



MINNESOTA PLANT PRESS

Vol. 9:1 NEWSLETTER OF THE MINNESOTA NATIVE PLANT SOCIETY Fall 1989

LACTARIUS OF MINNESOTA SPHAGNUM BOGS

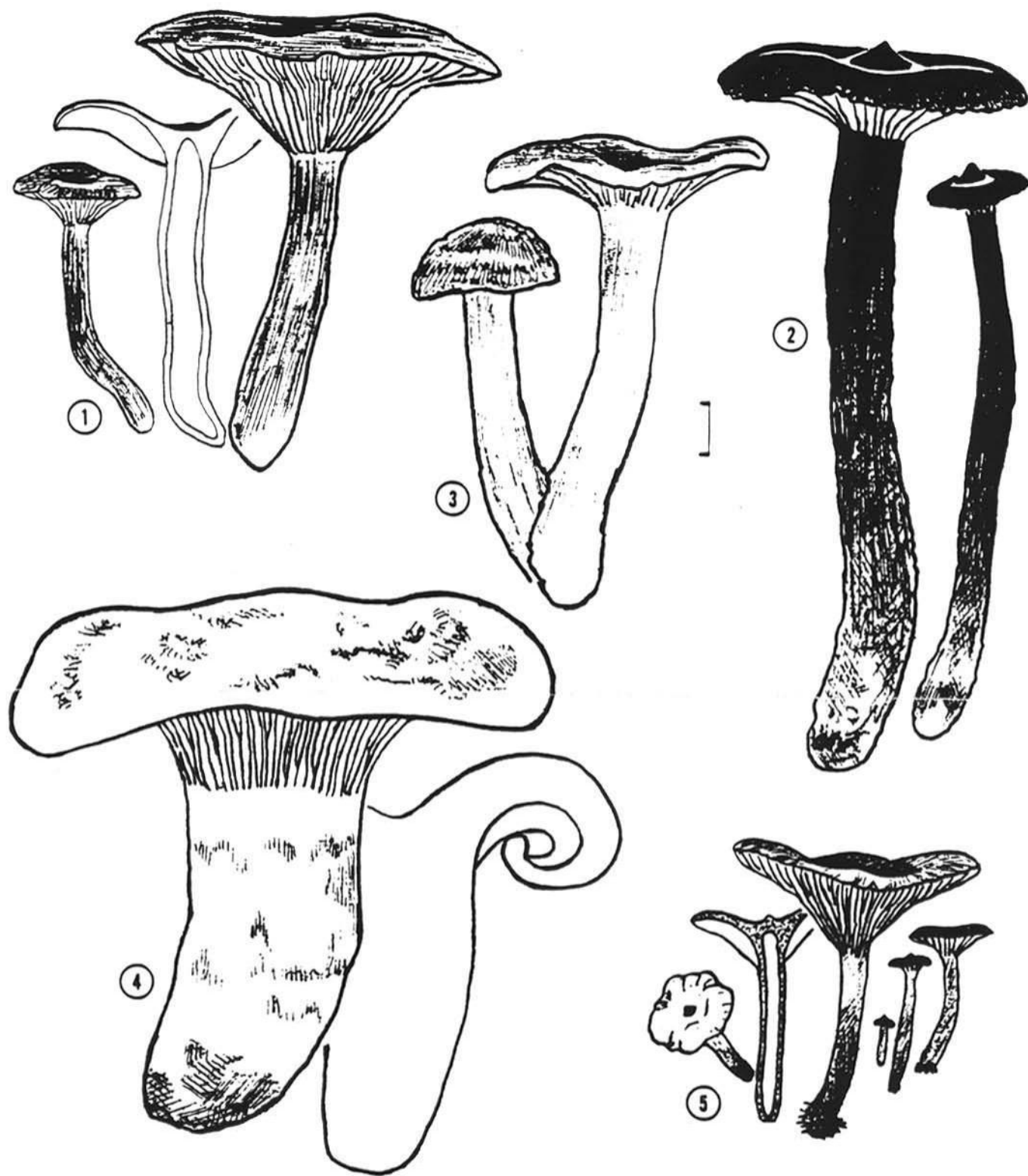
-- Pat Leacock *

Fungi play various roles in an ecosystem. Many are saprophytes, decaying dead plant or animal material, and others are parasites. Those fungi that form lichens with algae are obviously symbiotic, while another fungus lifestyle is less apparent. Mycorrhizal (fungus + root) fungi live in association with the roots of a majority of plants. The fungus mycelium interacts with the root cortex, significantly increasing the plant's uptake of water and important elements such as phosphorus and nitrogen. Many genera of gilled mushrooms form partnerships with temperate forest trees. The genus Lactarius is one example.

Mycorrhizal mushrooms often show specificity to certain habitats and kinds of trees. Of the approximately 35 to 40 species of Lactarii in Minnesota about half are associated with hardwoods such as oak or birch. The remaining species are found with conifers or in mixed woods and the host relationship is often not clear. A sphagnum bog with larch and/or black spruce (and sometimes birch) is a specialized habitat. In Minnesota five Lactarius species have been documented from bogs in Washington, Cass, and Lake counties. Lactarii are separated from other gilled mushrooms by having brittle flesh and a white or colored latex (milk-like fluid) that exudes when the gills or flesh are cut.

Lactarius rufus variety rufus (Fig. 1) is the most common bog species in the Great Lakes region. It is characterized by a dark reddish brown non-viscid cap and stalk of moderate size, with a slowly and strongly acrid taste. The latex is milk-white and unchanging. The spores show a partial net or reticulum.

Lactarius oculatus (Fig. 5) is another common bog species of smaller stature usually found under larch or spruce. The dark reddish brown cap expands to a shallow funnel shape and has a small, central pointed umbo. The color becomes lighter in maturity (moderate reddish brown to brownish orange) but the umbo remains characteristically dark even when dried. The flesh is usually tasteless but may be very slowly peppery and then fading. The white, somewhat watery milk stains paper yellow. The spore



Figures of Fruiting Bodies. (County and Year of collections)
 All figures are taken from the author's collections. Bar equals one
 centimeter. Copyright 1989 by Patrick R. Leacock.

