, see how forestry and conservation practices can be compatible while visiting a managed forest remnant that retains a great deal of natural diversity.

Leaders: Jon Steege, Bruce Blair.

Directions: Meet at Dutton's Cave, which is located two and one-half miles northeast of West Union on U.S. Highway 18 and one-half mile north on an improved local road. Participants will carpool in the afternoon to the private site.

Saturday, May 16 - FALLEN ROCK STATE PRESERVE/SANDSTONE PALISADES. Wildflower Hike. Steamboat Rock (Hardin County). Enjoy a spring wildflower walk along the Iowa River Greenbelt in Hardin County and see a mix of plants from northeast, southeast and central Iowa as three glacial time periods converge on the Iowa landscape in these two sites. Hike along wooded bluffs and through floodplain forest to look for spring wildflowers. Climb Pennsylvanian-aged sandstone bluffs and walk softly among clumps of brown moss, marginal shield fern and club moss. See white pines, yellow birch and leatherwood. Wear proper footwear, since footing is not the best in some places.

Leaders: Ed Freese and Nancy Slife.

Directions: From 035 in Steamboat Rock drive 1/4 mile south on S56. Turn right (west) into Tower Rock County Park. Fallen Rock State Preserve and Sandstone Palisades will be reached from here by walking west along the river.

Saturday, June 13 - WOODLANDS AND PRAIRIES OF CRAWFORD COUNTY (three miles north of Deloit IA; co-sponsored with the Iowa Prairie Network). Wildflower hike/Plant Inventory. The Crawford County Conservation Board approached INPS for help in conducting an inventory of this site (owned primarily by the county). This area is virgin forest (recorded as such in 1854 by the first surveyors). Part of the land is on a steep hillside of the Boyer River Valley. This area has not been plowed (though occasionally grazed) for 140 years. Large populations of prairie plants occur on this and some of the surrounding hills.

Coordinators: Glenn Pollock and Tom Rosburg.

Directions: Provided in next newsletter.

Saturday, June 13 - BUFFALO SLOUGH PRESERVE (Cerro Gordo County, co-sponsored with The Nature Conservancy). Participants will join forces to continue a floristic inventory of this recent TNC acquisition, which is a channel fen surrounded by residential areas. Buffalo Slough is home to many rare or endangered butterfly and plant species including sedge skipper, baltimore, great angelica, swamp aster, fragrant false indigo, bog buckbean, bog bedstraw, sage willow, bog willow and bracted orchid. A work day is scheduled for the afternoon to begin removal of purple loosestrife (an aggressive exotic plant) from the site.

Leaders: Jerry Selby, Bill Norris, Mark Leoschke

Directions: From the intersection of Hwy 65 and 12th Street NE in Mason City, turn east onto 12th ST. and go to North Carolina Ave. (the first intersection after the Winnebago River). Turn north for approximately 1.5 miles to 2319 N. Carolina Ave. You will be directed to a parking area east of the house at this address. Note: Be prepared for sun, bugs and wet conditions.

Saturday, June 20 - JOINT FIELD TRIP WITH MISSOURI NATIVE PLANT SOCIETY. Wildflower hikes on local prairie remnants. Harrison and Mercer Cos (MO).

More information in next newsletter.

Saturday, July 11 - EDDYVILLE DUNES (Wapello County - co-sponsored with the Iowa Prairie Network). Visit a wetland/sand prairie site that is

known to possess almost 600 species of vascular plants, including the state endangered pale-green orchid, *Platantheraflava* (which will be in bloom during this field trip). Eddyville Dunes is also home to Blandings turtle, the ornate box turtle, the six-lined racerunner and several rare snakes. This site is currently slated to be heavily impacted by a DOT road construction project.

Leaders: Pat McAdams and Glenda Buenger.

Directions: Provided in next newsletter.

Saturday, August 1 - CONE MARSH (Louisa County). Wildflower hike. We will have an opportunity to see abundant plant and animal life in this large marsh which lies in the lowland between the Iowa and Cedar Rivers. The marsh was formed from a series of oxbow lakes left by the Iowa River as it changed its course over the years. Once Iowa had several million acres like Cone Marsh, but these have been nearly all lost due to draining of the land for agriculture. We will hike over flood plains, terraces and dunes as the water level permits.

