



MINNESOTA PLANT PRESS

Newsletter of the Minnesota Native Plant Society v 8:2 winter 88

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U P C O M I N G M O N T H L Y M E E T I N G S

M N P S meets the first Wednesday of each month at 7:30 PM in 335 Borlaugh Hall, Univ. of Minn. St. Paul campus. Board meeting are at 6:00 PM in St. Paul Student Center Cafeteria on same evening; all society members are welcome to attend.

3 January 1990

Aspects of seed performance of some native plants
Ron Bowen

7 February 1990

Historical aspects of early Minnesota (pre-settlement) plant collectors
Mike Heinz

7 March 1990

Wilderness Values
Eville Gorham

Prairie Bush Clovers;

NEW INSIGHTS ON ENDANGERED AND COMMON SPECIES

Christopher T. Cole, Ph.D.,
University of Minnesota - Morris

One of the fundamental questions facing people working in long-term conservation of endangered species-- especially plants-- is whether populations are genetically specialized for the area in which they occur. This kind of specialization is particularly common in plants that have the capacity for self-fertilization, such as *Lespedeza leptostachya*, a rare legume species native to the tall-grass prairies of

southern Minnesota, northern Iowa, and adjacent portions of Wisconsin and Illinois. This research also included the more common and wide-spread relative, *L. capitata*, allowing the necessary techniques to be developed without damaging the results of the *L. leptostachya* research.

Twelve different populations of each species were studied which provided a total of over 500 plants (including a hybrid between the two species) representing both the "core areas" in s.w. Minnesota and n.w. Iowa, where 90% of the *L. leptostachya* plants occur, as well as more distant populations in Minnesota, Wisconsin and Iowa.

Two different methods of genetic analysis were used on these two species. The first was the analysis of *allozymes* which are different forms of enzymes that serve as genetic markers, much as hair color and eye color do for humans. However, since there are many different kinds of enzymes that can be analyzed this way, it is possible to gain much more genetic information from these kinds of markers than is possible if only morphological markers are studied.

This kind of analysis of the genetic structure of populations has become quite common in the last twenty years, and was combined with a new method: a direct analysis of the DNA that occurs in the mitochondria of these plants. The significance of studying mitochondrial DNA (*mtDNA*) is that it is inherited only through the seed and not through the pollen. This study was the first time that



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these two methods were combined for plants, and the combination allowed some inferences about the factors affecting the population genetic structure- especially the dispersal of pollen and seeds--that could not have been made otherwise.

This had the surprising result of showing that there was no evidence of genetic variation in *L. leptostachya*. Even the *L. capitata* population showed remarkably little variation, although there was a strong pattern of differentiation among populations for the little variation that does occur. For the *L. leptostachya* populations, this means that efforts to re-establish this species could use seeds of transplants from the relatively large populations of the Core Area, and that there is little reason to expect specializations to particular sites. On the other hand, it also means that all of the plants are likely to be susceptible to the same pathogens or predators; these are known to occur in some populations, and it will be important to avoid inadvertently transferring these pathogens between populations.

The related research on *L. capitata* held some more surprises: Both species produce two kinds of flowers: small flowers specialized for self-fertilization; and larger, showy flowers that can be cross-pollinated by insects. However, these showy flowers turn out to be surprisingly ineffective at actually cross-pollinating plants. The petals that form the keel of the small, clover-like flowers close quite tightly around the stamens and style, and foraging bees and

beetles can remove the nectar from the flowers without opening the keel and cross-pollinating the flowers.

The combination of mtDNA analysis with the allozyme analysis for *L. capitata* further showed that there is sporadic, long-distance dispersal of seeds, which can result in the establishment of relatively isolated new populations: populations which are relatively close together but may be quite different genetically, since they came from different founding events and rarely exchange pollen or seeds after establishment.

National Forest Information

FOREST SERVICE NEWS
1992 FOLWELL AVE.
ST. PAUL MN 55108
(612) 649 5101

Information on current activities taking place in the U.S. National Forests in the Twin Cities area of the Midwest is available by local phone call to Twin Cities residents. Included are the Chequamegon and Nicolet National Forests in Wisconsin, and the Superior and Chippewa National Forests in Minnesota.

Al Taylor, USFS information specialist at 649 5101 has up-to-date information on hunting, fishing, skiing, snowmobiling, wood-cutting, and a variety of other activities of seasonal and special interest.

M N P S ELECTIONS

Elections for new Directors will take place at the annual meeting (March). Directors whose terms expire this summer are *Don Knutson*, *David McLaughlin*, and *Steve Eggers*. The following people have been nominated by the Board. If you do not plan to attend the March meeting, an *identified* absentee ballot (enclosed) may be cast by mail.