Fig. 1: Lactarius rufus var. rufus (Cass Co. 1986, Washington Co.
 1988)

Fig. 2: L. lignyotus var. canadensis (Washington & Lake counties
 1988)

Fig. 3: L. aquifluus (Cass Co. 1969, Washington Co. 1988)

Fig. 4: L. deceptivus (Lake Co. 1986 & 1988, Cass Co. 1989)

Fig. 5: L. oculatus (Washington Co. 1988 & 1989, Cass Co. 1989)

deposit is very pale yellow; the spores feature a broken reticulum.

Lactarius aquifluus (Fig. 3) is widely distributed in conifer or mixed conifer-hardwood forests and peat bogs. This mushroom has a fragrant odor similar to burnt sugar or roasted coffee. The dry cinnamon-brown cap may break up into patches when mature. The taste is mild and the latex is watery and colorless. The spore ornamentation is of ridges and warts forming an irregular partial reticulum. Lactarius rufus, L. oculatus and L. aquifluus all belong to the same subgenus and have hollow fragile stalks.

Lactarius lignyotus is a striking species of conifer forests and bogs. The velvety cap is brownish-black, nearly black when young, with a wrinkled margin and often an umbo. The elongated stalk is similar but paler at the base. Variety canadensis (Fig. 2) has pale yellowish gills that are well separated and have a dark brown margin; the whitish flesh stains pinkish where cut or injured. The roundish spores have a partial reticulum of high warts and ridges.

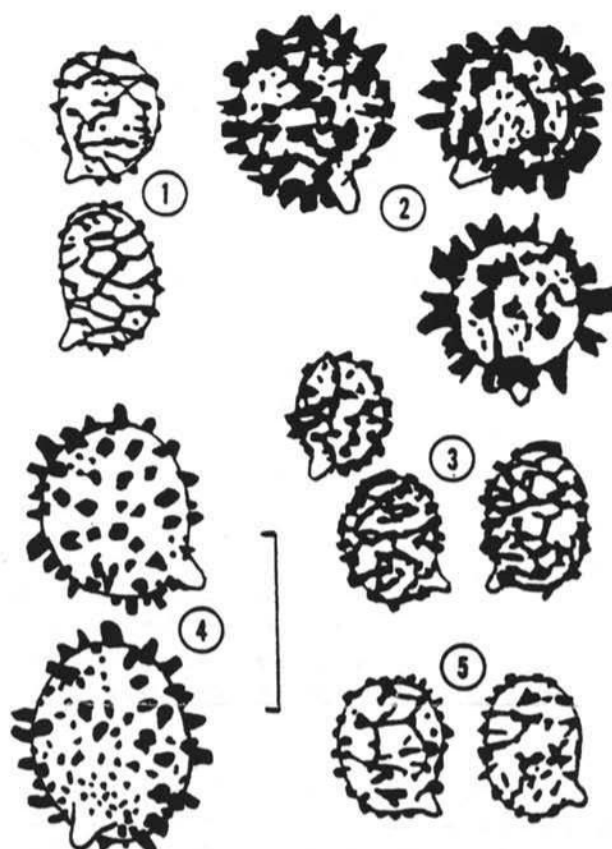
Lactarius deceptivus (Fig. 4) can be found in either conifer or hardwood forests. Two of its associates are hemlock and oak. This large mushroom is unlike the others in having a cottony roll of tissue on the strongly incurved cap margin when young. The dry whitish to pale yellow cap breaks up in age to form scaly patches often staining dark orange-yellow. The white, unchanging latex is quite acrid and stains the tissues brownish. The gills are closely spaced and often forked. The large spores have isolated spines and warts with no interconnecting lines. The stalk is thick and solid. The specimens collected in the bog were deep in the sphagnum with a large weft of mycelium.

There are several other species that can be found in bogs of the Great Lakes region and may turn up with further collecting in Minnesota. Four of the above five species have been found in a small isolated sphagnum-larch bog in Washington County and provide interesting distribution records for the state.

Collecting in Washington County was funded in part by the County Biological Survey of the Department of Natural Resources.

* Pat is a currently a grad student in the Dept. of Plant Biology, UM

Lactarius Spores and their Ornamentation. Bar equals ten micrometers.
 All figures are taken from the author's collections. Copyright 1989
 by Patrick R. Leacock.



