



MINNESOTA PLANT PRESS

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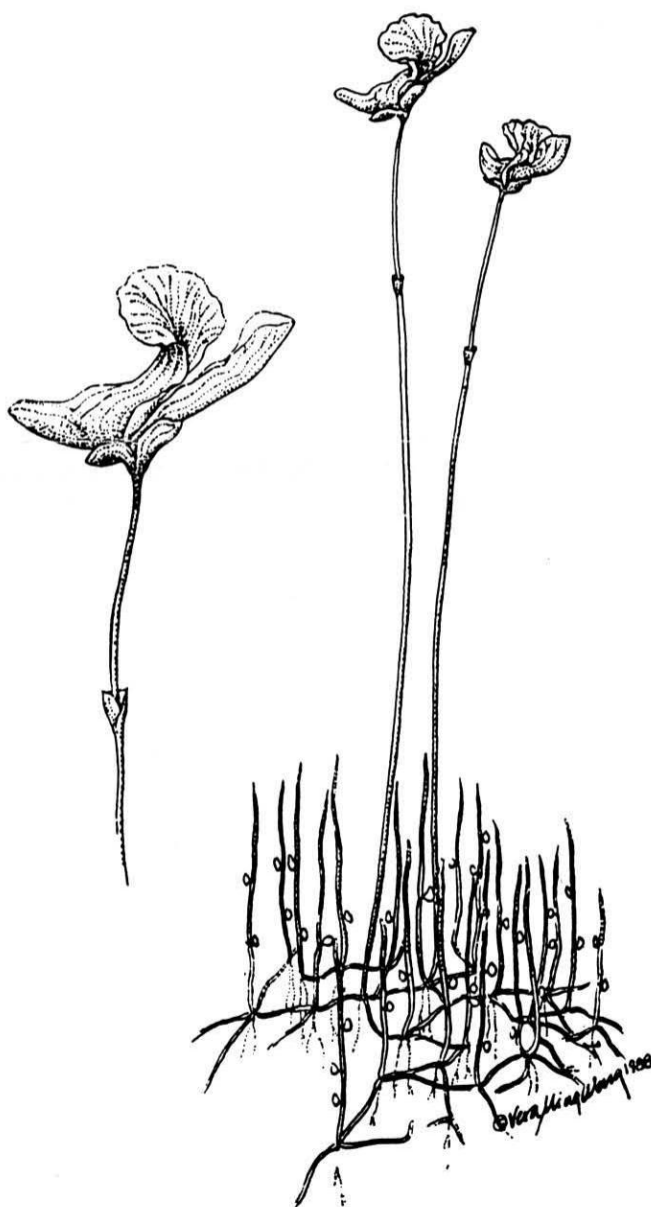
A NEW BLADDERWORT FOR MINNESOTA *****

One of the most exciting things about botanizing in Minnesota (or anywhere for that matter) is the unexpected thrill of finding a new state record; a species never before found here. Chel Anderson and Bruce Knowles recently were lucky enough to make such a discovery.

In August 1982, both Chel and Bruce were employed by the U. S. Forest Service as Wilderness Rangers in the BWCA. While they were camped on Makwa Lake, Chel found a small, unfamiliar bladderwort growing on the sandy beach. Bladderworts are members of the genus Utricularia, and would probably seem uninteresting if it weren't for their carnivorous habit. Their bladders actually trap and digest tiny aquatic animals. The species Chel found is especially interesting because it has purple flowers; all of the previously known Minnesota bladderworts have yellow flowers. As it turned out, the new species is Utricularia resupinata, and is definitely a state record!

I never need much of an excuse to head for the BWCA, so when I heard about Chel's discovery I packed up my plant press and, with Vera Wong, headed north. We entered the BWCA at Kawishiwi Lake, and after 3 days of paddling we arrived at Makwa Lake. On a small sandy spit in a protected bay we found hundreds of Utricularia resupinata. The habitat is actually very rare in the BWCA. Most of the lake shores are marshy or covered with boulders, and do not have extensive sandy beaches. So if anyone knows of other potential beaches, please let me know.

Because of this new discovery, and because of an increased interest in bladderworts as a whole, I have prepared the following key to the Utricularia of Minnesota, with illustrations by Vera Wong.