Leaders: Toni Hesseltine and Louise MacEachern

Directions: Cone Marsh is in the northwest segment of Louisa County, just south of county road G28. We will meet in the park at Conesville and caravan to the marsh. Conesville is in the southwest part of Muscatine County and is about 2 miles east of the marsh. Conesville is on Highway 70, 7 miles north of Columbus Junction. From Muscatine, drive west on 22 to Nichols, then turn south 7 miles on Highway 70 to Conesville. From Iowa City, take Highway 6 east to the Lone Tree turn which is X 14 south. Just before Lone Tree, take 22 east to Nichols, then take 70 south to Conesville. The park is next to the highway, directly south of the old elevator.

August 21-23 - CHEEVER LAKE and ANDERSON PRAIRIE STATE PRESERVES (Emmet County - co-sponsored with the Iowa State Preserves Board). Plant inventory and wildflower hikes. Cheever Lake is a "prairie pothole" with year-round water cover that is home to a diversity of wetland and aquatic plants. These include white and yellow water lilies, coontail, wild rice, water milfoil, bulrush, burreed, arrowhead and whitetop grass. Anderson Prairie contains plant communities ranging from dry prairie, wetland, oak savanna and floodplain. The dry prairie is dominated by sideoats grama and little

bluestem; mesic prairie by big bluestem and Indian grass; and wet areas by slough grass, bluejoint and numerous sedges. Forbs are abundant and showy, especially in prairie areas. A number of rare plants have been found at Anderson Prairie, including kittentails, biscuit root and yellow monkeyflower.

Leaders: Gary Phillips and Bob Moats.

Directions: Meet at the Estherville City Park, located south of Highway 9 on the west side of the West Fork of the Des Moines River. The parking lot is just south of the swimming pool.

September 12 - BRAYTON-HORSLEY FEN PRESERVE (Bremer County), KAUTEN FEN (Fayette County - both field trips co-sponsored with The Nature Conservancy). Brayton-Horsley Prairie features high quality wet-mesic prairie and fen communities. Rare plants include dwarf bog birch, tall cottongrass, sage willow, fringed gentian, Riddell's goldenrod and hairy valerian. Kauten Fen is another diverse fen community which itself is home to many rare plant species. Participants will

have the opportunity to see the effects of two different management strategies, passive (no fire - Brayton-Horsley Fen) and active (burning - Kauten Fen) on this field trip.

Leaders: John Pearson, Jerry Selby, Jon Steege

Directions: Meet at Brayton-Horsley Fen. From the junction of Highway 93 and V56, go south for 2 miles on V56, then east on a gravel road for 1.7 miles to a point just west of the Little Wapsipinicon River. Kauten Fen is located on "J" Avenue between 100 and 110th Streets. Travel four miles east of Maynard on Highway 150, then one mile north, one mile east, and 1/4 mile back south to empty farm site. Fen is southwest of old farm site.

October - PRAIRIE RESTORATION on privately owned Lomatium (biscuit-root) site (Fremont County). More details in next newsletter.

Leader: Tom Rosburg

November - FALL MEETING. Cedar Falls/Waterloo (Black Hawk County). More details in next newsletter.

Helping Mother Nature: Notes on Restoring Woodland Flowers

submitted by
M.J. Hatfield



Botrychium dissectum dissectum

B. d. obliquum

As reported in the May 1997 issue of the INPS Newsletter, the Iowa Woodlands and Forests Initiative in northeast Iowa is exciting. I know. I've been diversifying my small central Iowa woodland for about 15 years.

In 1971, I moved to this woodland which lies along Bean Creek, a spring-fed creek that ripples over limestone and 'blue' clay as it runs into a second stream, before both join the Skunk River. At that time, the woods were clear of undergrowth having been grazed until the early 1960s. The dominant trees are bur oak (*Quercus macrocarpa*), hickory (*Carya* sp.), maple (*Acer* sp.) and basswood (*Tilia americana*). A hanging bog provides a small aquatic site all year. In addition to an open landscape area, a small prairie/meadow lies beyond a ravine. I was interested in prairie plants because I formerly lived on a native prairie in Madison County. Woodlands have also attracted me enough that I have a mostly-forested farm in northeast Iowa. Acquiring this central Iowa woodland gave me the opportunity to plant a greater diversity of wildflowers near at hand.