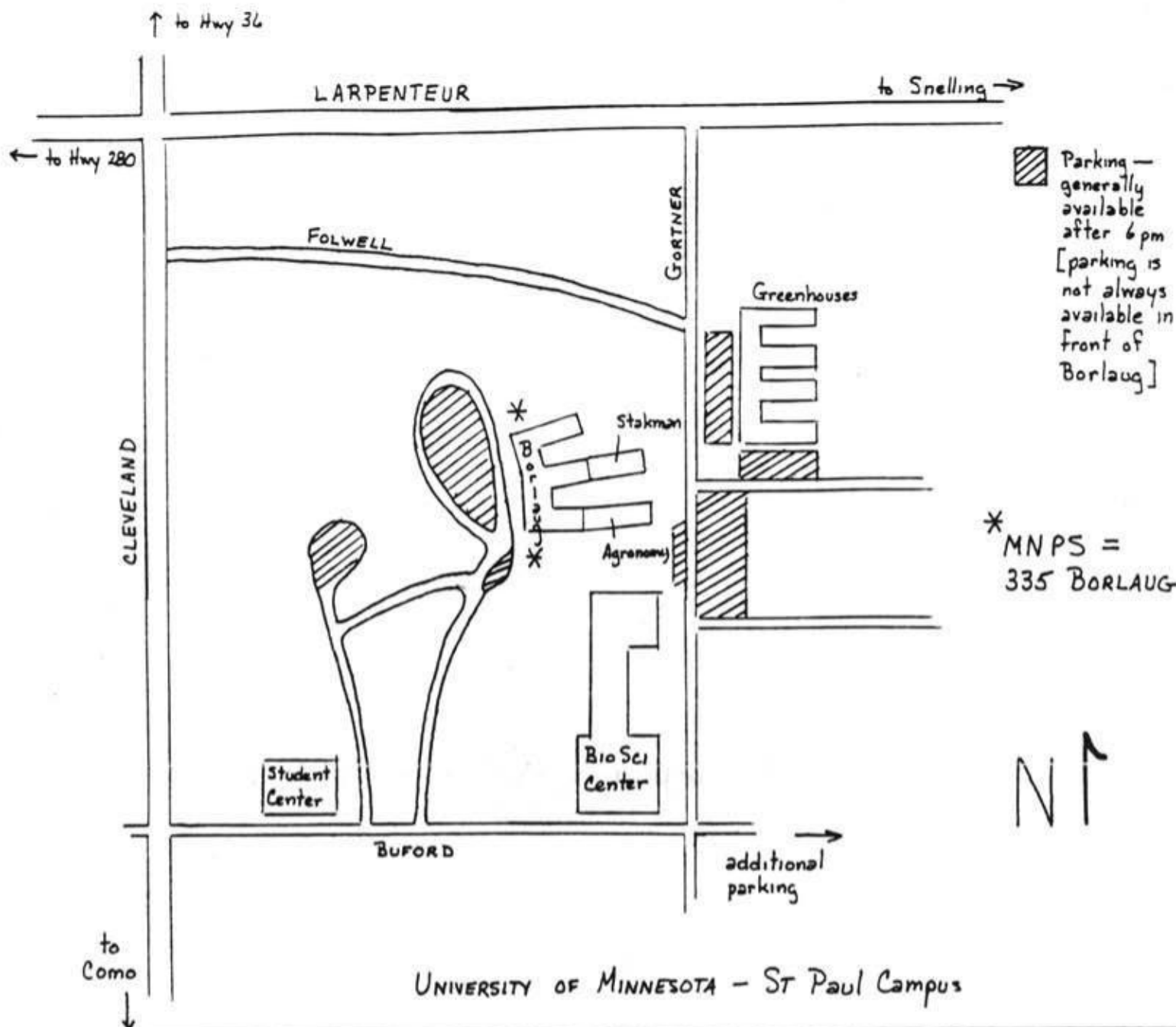
MNPS NEWS ****

Membership renewal time

Included with this issue of "The Plant Press" is a membership renewal form. Renewals are due by 4 October. **THIS WILL BE YOUR ONLY NOTICE OF RENEWAL.** No additional issues of the newsletter will be sent if you fail to renew at this time (remember, your membership dues help defray the costs of producing and mailing the newsletters). Please take this time to renew your membership and ensure that you are kept up-to-date with regards to MNPS activities. A few members have paid for several years in advance and new members who joined this summer won't need to renew at this time; please check the mailing label on this newsletter for this information.

Upcoming meetings -- Don Knutson

Another new MNPS year is upon us. The following is a tentative list of speakers and topics for the next several months. All meetings are open to the public and take place on the first Wednesday of each month. They begin promptly at 7:30 pm in 335 Borlaug Hall on the Univ. of Minnesota St. Paul campus



Minnesota Native Plant Society Membership Registration

Mail to: Minnesota Native Plant Society, 220 Biological Sciences Center, University of Minnesota, Saint Paul, Minnesota 55108

_____ New Member

_____ Renewal

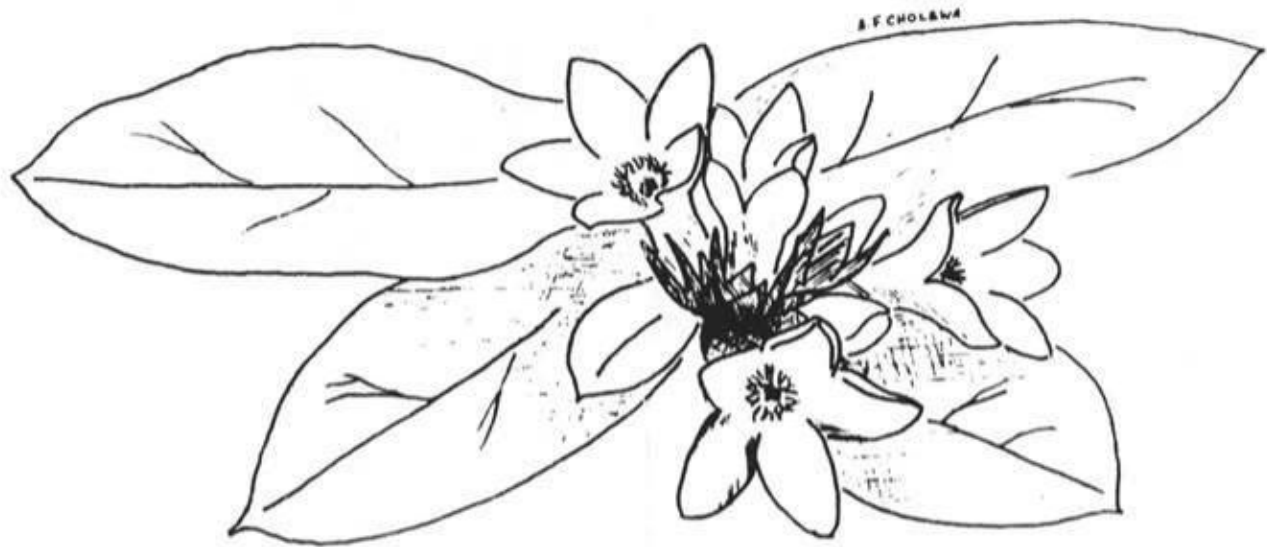
Membership Categories:

\$ 8.00	_____ Individual	\$ 6.00	_____ Senior (over 62 or retired)
\$10.00	_____ Family (Two or more related)	\$15.00	_____ Institution
\$ 6.00	_____ Student (Full-time)	\$25.00	_____ Donor

Name _____ Address _____

City _____ State _____ Zip _____ Phone _____

U. OF M. CAMPUS ADDRESS _____



Trailing-arbutus (Epigaea repens)

Not common in Minnesota, trailing-arbutus may be found on sandy soil in the coniferous forests of the northeastern third of the state. The plants are prostrate on the ground with evergreen leaves. The fragrant flowers may be white or pink and are hairy at the mouth of the floral tube. These plants flower soon after snowmelt in the spring and, consequently, are often missed.