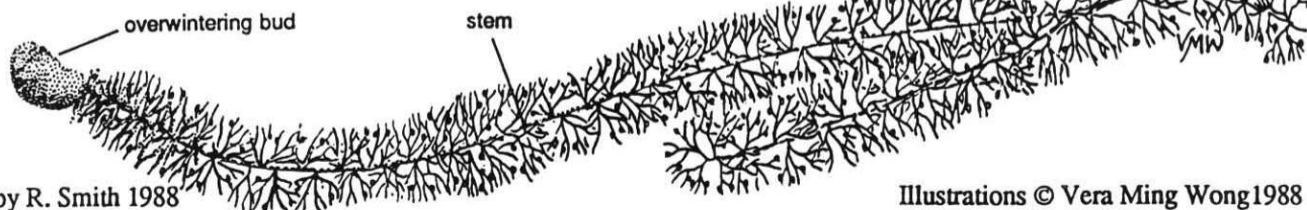
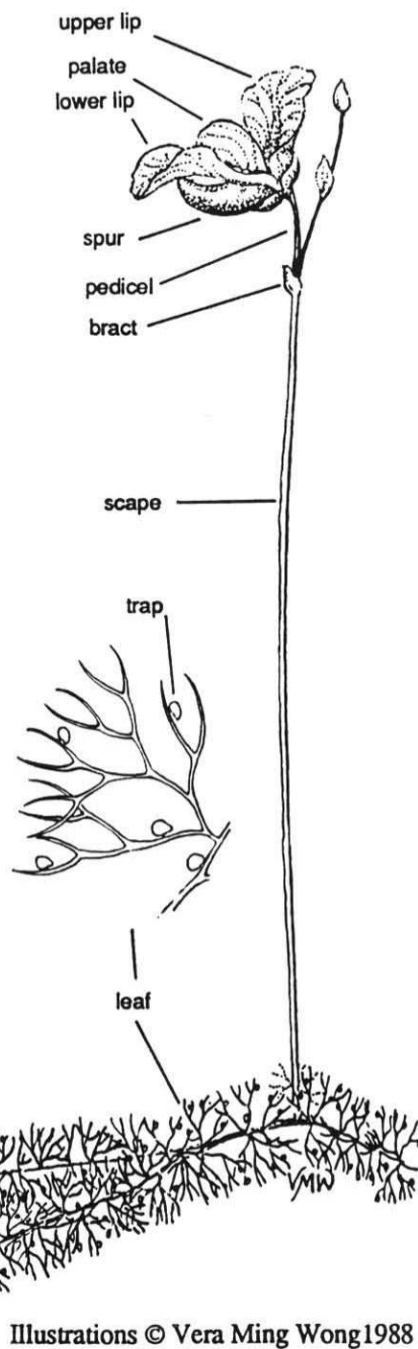
Utricularia L. (bladderwort)

Small herbaceous plants, mostly aquatic, but some terrestrial on wet sand or peat. The aquatic species are rootless and free-floating, the terrestrial species produce tiny roots from the nodes of subterranean stems. Leaves alternate, dissected or simple, frequently bearing small but elaborate traps. When activated by stimulation of bristles near the entrance, the lateral walls of the trap expand rapidly, sucking in water, and the prey, through a trap door. In this manner, an abundance of daphnia, cyclops and especially mosquito larvae are caught. When the prey is digested, the trap automatically resets itself. The traps are normally filled with water and do not function as flotation devices as is implied by the common name. Calyx deeply 2-lobed; corolla bilabiate, the upper lip erect, or nearly so, the lower lip more-or-less 3-lobed and spurred at base, with a prominent palate often projecting over the throat.

About 250 species distributed worldwide, but mostly in the tropics. Six species are known in Minnesota. The 2 terrestrial species (nos. 5 & 6) are annuals and somewhat ephemeral; the 4 aquatic species (nos. 1-4) are perennials, producing compact overwintering buds of closely appressed leaves. All of our species have yellow flowers except for the purple-flowered *U. resupinata*. An additional purple-flowered species, *U. purpurea*, has been reported from the state, but no specimen has been seen. It can be easily distinguished by its whorled leaves, and should be sought in lakes and ponds in east-central Minnesota. (Name from the Latin *utriculus*, a small bottle with yielding sides, referring to the traps).

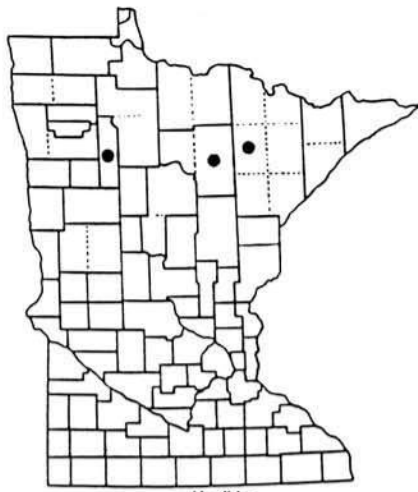
Key to *Utricularia* in Minnesota

- a. Leaves dissected into 2 or more elongate segments; plants free-floating; stems not buried or anchored, but sometimes stranded on shores.
 - b. Ultimate leaf-segments terete or capillary, not flattened; lower lip of the corolla about equal to the upper.
 - c. Plant coarse, the long stem 0.4 mm or more thick; leaves 1.5-7 cm long, with numerous segments; scape stout 1. *U. vulgaris*
 - c. Plant delicate, the short, filiform stems less than 0.3 mm thick; leaves 0.2-1 cm long, with mostly 2 segments; scape filiform..... 2. *U. gibba*
 - b. Ultimate leaf-segments flat; lower lip of the corolla about twice as long as the upper.
 - d. Traps borne on the leaves; margins of terminal leaf-segments entire; midvein not evident..... 3. *U. minor*
 - d. Traps borne on separate, leafless branches; margins of terminal leaf-segments minutely spinose-serrulate; midvein evident 4. *U. intermedia*
- a. Leaves simple, much reduced; plants not free-floating, but terrestrial on wet sand, peat or mud; the stem, leaves and traps below ground, only the scape visible.
 - c. Flowers 1; corolla purple; bracts consisting of a single pair fused into a tube 5. *U. resupinata*
 - e. Flowers 1-3; corolla yellow; bracts several, not fused 6. *U. cornuta*