This small woodland originally held one clump of wild geranium (*Geranium maculatum*), Dutchman's breeches (*Dicentra cucullaria*), bloodroot (*Sanguinaria canadensis*), yellow violet (*Viola* sp.), greenbriar and carrion flower (*Smilax rotundifolia* and *S. herbacea*), Solomon's seal (*Polygonum biflorum*), false and starry false Solomon's seals (*Smilacina racemosa* and *S.*

stellata), nettle (*Urtica* sp.), anemones (*Anemone* sp., *!sopyrum biternatum*), spring cress (*Cardamine bulbosa*) and poison ivy (*Rhus radicans*) to name just a few. All of the native species originally here are spreading, but at varying rates. Virginia waterleaf (*Hydrophyllum virginianum*), trout lily (*Erythronium albidum*), and sweet cicely (*Osmorhiza claytoni*) are now ubiquitous. Tall bellflower (*Campanula americana*) readily self-seeds, now that I recognize the young plants and no longer weed them out. Mayapple (*Podophyllum peltatum*) and columbine (*Aquilegia canadensis*) have shown up in new places by seed. Blue phlox (*Phlox divaricata*), has spread well by seed. A phlox plant even showed up in my perennial bed last year and produced a large robust plant in full sun. The poison ivy is spreading too.

From observing native flowers for many years, both on my central Iowa and northeast Iowa land, I am somewhat disappointed at how long it takes most woodland species to spread. Unlike their prairie counterparts, they spread slowly. The most vigorous spreaders are those that send out rhizomes. So I helped Mother Nature along. Not only do I have a ready source of woodland plants from my own northeast Iowa property, but many friends have contributed plants from their woods and gardens. Over the years, I also obtained plants from various eastern nurseries, but now restrict my purchases to Wildflowers from Nature's Way, Orchid Gardens, and Gardens of the Blue Ridge.

By and large, I have had excellent results. I have transplanted in every month from May until October, in full bloom and in near dormancy. Most orders arrive in early May or mid-September. The most important factors are giving the non-dormant plants plenty of water the first week or two (or three) and checking often the first week for rodent diggings. Either the scent of humans, the smell of whatever was on my hands, or the friable soil around the new plantings seems to draw rodents. They dig around new plantings, sometimes completely uprooting the plant or tuber but never actually eating it. Here are the results I achieved from planting or transplanting various species.

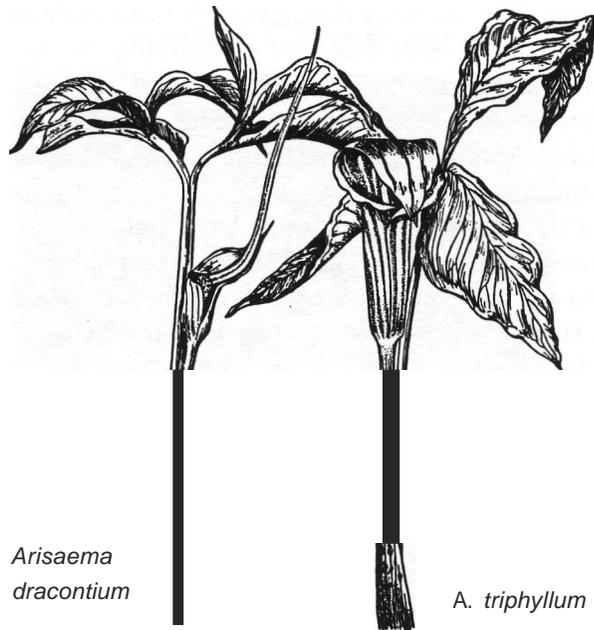
Rattlesnake fern (*Botrychium virginianum*) is a most resounding success. It spread by spores through the woods and into the prairie/meadow area. I am now waiting excitedly to see if the cut-leaved grape fern (*Botrychium dissectum dissectum*) and grape fern (*B. d. obliquum*) transplanted from my farm last fall will spread as quickly. It seems that ostrich ferns (*Matteuccia struthiopteris*) grow on the north side of every house in small-town Iowa. Apparently, they spread much faster in these cultivated habitats than in the woods. That has been my experience with the starts I got from an elderly

lady in Newton, who dug them from the woods years earlier. I have never found an ostrich fern in my woods that grew from spores. Maidenhair ferns (*Adiantum pedatum*) transplant with ease but then clumps spread quite slowly. None have been found that came from spores. I've found that sensitive fern (*Onoclea sensibilis*) will grow under diverse conditions. A fellow Ames Garden Club member shared some from her yard, which originally came from her son's northern Missouri farm years ago. Mine grow in dappled shade beneath an oak, at the edge of a partly shaded prairie and in standing water in the hanging bog. They spread well by rhizomes.