(see map). Carpooling is encouraged; please consult the membership directory included with the spring newsletter for members near you.

- 4 October -- Welby Smith, "Minnesota's rare plants"
- 1 November -- Chris Cole & Nancy Sather, "Research & inventory of prairie bush clover, Lespedeza leptostachya
-- Annual seed exchange (note change of month)
- 6 December -- Don Knutson, "Natural history of dwarf mistletoes"
- 3 January -- Ron Bowen, "Aspects of seed performance of some native plants"
- 7 February -- Mike Heinz, "Historical aspects of early Minnesota (pre-settlement) plant collectors"
- 7 March -- Eville Gorham, "Wilderness values"
- 4 April -- TBA
- 2 May -- Annual Minnesota Botany Exhibition & Slide Show
(note change of month)
-- Summer field trip preview

If you have suggestions regarding future topics or speakers, please call Don Knutson,

Annual seed exchange -- Ruth Phipps

This year the annual exchange of seeds of native plants will be held as part of the November meeting, rather than the October meeting as was done in the past. This will allow time for the later seeds to have matured.

To prepare for the exchange, please collect only mature seeds that are free of insects and disease. If collecting from wild plants, take only a small percentage of the seeds (leave plenty for nature). Label seed envelopes with the name of plant, collection site, habitat, date of collection, and your name. Please also indicate if the seeds are from a garden or wild plant.

Envelopes for this exchange will be available at the October meeting. If you want to bring already matured seeds to the October meeting, we can store them until the November meeting.

Seeds will be available to all those attending the November meeting, but contributors will be given first selection.

New officers and committee chairs

Our new officers, board of directors, and committee chairs take up their responsibilities as of September 1. If you have questions or information to pass along please contact one of the following persons:

President: Dave McLaughlin
Vice-president: Don Knutson
Secretary: Robin Fox
Treasurer: Char Menzel

Conservation: Don Knutson
Education: May Wright
Historian: Chris Soutter

Nominations needed for next year's Board of Directors

Yes, we're just starting a new year with several new Board members and Committee Chairs. However, according to our bylaws, we need to begin to think about potential Board members for next year (1990/1991). If you think you might like to serve (3 year term) or you know someone else who might be willing, please submit names and phone numbers to Dave McLaughlin, Dept. of Plant Biology, 220 Bio Sci Center, Univ. of Minnesota, St. Paul, MN 55126 or call him at . Please note that being on the Board is a commitment: the Board meets once a month and Board members are asked to be responsible for various society activities. You will not be overloaded with work but you must be willing to do your share. At the same time, without a Board the Society will cease to function.

Volunteer desperately needed - MNPS newsletter editor

Someone is urgently needed to wear the editor's hat for our MNPS newsletter. Obviously there will be work involved, in soliciting articles to be written, arranging items received, and in general keeping the newsletter on track (but the newsletter only appears three times a year). Access to a computer would definitely be helpful. Please contact Anita Cholewa ... soon.

Thank-you's to be awarded

A very special thank-you goes to Patricia Ryan, who arranged for our display to be exhibited at "Prairie Day," 19 August, at Afton State Park.

Special thank-you's also go to Patricia Ryan and Anita Cholewa who were asked to take time out from their busy schedule and arrange our display at the State Fair. Thanks also to the UM CBS Greenhouse, Steve Fifield, and Chris Cole, for donating live plants to be used with the display. And to Dwayne Stenlund for seeing that our display was returned to us.

New members

Please welcome the following new members who have joined our Society this past spring and summer ...

Sr. Jane Belanger (Stanchfield); Thomas Casey (Mound); Elizabeth Cedarleaf (Mahtomedi); Karen Clem (Columbia Heights); Cecelia Cope (Bloomington); Linda Huhn (Minneapolis); Cindy Johnson-Groh (Duluth); Kevin Jones & Betty Patenaude (Maple Grove); Fay Kelley (Wyoming); James & Evelyn Ketchum (Prior Lake); Harry Lear (White Bear Lake); Mr. & Ms. Edward Lofstrom (Minneapolis); Mary McGee (Minneapolis); Bill & Cheryl Morrison (Forest Lake); Helen Nordstrom (Lakefield); Gene Plourde (Bloomington); Nancy Schacht & Stanley Mickelsen (West St. Paul); Paul Mielke (Mounds View); Cathy Schleicher (Circle Pines); Phyllis Sherman (St. Paul); Louise Sisson (Roseville); Angela Smuda (Shoreview); Michael & Nancy Steidle (Minnetonka);

Martha Swenson (Minneapolis); Mr. & Mrs. Stan Tekiela (Eden Prairie); Daniel & Mary Jo Truchon (Blaine); D. C. Vaughn (Edina); Jeanine Vorland (Roosevelt); Allison Wolf (Minneapolis); Martin & Gertrude Ziebell (Stillwater).

1989 SYMPOSIUM IN REVIEW

Wetland Restoration was the topic our second annual symposium held on 1 April at Springbrook Nature Center. The following abstracts are provided by the guest speakers.

"The Restoration Process in a Mined Peatland" -- Joyce A. Powers

This paper describes the restoration process for a 270 acre mined peatland in southeastern Wisconsin. Lipha Chemicals Inc., the owner of the land, has proposed a restored natural wetland complex, with a diversity of both water depth and native plant communities as the principal goals of this project. The project was undertaken in 1984 and to date has cost the company somewhat over \$150,000.

Two-hundred-and-seventy-four species, representing one-hundred-and-seventy-four genera and sixty-five plant families were identified on-site before any restoration planting was done. This reflects the natural revegetation process over the many years that mining has been in progress. Three factors appear to be critical in the restoration process: 1) precise grading of the land surface, 2) raising of water levels, and 3) control of exotic species.