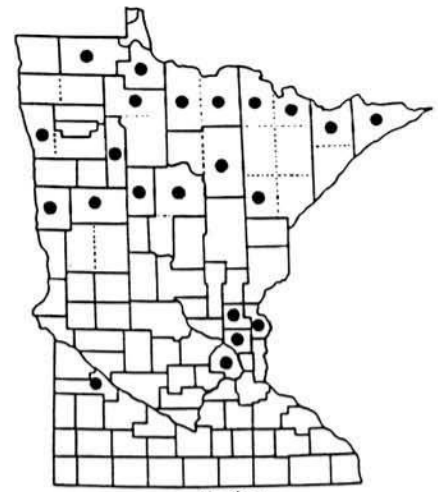




U. vulgaris



U. gibba



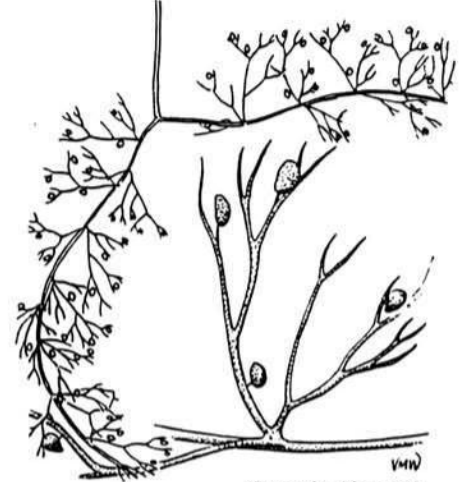
U. minor



U. vulgaris



U. gibba



U. minor

© Vera Ming Wong 1988

1. *U. vulgaris* L. (common), common bladderwort.

Aquatic; stems coarse, floating, 0.4 mm or more thick, up to 1 m long; leaves 1.5-7 cm long, divided into numerous coarse, capillary segments, bearing numerous traps; scapes stout, 1-4 dm high; bracts cordate-sessile, 4-7 mm long; flowers 3-20, in a lax raceme; corolla yellow with brown vertical stripes on the large palate; the broad lower lip equaling or slightly longer than the spur; capsule subglobose, 4-5 mm in diameter; overwintering buds compact, 1-3 cm long, usually lobed when fully developed.

Common statewide in circumneutral and weakly acidic lakes, ponds, rivers, ditches and marshes. Usually floating near the surface where it is relatively conspicuous. Circumboreal; south in North America to Mexico, but more common northward. July-Aug.

The North American plants are sometimes segregated as var. *americana* Gray on the basis of a more slender and somewhat acute spur, but the differences are probably not significant enough to warrant varietal status.

2. *U. gibba* L. (humped), humped bladderwort.

Aquatic; stems slender, floating, 0.1-0.3 mm thick, and 5-15 cm long; leaves scattered, 2-10 mm long, divided near the base into 2 capillary segments with relatively few scattered traps; scapes filiform, 2-6 cm high; bracts minute, clasping and tapering to a sessile base; flowers 1-3; corolla yellow; the lips nearly equal and projecting forward, the lower lip much longer than the spur, and with a prominent palate; mature capsule globular, 2-3 mm in diameter; overwintering buds lax, 1 mm or less in diameter.

Rare, or at least rarely collected, in bog pools, floating mats, and shallow lakes. This is the smallest and least conspicuous of the aquatic bladderworts. MN, Ont. & N.S. south to FL, TX and OK, also along the Pacific coast from B.C. to Central America, and the West Indies. July-Aug.

3. *U. minor* L. (smaller), lesser bladderwort.

Aquatic; stems threadlike, floating, 5-15 cm long; leaves 2-10 mm long, forked 2-4 times into flat, entire segments bearing few to many traps; scapes filiform, 4-15 cm high; bracts cordate-sessile; flowers 3-12; corolla yellow; upper lip ca one-half the length of the lower lip; spur very short and saccate; palate depressed and obscure; capsule subglobose, ca 2 mm in diameter; overwintering buds lax, 1.5-5 mm in diameter, but rarely collected.

Occasional in fen pools, wet meadows, shallow ponds and marshy lake shores. A reliable indicator of calcareous or circumneutral water, being intolerant of acidic conditions. Frequently associated with *chara* (stonewort), a marl-producing macroscopic alga. Circumboreal; south in North America to NJ, OH, IA, CO and CA. July-Aug.



U. intermedia



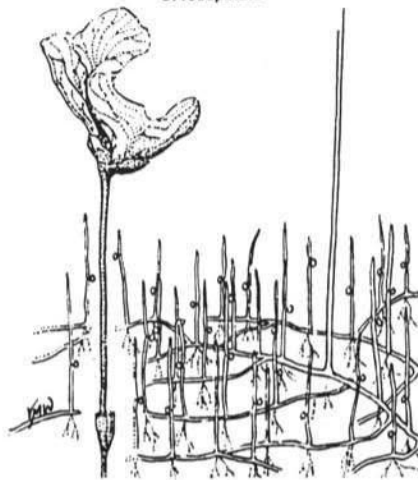
U. resupinata



U. cornuta



U. intermedia



U. resupinata



U. cornuta
© Vera Minghong 1988

4. *U. intermedia* L. (intermediate).

Aquatic; stems slender, floating; leaves 0.4-1.5 cm long, flat, usually forked 3 times, each segment with a distinct midvein, margins of terminal segments minutely spinose-serrulate; traps borne on separate leafless branches up to 1.5 dm long; scapes stiff, 0.5-3.0 dm high; bracts cordate-sessile; flowers 2-5; corolla yellow; the upper lip much shorter than the lower; spur about as long as the lower lip; palate well developed; overwintering buds dense, hairy, 0.5-1.2 cm long, oval or elliptical.

Common in the northern half of the state, but rare in the southern half. Found in bog pools, quaking mats, marshy shores and sedge meadows, or sometimes floating in beds of submerged vegetation. Generally preferring circumneutral water, but more tolerant of acidic conditions than the preceding species, with which it sometimes occurs. Circumboreal; south in North America to NJ, PA, IO and CA. June-Aug.

5. *U. resupinata* B.D. Greene (turned upside down; referring to the position of the flower).