The Board extends its thanks to Chris Soutter for chairing the Nominations Committee.

The brief biological sketches below will assist you in choosing your officers and board members.

PAT RYAN

A resident of Cottage Grove, Pat raises sheep and gardens extensively. She also uses her green thumb in small prairie restoration project at her place in Cottage Grove. She also collects seeds from nearby prairie remnants for her own project and for seed sharing.

Pat is also a *Master Gardener* and is active in the League of Women Voters.

ELIZABETH RODDY

A graduate of the Univ. of Minn., Elizabeth has worked in Roseville's Central Park, where she catalogued its plants. This project led to publishing a book on the park, with her photographs, called *Walking with Open Eyes*. She is currently restoring wildflowers and native grasses to the park, and is beginning a small prairie restoration on the north side of Lake Bennet.

DON KNUTSON

Dr. Knutson has had a long interest in native plants, gardening and wildland management. An appointed member of the Board, he also served on the Conservation Committee. He was program coordinator for the Federal Research Natural Area Pro-gram for the Pacific north-west. His research background is in dwarf mistletoes (*Arceuthobium*); he has a special interest in reproduction biology of native plants.

1990 M N P S Absentee Ballot

The following slate has been nominated to replace outgoing members of the MNPS Board of Directors. Board members serve three-year terms (September 1990 - September 1993)

	Yes	No
Pat Ryan.....	_____	_____
Elizabeth Roddy.....	_____	_____
Don Knutson.....	_____	_____
Write-in candidate*.....	_____	_____

*MUST BE PAID MEMBERS FOR ONE OR MORE YEARS

Member's signature.....Address.....

1990 MINNESOTA BOTANY INTERNATIONAL EXHIBITION of PHOTOGRAPHY

NATURE SLIDES - 5
Botanical subjects only

Sponsored by MINNESOTA NATURE PHOTOGRAPHY CLUB and MINNESOTA NATIVE PLANT SOCIETY
Approved and listed by PHOTOGRAPHIC SOCIETY of AMERICA

PANEL OF SELECTION

Gary Ash Nature Photography Teacher
Anita Cholewa Ph.D.- Botany, Museum Curator
Alan Schulz Four Star Nature Exhibitor

CALENDAR

Closing	April 16, 1990
Judging	April 21, 1990
Report cards	April 25, 1990
Total rejects	April 27, 1990
Accepted entries mailed	May 21, 1990
Catalogs mailed	June 1, 1990

18 MEDALS

In special recognition of the efficient management of the last Minnesota Botany Exhibition, the Nature Division of PSA is presenting one Silver Medal.

PSA Medal for Best Wildlife.
Best plant(s) showing habitat.
Best non-flowering plant.
Best slide by an exhibitor outside USA.
3 medals to the best slide of 3 Minnesota residents.
11 medals - open category (Minnesota residents are not eligible for these 11 medals).

SHOWINGS

7:30 p.m. May 2 Borlaug Hall,
U of Minn., St. Paul, MN.
7:00 p.m. May 14 Central Community Center,
St. Louis Park, MN.

Address all correspondence to:
Richard Haug, CHMN.

MINNESOTA BOTANY - Richard Haug, CHMN.
2514 Pennsylvania Ave. S.
Minneapolis, MN 55426 USA