"Restoration of Prairie Wetlands" -- Jeanine Vorland

Prairie potholes are a diverse group of wetlands defined largely by varying permanence of water. These wetlands are vital habitat for many species of wildlife in Minnesota. However, prairie wetlands have often been regarded as wastelands, and as an impediment to farming or development. It is estimated that more than 80 percent of wetlands in Minnesota, which existed prior to European settlement, have been lost. Conversion to agricultural uses is the leading cause of loss of prairie wetlands.

Prairie wetlands in Minnesota are usually drained by ditch systems, underground tile, or both. Ephemeral and temporary wetlands, wetlands that generally contain surface water for a few days to a few months, have been most vulnerable to drainage and filling. Seasonal, semi-permanent and permanent wetlands are increasingly more costly and difficult to drain and frequently more difficult and costly to restore, especially where multiple ownerships and jurisdictions are involved. Plant communities associated with prairie wetlands can also be negatively impacted by deep and/or stable water regimes.

Understanding of the function of wetland systems, how plant and animal communities interact with varying water regimes is critical to successful wetland restoration. Watershed, soils, ownership boundaries and legal considerations are important factors to consider when undertaking restoration.

Identification of the drained wetland is the first step toward wetland restoration. Reconnaissance of potential sites at snowmelt is

an extremely useful tool, especially for tile drained wetlands. Reference materials such as air photos and soil maps are important resources in defining wetland basins and approximate water regimes. Resource professionals, such as Soil Conservation District Conservationists, Soil and Water District Technicians and local Wildlife Managers can be helpful in identifying areas for restoration. One of the best resources for information on drained basins can be the individual or individuals responsible for initiating the drainage.

The most commonly used restoration techniques for prairie wetlands include capping tile systems, installing earthen ditch plugs and/or small earthen dikes. Capping tile systems generally involves locating the tile and removing 50 to 100 feet of the system and backfilling with clay soils. Earthen dikes are generally constructed with small crawler tractors during summer or fall. Spillways can be incorporated into the dike. A plastic or metal culvert placed at the desired summer pool depth should be designed to handle most runoff from the wetland. An earthen spillway should be designed to handle spring runoff and floods in order to avoid having water over-top the earthen dike or ditch plug.

Wetland management techniques, especially drawdown (partial or complete dewatering of the wetland during the growing season) are useful tools in restoring wetland plant communities in deep or stabilized wetland systems. Mudflat conditions are necessary for most emergent plants to reproduce from seed. If adequate light and warmth penetrate to the substrate, submergent plants can be extremely productive in fertile prairie wetlands. Partial drawdown is often necessary to restore submergent plant communities to wetlands with high turbidity due to suspended silt and algae.

Prairie wetland plant and animal communities are adapted to and dependent upon unstable water conditions through time. Wetland plant seed banks can be quite long lived and resistant to drought or inundation either natural or forced through activities of humans. Restoration of a water regime approximating natural conditions prior to drainage or stabilization is often all that is necessary to restore vital prairie wetland communities.

"Summary of Savage Fen Restoration" -- Steve Eggers

Steve Eggers, a wetland ecologist with the Corps of Engineers, gave a progress report on restoration of a calcareous fen plant community within the Savage Fen located in the Twin Cities metropolitan area. Calcareous fens are the rarest of Minnesota's wetland plant communities, and little work has been in attempting to restore them [sic]. A roadfill consisting of concrete rubble had been built into the fen in 1984. The restoration entailed removal of the fill and placing peat in the excavated area during November 1986. The following May, the site was planted by Prairie Restorations, Inc. using seedlings or seed of 23 species native to calcareous fens. After 2 full growing seasons, native species such as shrubby cinquefoil and hardstem bulrush were doing very well in colonizing some areas, while weedy/undesirable species such as reed canary grass and witch grass were colonizing other areas. Reed canary grass was subsequently removed by hand. The drought of 1988 seemed to favor weedy, facultative species, but it remains to be seen if these species persist with the return to the more typical water-logged soil

conditions. It is intended to monitor the site for at least 5 growing seasons.

"Symposium Summary" -- Steve Eggers

During the past 15 years, wetland issues have come to the forefront of environmental concerns. This is due in part to state and federal laws (e.g., the Clean Water Act) and a growing public awareness of the functions and values of wetlands. One result is an increasing number of attempts to restore or enhance wetlands. We've learned from past mistakes and have made substantial advancements in our knowledge of wetland restoration, but it is still in the experimental stage. Probably the best advice is to preserve our remaining wetlands so that we don't get into a position of attempting to restore them at some point in the future.

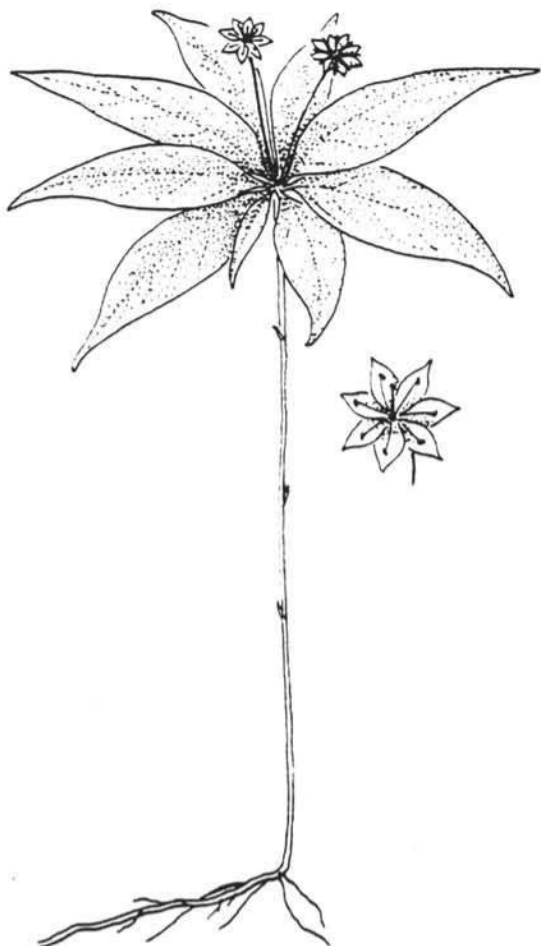
A major point made by the speakers was that it can be very difficult to restore wetland ecosystems. Attempted wetland restorations seem to frequently invoke Murphy's Law -- whatever can go wrong does. No matter how carefully planned and researched, wetland restorations can fail or produce only marginal success. On the other hand, simply plugging a drainage ditch can produce excellent results in some cases. The bottom line is that each site has its own unique combination of soils, hydrology, seed bank, topography, etc. What produced excellent results at one site may not work at another site. Therefore, restoration plans must be site specific.