Terrestrial, or sometimes amphibious; stems filiform, buried in wet sand, and forming fine mats just below the surface; leaves simple, up to 4 cm long, acicular, subterranean and colorless or becoming green when exposed above the surface; traps minute, borne on the leaf-margins and occasionally on the delicate roots that emerge at the nodes; scapes filiform, 0.2-1.8 dm high, terminated by a single erect pedicel (appearing to be a continuation of the scape), 1.0-5.5 cm long, subtended by a single pair of bracts fused into a tube or cup; flower 1, resupinate (facing upwards); corolla purple; the broad lower lip much longer than the narrow upper one; spur much shorter than lower lip; palate obscure.

Apparently very rare in Minnesota. Occurring on wet sandy beaches and in shallow water of oligotrophic lakes in the northeast. In North America from MN, Que. and N.S. south to PA and IL, also in GA and FL. Aug.

6. *U. cornuta* Michx. (horned; referring to the shape of the spur), horned-bladderwort.

Terrestrial; stems delicate, buried in wet sand, peat or mud; leaves (rarely collected) simple, linear-filiform, colorless, subterranean, bearing a few minute traps; scapes stiff and wiry, 0.5-3.0 dm high; bracts deltoid-ovate; inner bractlets 2, acute, opposite; flowers 1-3, crowded on short pedicels, 1-2 mm long; corolla golden yellow; the upper lip 2-lobed, the larger lower lip with a large palate projecting over the throat; spur subulate, 8-12 mm long; capsule 3-5 mm in diameter, beaked.

Occasional in the northern one-third of the state, but only visible when flowering. Prefers wet, sunny habitats such as quaking mats, sandy shores, open bogs and sedge meadows. Throughout most of eastern North America from Ont. and Nfld south to FL and TX. July-Aug.

UPCOMING MNPS MEETINGS *****

- April 6 Native plant collections at the U.S. National Arboretum. Cole Burrell (University Arboretum) will give us a view of one of our national treasures.
- May 4 Wildflower garden plant and seedling sale (see notice later this newsletter);
Summer field trip discussions.

SOCIETY NEWS

At the Annual Meeting, held March 2, three new board members were elected to take the place of Chris Soutter, Neil Anderson, and Jim Schuster, whose terms expire at the end of August. The new people, serving three-year terms, are Robin Fox, John Moriarty, and Gerald Ownbey. Congratulations to the new; many thanks to the outgoing board members!

Other business discussed included the lawsuit, which has now been settled (a copy of the letter of settlement will soon be mailed to all members).

All members are invited to attend the monthly board meetings, which are held on the 1st Wednesday of each month, 6:00 p.m., Saint Paul Student Center cafeteria. Remaining meetings are April 6 and May 4.

TREASURER'S REPORT

Previous balance:

General fund	\$1,614.96
Legal fund	368.00
Total	<u>\$1,982.96</u>

Income May 87 - Feb. 88:

Memberships	\$1,286.00
Donations	27.00
Calendars	270.00
Plant sale	195.00
Interest	60.06
Total	<u>\$1,838.06</u>

Lawsuit fund:

Balance May 1, 1987	\$ 913.00
Lawyer fees	- 500.00
Misc. legal expenses	- 45.00
	<u>368.00</u>
Plant sale funds	195.00
Donations	27.00
Total	<u>\$ 590.00</u>

Expenses May 87 - Feb. 88:

Postage	\$ 207.53
Painting	257.92
Calendars	160.00
Misc. supplies	35.05
Display board	565.70
Artist fees	30.00
Total	<u>\$1,256.20</u>

Balance (as of February 29, 1988)

\$2,564.82

UPCOMING SPECIAL EVENTS *****

Invasive Weed Symposium -- 9 April

MNPS is sponsoring a symposium at Belwin Nature Center, dealing with three of the more invasive and persistent weeds threatening our native flora and wildlife habitat. Buckthorn in woodlands, purple loosestrife in wetlands, and leafy spurge in prairies and agricultural land are the subjects of intensive and expensive control efforts. Invited experts will discuss some of the problems associated with these plants. A display identifying the plants will provide additional information on their spread and some control methods.

After the symposium there will be time for a bag lunch (bring your own; we will provide coffee and cider) followed by guided hikes on the 320 acre Belwin property, which includes a wide variety of vegetation types.

You should already have received your registration materials and maps (if not, you may register by sending \$5 payable to the Minnesota Native Plant Society with a return address to: MNPS Symposium, c/o Department of Botany, University of Minnesota, Saint Paul, Minnesota 55108). To ensure a space, please register early; only a limited number of seats will be available.

Wildflower Garden Plant Seedling Sale -- 4 May

As part of the May 4 monthly meeting, a sale of wildflower garden transplants and seedlings will be held. There will be a .50 charge for each plant, with proceeds going to the MNPS general fund.

One of the MNPS goals is the conservation of native plants. By gardening with plants started from seed or transplants from another garden, we can enjoy wildflowers in our gardens without disturbing native populations.

Donations of native plants started from seed and native wildflower transplants from gardens are needed for this sale. Drop off your plants 10 minutes before the meeting, and please have labels with the name of plant and donor.