Not every effort with ferns has been a success. Bracken fern (*Pteridium aquilinum*), known to spread in a variety of habitats, has not grown for me. I've tried plants from two different nurseries with no luck. I may transplant some from northeast Iowa in the future. Interrupted ferns (*Osmunda claytoniana*) also grow tall and robust on my farmland and I have moved several to my local woodland over the years with only moderate success. Of the four different places on the property I have tried; one transplant died, two are still alive but not robust, and one is doing very well. This only raises more questions than usual about the transplant process. It's almost easier to contend with the all living or all dying than some of each.

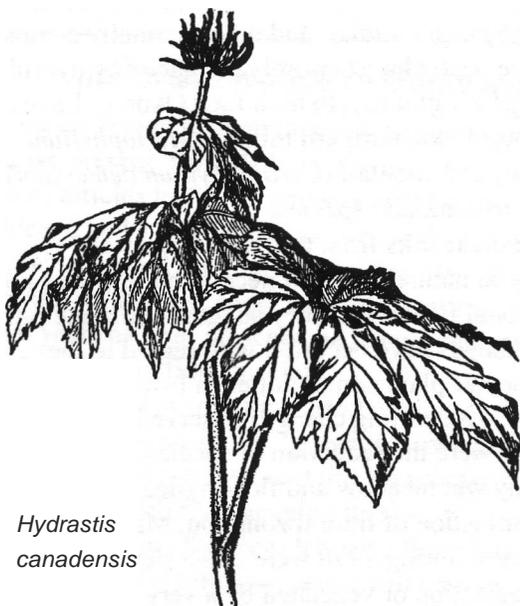
I have always been attracted to the Aroids and my original favorite was jack-in-the-pulpit (*Arisaema triphyllum*) which grows well from either offset tuber or seed. As with other species, seed germination is better when I actually plant the seeds, rather than letting Mother Nature sow them. She did sow a Jack-in-the-pulpit in the hanging bog, however, where I would never have planted one. I had been told that dormant tubers are prone to rot if given too much moisture. Green dragon (*A. dracontium*) was found growing around the foundation of an eighty-year old woman's house. The plants took nearly six years to form viable seed heads from the transplanted mature plants. They now set seed regularly. I inadvertently planted one in full sun next to a blacktop road. It always grew quite large and flowered, but the seed head dried up, presumably due to lack of summer moisture and the full sun. It is now planted in the woodland. I first saw skunk cabbage (*Symplocarpus foetidus*) in 1991 at the Nature Conservancy's Hanging Bog. I had to grow them! The six-year quest for a private source of plants or seed culminated in my first bloom in 1997, which was promptly shredded by some critter before I could see it. But that will be chronicled in a future article.

I went one step beyond transplanting with green dragon by germinating and growing the seeds indoors. Seeds from 1996 are now in their second growth cycle



under lights. After their first growth period, I stored them in slightly moist milled peat in the refrigerator crisper for about four months. This spring I plan to plant them out and give some away.

Two clumps of marsh marigold (*Caltha palustris*) grew originally in the hanging bog. Even though they produced seed, they did not spread beyond the mother clumps. A couple years ago, I transplanted small offsets from the mother plants to other spots where they have done well. Last year I scattered seeds over a larger area of the bog, but it is too early for any apparent results. Here is another area for further investigation. Under what conditions do the seeds germinate? Are they viable if they dry out? Do they need any sort of stratification to germinate?



I am surprised by the slow spread of wild leek (*Allium tricoccum*). I expected the plants to spread wildly, much like garlic chives in the garden, only to find that it took several years for self-seeded plants to appear. Of course these remain close to the original plants, because ripe seeds simply drop from the umbel to the ground beneath. In contrast, wild ginger (*Asarum canadensis*) spreads prolifically by rhizomes. I started with a single clump of four plants, which I divided many times over the years. But here again, it took nearly eight years before plants from seed appeared in the woods. They grow quite well in shady to partly sunny locations.