SUMMER CAMPOUT ANOTHER SPECTACULAR EVENT -- Lyn & Doris Gerdes

The 2nd Annual Minnesota Native Plant Society's Summer Campout was held on the weekend of June 24. Folks gathered near Pallisade, MN (Aitkin Co.), home of Audrey and John Engels where tents were pitched around the farmyard. The farm, an adventure in itself, is rich in family history ... and the tales that go with it. Bluebirds and goldfinches were numerous around camp, while the fields and windrows allowed observations of bobolinks, clay colored sparrows, blackbilled cuckoos, brown thrashers and more.

But what about plants? On Saturday morning Dr. Anita Cholewa led the fieldtrip to Savanna Portage State Park. Our first stop was a marsh where Black Snakeroot (Sanicula marilandica) and Northern Bedstraw (Galium boreale) grew along its wooded edge, while scattered Tufted Loosestrife (Lysimachia thyrsiflora, not related to purple loosestrife) could be found among the grasses and sedges. Dr. Cholewa pointed out the characteristics of Scirpus and Carex of the Cyperaceae and Panicum, Agropyron and Phragmites of the Poaceae. It's moments like these that renew one's hopes in keying the grasses and sedges to species.

The afternoon found us hiking a trail bordering Loon Lake. The mixed "Lake States Forest" presented a wide array of northern MN flora. Wintergreen (Gaultheria procumbens), Twin Flower (Linnaea borealis), Goldthread (Coptis groenlandica), and Star Flower (Tirolalis borealis) were just a few. A Cinnamon Fern (Osmunda



Moccasin Flower - Cypripedium acaule
 Harry W. Lister, Jr., 1971.
 Moccasin Wild Flowers of Minnesota.

cinnamomea) with fertile leaves also stood near the shoreline, along with this incredible fruiting slime mold. We soon found ourselves on the edge of a bog and the magic really began to happen. The soft coolness of the wet Sphagnum, the smells and unique flora soon found us all pointing in different directions. Pitcher Plants (Sarracenia purpurea), Sundews (Drosera rotundifolia), and Heartleaved Twayblades (Listera cordata) were found in the bog and a few Moccasin Flowers (Cypripedium acaule) were along the black spruce edge.

We left the park and Audrey led us to one of her favorite Showy Lady Slipper (Cypripedium reginae) spots. This wet, shrubby willow area was spotted with pink and white blossoms. The entire area was in prime bloom and the color of the inflated petals seemed to be an extra deep shade of pink. Dr. Cholewa again captured our excitement by sharing her knowledge of orchid pollination. As with all things, the closer one looks at them, the more unique and beautiful they become. One doesn't find it difficult to find the beauty in the Lady Slipper, but the real joy is discovering or sometimes rediscovering the beauty in the small and often overlooked.

Saturday evening found us at the Engels' home watching a slide show prepared by Audrey and Anita. A wide selection of local flora were shown while everyone was trying to learn or recall family, genus, or species. A wonderful ending to a fun day in the woods.

It was a weekend of botanizing, camping, and a chance to spend time with new found friends. The turnout wasn't large by any means; in fact it seemed like a best kept secret. Participants were Arden Aanestad, Dr. Anita Cholewa, Audrey Engels, Rita and Ted Tonkinson, and Doris and Lynden Gerdes. A special thanks to Audrey and John for hosting the campout, and your involvement Audrey in the fieldtrip and slideshow. A special thanks also to Dr. Cholewa for leading the group and sharing so much of your enthusiasm and expertise.

OTHER INTERESTING PLANTS THIS SUMMER

-- Anita Cholewa

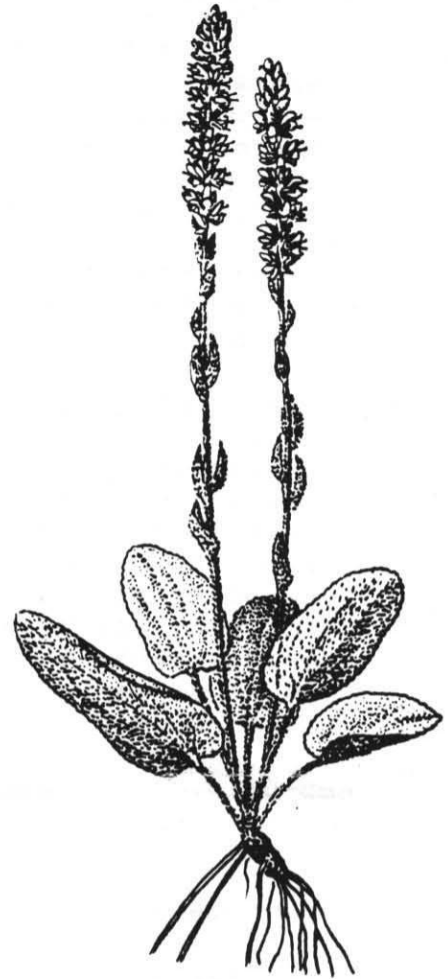
As part of a project I have been doing this summer, I have had the opportunity to see several plants new to me. Some of these are plants not often encountered in Minnesota and maybe some are new to you as well:

walking fern
(Camptosorus rhizophyllus)



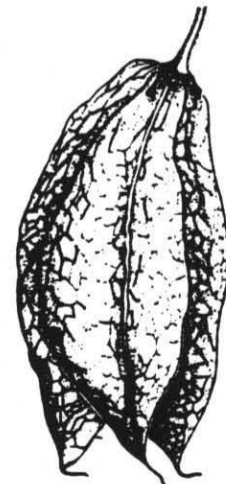
walking fern (Camptosorus rhizophyllus)
from: Trvon, R. 1980. Ferns of
Minnesota.

kitten-tails
(Besseya bullii)



Kitten-tails (Besseya bullii)
from: Cowbey, G.D. & A. Monserud. 1971.
Common wild Flowers of Minnesota.

bladdernut
(Staphylea trifolia)



Bladdernut tree (Staphylea trifolia)
from: Cronquist, A. 1981. An Integrated
System of Classification of Flowering
Plants.