*** PLEASE DO NOT COLLECT WILD PLANTS FOR THIS SALE.

SUMMER CAMP-OUT 24-26 June 1988

The first annual MNPS summer camp-out will be held in the Aitkin area of central Minnesota, from Friday evening through Sunday afternoon, 24-26 June. Potential field trips include old cedar swamps, bogs, hardwood forest, and mushroom-hunting; leaders may include Dr. Anita Cholewa (UM-botanist), Ms. Audrey Engels (area botanist); Dr. David McLaughlin (UM-mycologist). A limited number of camping spaces (tent or hard-sided) are available on the Engels' property; these are primitive conditions with outhouses, some electrical hookups, and a barn in case a rain shelter is needed. Bring plenty of mosquito dope. There is no fee but preregistration is necessary. Call Nita Cholewa 612-625-0215. Maps and further details on the field trips will be made available at a later date.



SUMMER FIELD TRIPS

The following day trips have been arranged by MNPS for your enjoyment and education. Old clothes and sturdy walking shoes are the best attire. Bring a bag lunch, field guides, and binoculars (some of the areas are also exceptional birding spots). Carpooling is encouraged.

Beaver Creek Valley State Park

Date: Saturday, April 30, 1988

Time: 11:30 a.m. - 2:30 p.m.

Meeting Place: State park picnic area. From the Twin Cities take Hwy. 61 (I-494 intersects 61 in Newport) south to Winona, then go south on Hwy. 43 to I-90 east until it intersects Hwy. 76. Take Hwy 76 towards Caledonia, about 4 miles N.W. of town you will come to a "T" intersection; go right (west) and watch for the state park signs.

Leader: Roger Heimgartner - part-time naturalist at the park and science teacher.

Beaver Creek Valley State Park is located in southeastern Minnesota, in the Driftless Area (untouched by recent glaciation). An area dominated by hardwoods with numerous limestone cliffs through which Beaver Creek cuts. Goat Prairie will also be visited. This is a prime wildflower area for such spring plants as jack-in-the-pulpit, dutchman's breeches, and spring beauty, and in the prairie hopefully we will see pasque flowers.

Park permits are required for each vehicle (annual \$15, daily \$3).

Shattuck-St. Mary Nature Trail and River Bend Nature Center

Date: Saturday, May 7, 1988

Time: 11:00 a.m. - 2:00 p.m.

Meeting Place: Huckleberry Inn in Faribault. From the Twin Cities take I-35W south to Faribault. Take the first exit and stop at Huckleberry Inn.

Leader: Mr. Orwin Rustad, biology teacher at Shattuck-St. Mary School.

Shattuck-St. Mary owns a small tract of deciduous hardwoods through which trails have been placed advantageously. Two spring gems to be found here are the Minnesota trout-lily and the showy orchis. River Bend Nature Center is nearby with similar vegetation.

James McKee Prairie

Date: Saturday, June 18, 1988

Time: 9:00 - 11:00 a.m.

Meeting Place: Maplewood Nature Center, 2659 East 7th Street in Maplewood. There will be a brief introduction at the Nature Center before proceeding to the prairie, which is another 1.5 miles north.

Leader: Chris Soutter - former naturalist at Maplewood.

Jame McKee Prairie is an undisturbed remnant of wet-mesic prairie in Ramsey County. It is notable for its purity and diversity -- over 150 species of native plants occur on this three-acre site. The Prairie is owned by the City of Maplewood and managed by Maplewood Nature Center. Wear old shoes, long sleeves and pants, as this is a damp prairie.

*** Registration required - this trip will be limited to 25 participants in order to control impact on the prairie community. Call the Nature Center at 738-9383.

Summer Fieldtrips Continued

Strandness Prairie

Date: Saturday, August 20, 1988

Time: 11:00 a.m. - 2:30 p.m.

Meeting Place: Canon Bowl Restaurant at the top of the hill in Glenwood. From the Twin Cities take I-94 to Sauk Center, then go west on Hwy. 28 to Glenwood. Approximately 3 hour driving time. Carpooling encouraged.

Leader: Dr. Ellen Ordway - biology teacher of the University of Minnesota, Morris.

Strandness Prairie is a tallgrass prairie that has never been plowed or grazed. There are wet, mesic, and dry portions in the 37 acres, providing a feeling of the vastness of the original prairie. Two hundred plant species are known to occur. This is an excellent time to see many in bloom.

May Wright's Wildflower Garden

There will be no regular trip scheduled to May Wright's wildflower garden, but anyone interested can arrange a visit by calling . Flowers bloom in the various habitats from late April through summer and fall. May Wright's address is: 4157 Bellaire Avenue, White Bear Lake, Minnesota.

VOLUNTEER OPPORTUNITIES

A number of SNA projects need assistance. These include small tree and shrub clearing; purple loosestrife control; noxious weed surveys; sign repair; trail maintenance, and other chores. Persons interested in volunteering their time should contact Vicki Dunevitz (DNR - Section of Wildlife),

Lake Maria State Park

Lake Maria is one of our most underfunded and understaffed state parks. Located about 50 miles northwest of the Twin Cities, it is in an area of terminal moraines and Big Woods remnants. Volunteer activities include helping clear trails, checking for sign repairs, marking trail locations accurately on maps, and campsite maintenance. Volunteers should contact Lowell Jaeger (Lake Maria S.P.).

Nature Conservancy Volunteers

The Nature Conservancy also has a number of Preserve-related projects that could use some volunteer help. These are mostly labor intensive tasks. Persons interested in helping should contact Peg Kohring (TNC),

DOT REQUIRES ASSISTANCE *****

Highway/Railroad Rights-of-way Vegetation Survey: Beginning this spring, I will be surveying native vegetation along Minnesota highway/railroad rights-of-way (r.o.w.). I am currently seeking information on r.o.w.'s with existing prairie remnants (south and west Minnesota) or native showy wildflowers (central and northeast Minnesota). With the information gained from this study, the DOT plans to set aside quality tracts of vegetation for permanent preservation. In addition, we plan to designate some of these highways as "prairie corridors" or "wildflower routes". Any and all information on native vegetation along roadsides will be greatly appreciated.