I received goldenseal (*Hydrastis canadensis*) plants from a nursery that sells only goldenseal and ginseng that they start from seed. My plants set some meager looking seeds about five years after transplanting, but last year the seed heads were finally robust. Some of these I planted and gave the rest to friends.

Crested iris (*Iris cristata*) is not native to Iowa but is readily available through nurseries. It has been a resounding success, spreading more each year by rhizomes. Plants that receive the most sun, but still have plenty of shade, are spreading the fastest. I would like to plant some in full sun to compare the growth rates. Another alien, multiflora rose (*Rosa multiflora*) found its way into my woodland by itself. The honeysuckle (*Lonicera tatarica*) bushes came in the wildlife packet I planted from the State Forest Nursery. The rose and honeysuckle are prolific weeds that I am attempting to eradicate by pulling out by the roots or by poisoning larger plants with Tordon. This is a slow process.

This raises an important issue. In recent years there has been greater concern about local genotype prairie seed. I've not heard this concern expressed about woodland wildflowers and ferns. Perhaps this is something that the INPS should address in future articles and discussions.

Although I began by simply adding species of wildflowers and ferns to my woodland, I am now interested in the requirements for speeding up the naturalization process. After experience with planting prairie species from seed, I also want to learn more about propagating woodland plants from seed. Reading books is helpful, among my favorites are *The Root Book*, *How to Plant Wildflowers* by Norma Phillips, *Noah's Garden*, *Restoring the Ecology of our Own Backyards* by Sara Stein, and *Gardening with Wildflowers and Native Plants* by the Brooklyn Botanic Garden. Still, nothing compares to your own hands-on experience or sharing the experience of others.

Aquatic Vascular Plants In Iowa's Natural Lakes

submitted by Gary Phillips

Iowa's lake-type wetland habitats had limited distribution in presettlement Iowa but were not uncommon, especially in the northwestern and north-central portions of the state. Furthermore, lake and riverine habitats were frequent along both the Mississippi and Missouri Rivers that border the state. Records from county surveys conducted from 1832 to 1859 indicate that Iowa had approximately 87,000 acres of lake, pond and riverine type habitat at the time settlement began. A study conducted by Bachman in 1980 showed that 32,058 acres of lake habitat remain. Because of extensive alteration of remaining habitats, few quality sites still exist. The future of these remaining sites depends on the prevention of further degradation. Because of economic and recreational concerns, reversal of this decline is unlikely.

The status of aquatic vascular plants in these wetland habitats is, therefore, ultimately tied to the management and utilization of Iowa's lakes. At the time of settlement, it is assumed that most of Iowa's natural lakes had diverse and abundant populations of aquatic vascular plants. However, the status of these plants was never adequately documented and remains poorly understood today. Probably the best source of information available was prepared by Pammel in 1917 as part of a statewide study of lakes and lake beds.

Pammel's paper not only provided a list of the species present in the lakes surveyed, but also indicated the relative abundance for these species. As part of this study, 15 natural lakes in northwestern Iowa were intensively surveyed during the summer of 1915. An additional eight lakes in north-central Iowa were visited in 1916 and partial species lists were prepared. During the 1915 survey, 66 species of aquatic vascular plants were recorded. Pammel noted that 5 of these species were common in water over 7 ft deep, 16 were common in water 5-7 ft deep, 25 were common in water 3-5 ft deep, and 43 were common in water 1-3 ft deep. Pammel also observed that most of the lakes studied exhibited distinct zonation. The zones that he noted included a wet meadow vegetation zone of sedges, grasses and annuals that blended into the surrounding tallgrass prairie, an emergent vegetation zone dominated by cattails, bulrushes and common reeds, a floating-leaved vegetation zone that included (*Potamogeton* sp.), yellow water lilies (*Nuphar luteum*) and white water lilies (*Nymphaea tuberosa*), and a submergent vegetation zone where pondweeds (*Potamogeton* sp.) were predominant.