NEWS FROM THE UM HERBARIUM

UM Botany Centennial

This year is the 100th anniversary of the Department of Botany at the University of Minnesota (Twin Cities campuses). It also marks the transformation of the department to the Dept. of Plant Biology, a new course for the University's botanically-oriented programs. In celebration of the Centennial, the Department is sponsoring a symposium, "The Future of Plant Biology," 25-27 October. The annual Herbarium Open House will be held in conjunction with this celebration, each day from 12-1:30 pm (refreshments will be available). All Centennial events are open to the public. For further information contact: Dept. of Plant Biology,

Herbarium Volunteers

Early this summer an arrangement was finalized with the St. Paul Campus Central Library, regarding the disposition of numerous books and serials that belonged to the University Library but were housed in the Herbarium. The return of these items to the University Library means these items will be under the watchful eye and tender care of our excellent librarians. The return also means more space is available for the books, journals, and reprints owned by the Herbarium. These latter items, however, have never been catalogued. Volunteers are needed to type reference cards for these books and to help in arranging them in a more usable fashion. If interested call Dr. Anita Cholewa,

VOLUNTEERS WANTED AT MN DNR

Volunteers are needed to help with an annual survey of wild nut and berry production across Minnesota's black bear range. A study of black bears in northcentral MN has been conducted since 1981. In addition to movements, food habits, reproduction, and mortality, the study is trying to include information from throughout the range of black bears. Volunteers are needed to help assess the abundance and productivity of different kinds of foods in different parts of the state at different times of the year. If you are interested in helping with this aspect please contact: Karen Noyce, Wildlife Biologist, Grand Rapids Office,

VOLUNTEERS WANTED BY MAPLEWOOD NATURE CENTER

Won't you share your love of nature with children? Maplewood Nature Center has openings for volunteers this fall: there are opportunities to act as a trail guide, building receptionist, or an outreach speaker; you can also become involved in trail maintenance or creative displays.

No formal background in natural science is necessary, but enthusiasm and a desire to learn about the natural world is essential.

Attend our orientation and training programs beginning Tuesday, September 12. Please call Maplewood Nature Center at 612-738-9383 for more information. Maplewood Nature Center is located 2659 East Seventh Street in Maplewood.

CONSERVATION CORNER - MINING NEAR THE BWCA -- Northshield, Inc.

Non-ferrous sulfide mining will cause acid drainage. Acid rain is a tea party compared to acid drainage. This mining will irreparably foul this unique area, one of the last large remaining sources of fresh water for the continent. These waters feed not only one of the United States' greatest wilderness areas, but also the Quetico and Canada, including Hudson Bay. Our clean ground waters are more valuable than non-ferrous sulfide mining.

Huge sums of money are being invested to open this area to non-ferrous mineral evaluation and mining. Roger Kuhns of BHP-Utah has stated that their aim is "to make a mine."

Minnesota promotes mining. And two state agencies, the Department of Natural Resources and the Pollution Control Agency, are involved in a project to streamline the permitting and environmental review process for mining. These agencies that should be guardians of our environment have compromised their mission. ...

A high potential for uranium exists in this area ... There are also known recoverable deposits of copper, nickel, and gold. With present technology, the mining of any of these substances must not be allowed here at this time. Non-ferrous sulfide mining coupled with the probability of underlying uranium will have harsh health effects on our people, especially our children.

Already the woods are staked, ribboned, and being brushed.

Public opinion is the most vital and persuasive power that could protect this area from sulfide mineral mining. Your help is urgently needed. ... Write elected officials in Washington, DC, Minnesota, and in other states. Send copies of your letters to us so we can use response statistics. Northshield, Inc., is a positive educational, non-profit, all volunteer groundswell, working from our homes. We have 3000+ hours invested in documentation and are working to bring solidly documented facts to light before this area is gone. Please support or join with us to stop this degradation of our resources. (Donations go toward spreading solidly documented facts. Any donation greatly appreciated). For more information contact: Northshield, Inc., Box 233, Winton, MN 55796.

NEW PUBLICATIONS OF INTEREST

Available from Minnesota's Bookstore, 117 University Ave, St. Paul, 55155 [Greater Minnesota call 1-800-652-9747 and ask for Minnesota's Bookstore]:

Trees of Minnesota - Descriptions of more than 50 trees found in MN. Care and transplanting tips and how to prevent forest fires. \$5.00. Stock No. 9-1.

Natural Vegetation of Minnesota at the Time of the Public Land Survey 1847-1907 - Describes MN's landscape before the impact of white settlement. Contains beautiful photographs showing examples of sites where remnants of natural vegetation have persisted. \$2.00. Stock No. 9-33.

A Guide to Minnesota Prairies - Provides an introduction to MN's diverse prairies and a directory to the 40 select prairie preserves plus photos and maps. \$5.00. Stock No. 9-29.

Available from the North Central Forest Experiment Station, 1992
Folwell Ave., St. Paul, 55108:

Central Hardwood Notes - A new comprehensive U.S. Forest Service publication on managing central hardwood forests, the book is a collection of 85 notes summarizing more than 50 years of research on hardwood forests of the Midwest. Information is provided on managing forests for wildlife, water, recreation, timber, and scenic beauty.