UNUSUAL PLANTS OF TETTEGOUCHE STATE PARK *****

Tettegouche State Park, located in Lake Co., 4.5 miles northeast of Silver Bay, was established in 1979 to preserve a variety of natural features. Lake Superior shoreline, ancient lava headlands, cascades and waterfalls combine with relatively undisturbed northern hardwood forest and with spruce, pine, and cedar forests to make this park an exceptional treasure.

One of the challenges facing the park management is the inevitable development in relatively undisturbed vegetation. Countless hours of planning and agony go into each new development in attempts to minimize disruption of the flora and fauna.

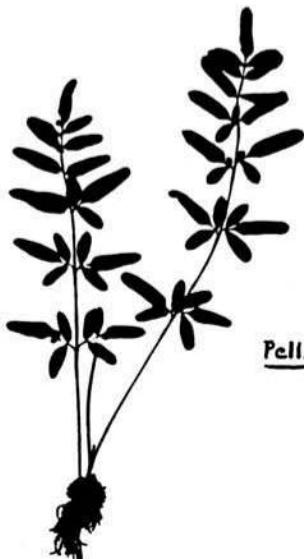
One particularly difficult site in Tettegouche is Shovel Point, a fragile, 1/4-mile-long peninsula into Lake Superior. This is an area of diminutive conifers, incredible lichen diversity, and a meeting of northern boreal with eastern deciduous floras. Here you can contemplate the presence of more species of the lichens Cladonia and Cladina than you ever thought possible. Here also, a careless footstep on a hot summer day can crush 50 years of lichen growth and leave a distinctly visible trail. Enough hikers and the lichen cover is destroyed, revealing the bare rock beneath; a situation that has already occurred on nearby Palisade Head.

Since Shovel Point was almost totally undisturbed, trail routes were carefully planned to miss shoreline colonies of the North Shore disjunct northern eyebright (Euphrasia hudsoniana, Scrophulariaceae) and butterwort (Pinguicula vulgaris, Lentibulariaceae) a more boreal and eastern species ~~that~~ is on the state "Special Concern" list. Other unusual plants which played a role in Shovel Point plans, include such northern elements as the matricary grape-fern (Botrychium matricariifolium, Ophioglossaceae) and the coral-roots (Corallorhiza spp., Orchidaceae). Plants with closer affinities to eastern floras include the doll's-eye or white baneberry (Actaea pachypoda, Ranunculaceae), whitlow-grass (Draba arabisans, Brassicaceae - also on the state "Special Concern" list), smooth cliff-brake (Pellaea glabella, Polypodiaceae), the New England violet (Viola novae-angliae, Violaceae - another "Special Concern" plant), and the birds-eye primrose (Primula mistassinica, Primulaceae - a species mostly limited to the St. Lawrence Seaway).

Smooth cliff-brake and whitlow-grass, which colonize the 160' cliffs on Shovel Point, are seemingly tucked securely out of man's reach. A new ecological threat looms on their horizon, however, in the form of rock climbers.

The best way to provide protection for rare plants is for the park managers to have a good grasp of the flora of an area. Unfortunately, a botanical inventory of the park has not yet been conducted, even though the remarkably varied habitats indicate good rare plant potential. Hopefully this can soon be rectified and any information on the flora will be welcomed by the park office from knowledgeable persons.

— Ray Newman, DNR Grand Rapids Office



Pellaea

(from Tryon, 1980)



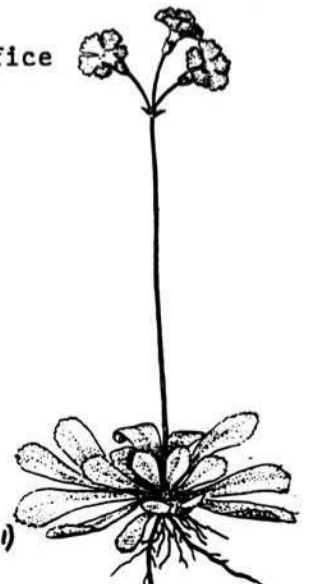
Euphrasia

(from Britton & Brown)



Primula

(from Monserud
& Ownbey, 1971)



CONSERVATION AND LEGISLATIVE CORNER *****

Endangered Species Act

The revised Endangered Species Act was passed by the U.S. House of Representative last December. The Senate must now be persuaded of the importance of swift action on this bill. The ESA Reauthorization Coordinating Committee anticipates difficulty in getting the Senate to act because of a heavy schedule and the objections of Senator Simpson (R-WY) to provisions protecting wolves and grizzlies. The plants, however, cannot wait. Please write your senators immediately, asking them to:

1. contact the appropriate Senate leaders (Democrats: Robert Byrd and Alan Cranston. Republicans: Bob Dole) and ask for scheduled floor debate as early as possible.
2. co-sponsor S.675 as reported from the Committee on Environment and Public Works and to work for its passage with no amendments.

— Natural Resources Defense Council

"Swampbuster" law not being enforced

Historic legislation protecting the nation's wetlands is being "circumvented and in many cases wholly ignored in the north central U.S.," U.S. Senator Bob Kasten (R-WI) recently charged. Kasten, who led the effort to include the provision in the 1985 Farm Bill, pledged to fight efforts to weaken the federal "swampbuster" law. The swampbuster provisions of the 1985 Farm Bill denies farm program benefits to farmers who convert wetlands to cropland. Kasten criticized some officials of the U.S. Department of Agriculture for not enforcing "swampbuster" to protect prairie pothole wetlands in Great Plains states, particularly North Dakota. The farm bill also provided for the establishment of a "Conservation Reserve," a program to set aside millions of acres of farmlands for conservation purposes.