In 1996, the Iowa Department of Natural Resources established the Iowa Eurasian Watermilfoil Program as mandated by state law. Eurasian watermilfoil (*Myriophyllum spicatum*) is a nonindigenous aquatic nuisance species which can create serious ecological problems in lakes following unintentional introduction. As part of the Iowa Eurasian Watermilfoil Program, 86 natural lakes located in northwestern and north-central Iowa and along the Missouri River were surveyed during the summer of 1996 for aquatic vascular vegetation. All of the lakes studied by Pammel in 1915 and 1916 were included in this survey and were subjected to intense field study.

Table I provides a comparison of the number of species observed in 1915 and 1996. East Hottes, West Hottes, and Marble lakes showed small increases, while all of the other lakes showed marked declines in the species richness of the aquatic plant community. The greatest decline occurred for East Okoboji Lake, with a loss of 40 species. The largest decline of aquatic vascular plant species for all 15 lakes was noted for the wet meadow vegetation zone. Many of the wet meadow species that appear to have been lost were listed by Pammel as common in 1915. This includes the water marigold (*Megalodonta beckii*) which was listed in 1978 by Roosa and Eilers as a state endangered species. Other noticeable changes observed were among the floating-leaved species, with the apparent loss of two species of water lilies (*N. luteum* and *N. tuberosa*) and several species of pondweeds (*Potamogeton diversifolius*, *P. epiphydrus*, and *P. graminis*).

Changes in the relative abundance of species in East Okoboji Lake, Rush Lake, and West Okoboji Lake were also noted. Rush Lake in Palo Alto County remains densely vegetated today but the once abundant river bulrush (*Scirpus jluviatilis*) and other normally common species have been almost entirely displaced by hybrid cattails (*Typha x glauca*). In both East Okoboji Lake and West Okoboji Lake, northern milfoil (*Myriophyllum exalbescens*) and coontail (*Ceratophyllum demersum*) have become dominant species.

While the results from this recent study are preliminary in nature, and will need to be followed up with additional field work, they suggest that some rather dramatic changes have occurred with regard to the aquatic vascular plant communities in Iowa's natural lakes. The most startling changes observed during the 1996 survey were the reduction of species diversity, the loss of many wet meadow and floating-leaved species and the elimination of littoral zonation. Many of the lakes surveyed during 1996 were either devoid of aquatic vascular vegetation or vegetated by a very small number of species.

In a nutshell...
related events of interest to INPS members

TNC:The Nature Conservancy
CIPN:Central Iowa Prairie Network
IPN:Iowa Prairie Network
PSMC:Prairie States Mushroom Club

March 3 (7:00 p.m.):Prairie Preview, Iowa City
(Fairgrounds Old Highway 218 South), Johnson
County. Information and displays from your local
environmental organizations and agencies.
(319)337-2322 ext. 202.

April 11 (1 p.m.):Broken Kettle Grasslands, Plymouth
County. TNC (515) 244-5044.

April 18 (1 p.m.):Berry Woods. Warren County. TNC
(515) 244-5044.

May 2 (1 p.m.):Sioux City Prairie, Woodbury County.
TNC (515) 244-5044.

May 3: Chichaqua Wildlife Area, Polk County. PSMC
(515) 446-7358.

May 12 (6:30 p.m.):Pohl Memorial Preserve at Ames
High School Prairie, Ames, Story County. TNC
(515) 244-5044.

May 16 (1 p.m.):Retz Memorial Woods, near Elkader,
Clayton County. TNC (515) 244-5044.

May 17 (1 p.m.):Kaufmann Avenue Prairie, Dubuque,
Dubuque County. TNC (515) 244-5044.

May 23 (1 p.m.):Cedar Hills Sand Prairie, Black Hawk
County. TNC (515) 244-5044.

June 9 (6:30 p.m.):Pohl Memorial Preserve at Ames
High School Prairie, Ames, Story County. TNC
(515) 244-5044.

June 27 (10 a.m.):Freda Haffner Kettlehole and Silver
Lake Fen, Dickinson County. TNC (515) 244-5044.

July 11: Stevens Forest (Whitebreast Unit), near Lucas.
PSMC (515) 446-7358.

July 12: Nine Eagles State Park, Decatur County. PSMC
(515) 446-7358.

July 26-30: North American Prairie Conference.
Kearney, NE.

September 11,12 and 13: Iowa Prairie Network Annual
Meeting. Wapsi River Environmental Center,
Dixon,IA.

September 20: White Pine Hollow, near Luxemburg,
Dubuque County. PSMC (515) 446-7358.

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