Available from Bluebird Nursery - Native Notes, Rt 2 Box 550,
Heiskell, TN 37828:

Native Notes Newsletter - A newsletter devoted to landscaping with native plants; issued Jan, Apr, Jul, Oct; subscription cost \$10/yr (special rate for Jul 89 - Oct 90 = \$12.00).

Available from Smokey Hills Audubon Society, Box 173, Salina, KA 67401:

Favorite Prairie Wild Flowers and Grasses -- Descriptions and illustrations of 45 common wild flowers and six native grasses of the Great Plains, as well as interesting and informative anecdotes. \$4.50.

Available in local bookstores:

Northwoods Wildlife: A Watcher's Guide to Habitats -- Based on information obtained from wildlife biologists, this is a guide to the Northwoods: a description of 18 different types of wetlands, forest, and open spaces, and the kind of wildlife to be found in each.

GARDENERS' CORNER

The Natural Resources Defense Council recently issued disturbing news regarding bulbs used in the horticultural trade. From their newsletter of 8 June 1989:

"... the Convention in International Trade in Endangered Species of Wild Fauna and Flora (CITES) will meet in October

to address problems plaguing treaty enforcement ... This year, there will be an unusual number of plant proposals, and several may generate considerable controversy ... [as they] affect the horticultural trade in bulbs and orchids."

In addition to many common and exotic garden bulbs (e.g., Galanthus or snowdrops and Pachypodium, a Madagascan succulent) the list also includes some taxa from the U.S.! From the same NRDC newsletter:

"Cypripedium -- The North American species of lady's slipper orchids are not propagated commercially -- despite misleading claims by some sellers.

Erythronium -- The North American species of this lily genus, except the hybrid, "Pagoda," are wild-collected.

Trillium -- Plants of this genus are certainly from the wild, whatever the seller may claim.

Other plants -- Commonly grown Fritillaria and Iris are propagated but be careful about more specialized species, which are probably collected. Avoid North American Fritillaria."

For more information on these and other bulb-producing plants contact: Natural Resources Defense Council, 1350 New York Ave, N.W., Washington, D.C. 20005.

UPCOMING EVENTS ELSEWHERE

20-21 September 1989 -- Natural Adaptations: Communicating in the 90's, UM Landscape Arboretum. For information call the Arboretum at 612-443-2460.

22 September 1989 -- Nature's Tasty Teas, Eloise Butler Wildflower Garden, 3pm. Limit 15 people. Call the shelter at 612-348-5702 after 10:00 am.

24 September 1989 -- Useful Plants of Minnesota, 1-day course offered by the Bell Museum of Natural History. For information contact the Museum at 612-624-1852.

30 September 1989 -- annual Fall Festival at the UM Landscape Arboretum. Call 612-443-2460 for more information.

30 September 1989 -- Prairie & Bog Tour, Eloise Butler Wildflower Garden, 3:00 pm. Call the shelter at 612-348-5702 for information and to register.

17-20 October 1989 -- 16th Annual Natural Areas Conference, Knoxville, TN. For information and registration contact: Ralph Jordan, 228 Natural Resources Bldg, Tennessee Valley Authority, Norris, TN 37828.

21 October 1989 -- Autumn in the Big Woods, 1-day course at Wolsfeld Woods, offered by the Bell Museum of Natural

History. For information call the Museum at 612-624-1852.

19 November 1989 -- After the Leaves Fall, 1-day course at Bloomington's Nine Mile Creek, offered by the Bell Museum of Natural History. For information call the Museum at 612-624-1852.

26 November 1989 -- Arctic Rivers Slide Program, sponsored by the Bell Museum of Natural History. Naturalist Bill Gould provides a tour of the Arctic's Coppermine River. For information contact the Museum at 612-624-1852.

29 April - 3 May 1990 -- 2nd Annual Conference of the Society for Ecological Restoration, Chicago, IL. For information and registration contact: Keith Winterhalder, Biology Dept., Laurentian University, Sudbury, Ontario, Canada P3E 2C6.

4-6 May 1990 -- Spring Wildflower Weekend, sponsored by the UM Extension Classes, Study & Travel Adventures program. Led by Roberta Sladky (Horticulture Curator at the MN Zoo), this is an outdoor exploration of Wilder Forest. Registration deadline is 17 April. Call for more info.

OOPS, I'VE DONE IT AGAIN, ANOTHER MISTAKE -- Anita Cholewa

The Spring newsletter contained a moderately serious omission in Steve Eggers' lead article: "Beaked Spike Rush and the Discovery of a Calcareous Fen." The third sentence in the first paragraph should have read:

It was from the vantage point of the bluff that I recognized a "peat dome" in the wetland complex below. From past experience inventorying the Savage Fen and Fort Snelling State Park Fen, also in the lower Minnesota River valley, I knew that such peat domes are ideal locations for Minnesota's rarest wetland plant community, the calcareous fen.

My apologies Steve.



Water-plantain (*Alisma plantago-aquatica*) from: Hewwood, J.H. 1985. Flowering Plants of the world.

1989/1990 MNPS Officers and Board of Directors

David McLaughlin, President (1990)
Don Knutson, Vice-president (1990)
Robin Fox, Secretary (1991)
Charlotte Menzel, Treasurer (1990)
Cole Burrell, Director-at-large (1992)
Steve Eggers, Director-at-large (1990)
Ellen Fuge, Director-at-large (1992)
John Moriarty, Director-at-large (1991)
Gerald Ownbey, Director-at-large (1991)
Nancy Sather, Director-at-large (1992)

Donations made to MNPS are tax deductible.

Minnesota Plant Press may be obtained through membership in the Minnesota Native Plant Society. The newsletter is distributed three times each year (fall, winter, spring). Items of interest for inclusion in the newsletter may be submitted by anyone but must be typed and doubled spaced (computer disks are welcome, but include a hard copy). The editor reserves the right to edit for grammar and clarity.

Minnesota Native Plant Society
220 Biological Sciences Center
University of Minnesota
St. Paul, MN 55108