Encourage your U.S. senators and representatives to work for the enforcement of this important legislation.

— Jim Sims

THE GARDENERS' CORNER *****

Caution urged bulb growers

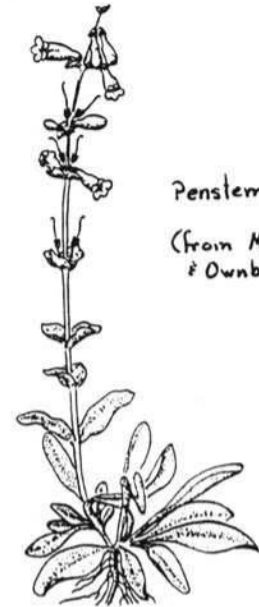
Americans plant over a billion bulbs each year. Most of these are hybrids produced in nurseries, especially by that amazing country, The Netherlands. If the flower that attract you have florid common names or are identified as hybrids, you should feel free to buy them. Furthermore, grape hyacinths, most crocus, and the alliums are usually propagated. However, please be careful about bulbs labelled as "wild," "species," or "botanicals," and many of the small, early-blooming types. These may have been collected from the wild in Turkey, Spain, South Africa, Central Asia, or even the United States. We suggest that you ask, "Did you propagate these bulbs in your nursery from seeds, offshoots, or tissue culture? If you obtained these bulbs from a supplier, do you know that the supplier propagated them?" Assurances that bulbs were obtained from "commercial sources" are not adequate, since the bulbs collected systematically in Turkey and other countries fit this description.

— Natural Resources Defense Council

Tips for growing native showy wildflowers

The following data were gathered at the request of Dr. David Northington of the National Wildflower Research Center (Austin, Texas). Dr. Northington is gathering information on showy wildflowers suitable for planting from various states. The Minnesota information is also begin provided here for those interested in gardening with some of our natives.

NAME	FLOWERING SEASON	HEIGHT	COLOR	REMARKS
<i>Asystasia foeniculum</i> Fragrant giant hyssop	Summer	2-4'	Blue	
<i>Anemone canadensis</i> Canada anemone	Early summer	1-2'	White	Needs extra moisture
<i>Asclepias tuberosa</i> Butterfly plant	Summer	1-2'	Orange	
<i>Chamaecrista (Cassia) fasciculata</i> Partridge-pea	Summer-fall	1-3'	Yellow	Flowering prolonged by seed harvesting
<i>Echinacea angustifolia</i> Purple coneflower	Summer-fall	1-3'	Purple	
<i>Gentiana andrewsii</i> Closed gentian or Bottle gentian	Fall	1-2'	Blue	Extra moisture or partial shade helpful; transplants work best
<i>Liatris pycnostachya</i> Tall blazing star	Summer-fall	3-4'	Lavender	
<i>Lobelia cardinalis</i> Cardinal flower	Summer	2-3'	Red	Extra moisture or partial shade helpful
<i>Hertensia virginica</i> Virginia bluebells	Early spring	1-2'	Blue	Extra moisture helpful; Dies down after flowering
<i>Monarda fistulosa</i> Wild bergamot	Summer	2-3'	Lavender	
<i>Penstemon grandiflorus</i> Large-flowered beard-tongue	Summer	2-3'	Pink; Lavender	Plant two years in succession
<i>Phlox pilosa</i> Downy phlox	Spring-early summer	1'	Pink	Flowering prolonged by seed harvesting
<i>Erigeron pinnatis</i> Grey-headed coneflower	Summer	3-5'	Yellow	
<i>Solidago speciosa</i> Showy goldenrod	Summer-fall	2-3'	Yellow	
<i>Trillium grandiflorum</i> Large-flowered trillium	Spring	1'	White; Pink	Partial shade helpful; Slow to start from seed
<i>Utricularia grandiflora</i> Large-flowered bladderwort	Spring	1-2'	Yellow	Partial shade helpful



Penstemon

(from Monserud & Ownbey, 1971)

Publications of Interest

Available from the Virginia Wildflower Preservation Society, Post Office Box 844, Annandale, Virginia 22003 . . .

Wildflower Conservation Guidelines, 1987, (send self-addressed envelope), free

Sources of Native Plants and Wildflowers, 1987, (send self-addressed envelope), free

Wild Orchids of the Middle Atlantic States, 1987, Gupton & Swope, hardcover, \$15.06

Growing and Propagating Wild Flowers, 1985, H. Phillips, Paperback, \$17.62

Available from Fundraising Chairman, Potowmack Chapter of the VWPS, Post Office Box 161, McLean, Virginia 22101 . . .

Growing Wildflowers: A Gardener's Guide, 1984, M. Sperka, paperback, \$12.02

Available from Prince William Wildflower Society, Book Orders, Post Office Box 83, Manassas, Virginia 22110 . . .

Growing Woodland Plants, 1972, ^{C&E}_A Birdseye, paperback, \$5.85

Other books of interest . . .

Directory of Resources on Wildflower Propagation, 1981, National Council of State Garden Clubs, Missouri Botanical Gardens, P.O. Box 299, St. Louis, Missouri 63110

UPCOMING EVENTS *****

- March 25-26 Minnesota Nature Photography Club is sponsoring the Interclub Showing at "Spring Break '88" (Hopkins High School). For more information contact Milan Sedio at 831-4630.
- April 2 Specialty Gardens Class: Woodland Gardens - at the University of Minnesota Arboretum, 9:30 - noon.^①
- April 11 Grand Canyon by Raft - slide presentation by Francis Breyette at the Nature Photography Club, 7:00 p.m., Central Community Center, Hwy. 7 and Wooddale, St. Louis Park.
- April 18 Learning Minnesota Wildflowers - at the University of Minnesota Arboretum, 10:00 a.m. - 3:00 p.m.^①
- April 22-23 Lake Superior Water Policy Conference - at the Duluth State Convention Center, 350 Harbor Drive. For more information contact: UMD Continuing Education, 213-726-8113.
- April 23 Ecology of the Cannon River - canoe trip sponsored by the Northwoods Audubon Center.^②
- April 30 Ecology of the Root River - canoe trip sponsored by the Northwoods Audubon Center.^②
- May 4 Wild Flower Walk - at the University of Minnesota Arboretum, 10:00 a.m. - noon.^①
- May 5 Wolfsfeld Woods SNA Exploration - sponsored by the Northwoods Audubon Center.^②
- May 7 Natural Lighting in Botanical Photography - workshop held by Rick Haug of the Nature Photography Club. For more information call 612-545-4626.
- May 14 Spring Plant Sale - at the University of Minnesota Arboretum.^①
- May 20-21 Adaptation and Evolution in Arid Areas - symposium sponsored by the Rancho Santa Ana Botanic Garden in Claremont, California. For information and registration materials call 714-625-8767.
- May 31 Exploration of Black Dog SNA and the Minnesota River Valley - sponsored by the Northwoods Audubon Center.^②
- June 1 Herb Walk at Wilder Forest - an emphasis on medicinal value of the native plants - sponsored by the Terrapin Folkschool, \$8 fee, 6:00 p.m. - 8:30 p.m.^③
- June 4 Medicinal Herb Workshop at Wilder Forest - emphasis on identification, storage, and preparation - sponsored by the Terrapin Folkschool, \$18 fee, 9:30 a.m. - 3:00 p.m.^③
- June 7-9 Tour England's Wildflowers and Gardens - a guided tour sponsored by the National Wildflower Center. Advance reservations recommended as the size of the tour is limited. For more information and reservations contact Wendy Wood, 512-929-3600.
- June 12 Wild Edibles Workshop at Wilder Forest - sponsored by the Terrapin Folkschool, \$10 fee.^③
- June 9-10 University of Minnesota Arboretum Anniversary Celebration - gala and picnic.^①

Upcoming Events Continued

- July 10-12 Apostle Islands Ecology - sailing expedition sponsored by the Northwoods
August 7-9 Audubon Center.^②
August 21-23
- July 24-30 Oregon Nature Conservancy Field Trip - a botany trip across Oregon that will include the newly established Columbia River Gorge Scenic Area, the Cascade Mountains, the high desert of central Oregon, Malheur National Wildlife Refuge, and spectacular Steens Mountain, an isolated mountain range in southwestern Oregon. Space is limited to nine participants. For details and reservations contact: Oregon Botany Expedition, The Nature Conservancy, 1205 N.W. 25th Avenue, Portland, Oregon 97210.
- August 7-11 11th North American Prairie Conference - at the University of Nebraska in Lincoln. For more information contact Dr. Thomas Bragg, 402-554-3378.
- August 16-17 Fen Forey in Fayette County, Iowa - sponsored by the Iowa Department of
August 23-24 Natural Resources, the objective is to locate high-quality examples of fens and associated rare plants (e.g., Gentianopsis crinita, G. procera, Parnassia glauca). For more information contact: Mark Leoschke, Bureau of Preserves and Ecological Services, Department of Natural Resources, Des Moines, Iowa 50319 or call 515-281-5145.
- Sept. 16-18 Bryological Foray at Black River Falls, Wisconsin - located on an ancient glacial lake bed adjacent to the Driftless Area of southwestern Wisconsin, the area is also rich in bryophytes of deciduous and coniferous forests as well as bryophytes specific to limestone or sandstone. For more information contact: John Christy, Botany Section, Milwaukee Public Museum, 800 West Wells Street, Milwaukee, Wisconsin 53233.
- November 2 1988 Minnesota Botany Exhibition - sponsored by the Nature Photography Club and MNPS. Time to start creating those award-winning color slides.

For information / reservations on some of the above-listed opportunities you may contact: ①: UM Arboretum - 612-443-2460
②: Northwoods Audubon Center - 612-245-2648 or -2525
③: Wilder Forest - 612-433-5198

OF SPECIAL NOTE *****

The Saint Paul Audubon Society offers scholarships to deserving youngsters who would like to attend summer programs at Northwoods Wilderness Youth Ecology Camps at Sandstone, Minnesota. This summer's schedule includes youth camps during 2-9 July; 9-16 July; and 19-26 July. For more information contact: Linda Amrein at 439-7670.

Research Expeditions

Looking for new excitement? Join a Research Expedition -- The University of California invites participation in several research projects, some examining Cost Rican wildlife, diving for South Pacific corals, or studying adaptations of tropical succulents in the Virgin Islands. Participants provide assistance in exchange for a chance to share the adventures with the experts. For information contact University Research Expedition Program, University of California, Box D-5, Berkeley, California 94720 or call 415-642-6586.

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If you have a news item, article, or other information that should be included in the next issue of the Minnesota Plant Press, please send it to Anita Cholewa, Department of Botany, University of Minnesota, Saint Paul, Minnesota 55108.

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