Showy Ladyslipper (Cypripedium reginae)
Minnesota State Flower

Entry form on reverse of this page

CLOSING DATE: April 16, 1990

6 CONDITIONS OF ENTRY

1. The exhibition is open to everyone, everywhere, and will be conducted in accordance with PSA recommendations. All acceptances will count toward PSA "Star Ratings" and be eligible for listing in PSA's "Who's Who".
2. Subject matter is restricted to BOTANY, which includes: flowering plants, non-flowering plants (fungi, lichens, mosses, ferns, Gymnosperms, etc.), habitats, and fossil plantlife. The photography should be done in such a fashion that a well-informed person will be able to identify the subject material and to certify to its honest presentation. Human elements, if present, should be unobtrusive and enhance the nature story. Photographs which depict artificially produced hybrid or horticultural varieties of plants may not be used. Photographs depicting still life studies, obviously set floral arrangements, mounted specimens, museum habitats or groups, derivations or any form of photographic manipulation that alters the truth of the photographic statement are ineligible and should not be submitted (Exception: detailed micro or macrophotography). The story-telling value should be weighed more than the pictorial quality.
3. Authentic Wildlife - Check the W column on the entry form following the titles that qualify. The maker certifies the subject is living free and unrestrained in a natural or adopted habitat.
4. Entry fee for (4) 2" x 2" slides, in U.S. currency, is \$4.00 for North American entrants and \$5.00 (or 13 IRC's) for Overseas entrants. Add \$2.00 (or 5 IRC's) for Air Mail return of Overseas entries. Foreign currency will not be accepted. Checks must be drawn on a U.S. bank and should be made payable to MINNESOTA BOTANY EXHIBITION.
5. Entries must include entry fee, completed entry form and labels. All slides shall have been exposed by the entrant. Slides must be spotted in the lower left hand corner when viewed from an upright position, and must bear the name and address of the maker.
6. Slides accepted in any previous Minnesota Botany Exhibition, or slides essentially identical, regardless of title, are ineligible.
7. Descriptive titles are strongly recommended. If you need help in identifying your subject, let us know. Give us all the information about your subject that you can, and we will try to identify it for you.
8. All possible care will be taken to safeguard entries, but the Exhibition Committee and the sponsoring clubs assume no responsibility for loss or damage to entries while in transit or during the Exhibition.

1990 ENTRY FORM MINNESOTA BOTANY

Entry No.

Ck _____

C _____

RC _____

Name _____		PSA Honors _____	
Street _____		Nature Div. Star Rating _____	
City _____	State _____	Zip _____	Country _____
TITLE	Please print or type	W	Score
1			
2			
3			
4			
Entry forwarded from _____		Forward to (enclose label) _____	
Permission to reproduce slides is granted unless stricken.			

OPTIONAL: We would greatly appreciate any natural history information you can provide regarding your subjects, to be used in our public showings. This could include scientific name (if not used in title); where subject is native to; what habitat it is found in; anything unusual or significant shown.

New Members

Please welcome the following new members who have joined the *Minnesota Native Plant Society* this fall:

Jane Bennett, <i>St. Cloud</i>	Roger Bong, Sr., <i>Maplewood</i>
John Burns, <i>Wayzata</i>	Janet Chester, <i>Coon Rapids</i>
Glenda Christenson, <i>Maplewood</i>	Bette Drake, <i>Minneapolis</i>
Susan Fuerstenberg, <i>St. Paul</i>	John Furlong, <i>Brooklyn Center</i>
Cathi Gabrielson, <i>Hanover</i>	Dr. Oliver Johnson, <i>St. Paul</i>
Carol Kollander, <i>St. Paul</i>	Kate Lease, <i>Eagan</i>
Herbert, Barbara Noble, <i>St. Paul</i>	Chuck, Ellen Peck, <i>St. Paul</i>
Marcia Richards, <i>Mankato</i>	John Rolf, <i>Garfield</i>
Bob Ruhfel, <i>Minneapolis</i>	Sandra Sandell, <i>Minneapolis</i>
Greg Stark, <i>St. Paul</i>	Jean Strehlow, <i>Roseville</i>
Lois, Zoie Wennen, <i>Eagan</i>	

A MEMBERSHIP ROSTER WILL BE PRINTED IN NEXT NEWSLETTER

Proposed Change to MNPS Bylaws

The following change is proposed by the Board because the present procedure for nominating new Board members requires the incoming Board to begin a search for the following year's directors at its first meeting in order to have a slate of candidates ready for the January Newsletter. Also there have not always been sufficient Committee Chairs to form a Nominating Committee.

In order for these changes to become effective, two consecutive monthly ballots on the acceptance/rejection of the proposed amendments are required. Voting will be by secret ballot at the February and March meetings.

Article V Present wording:

Section F. The Board of Directors shall each year appoint a Nominations Committee of not less than three persons, drawn from the Chairpersons of the standing committees, to propose a slate of three new Directors in time for notice of the proposed slate to appear in the January (winter) issue of the *Minnesota Plant Press*. The Nominations Committee shall propose a slate of new officers for the Board of Directors.

Article V Proposed wording:

Section F. The Board of Directors shall each year appoint a Nominations Committee of not less than 3 persons chaired by a chairperson of a standing committee to propose a slate of 3 new directors, with notice of the proposed slate being mailed at least 30 days prior to the annual meeting. The Nominations Committee shall propose a slate of new officers to the Board of Directors.

Spring Symposium

Minnesota Native Plant Society will cosponsor the 1990 Spring Symposium with the Minnesota Landscape Arboretum on Saturday, April 7, 1990, from 830 AM to 430 PM at the Arboretum. The theme for this year is *Gardening with Minnesota Native Plants*.

The MNPS is pleased to ^{dedicate} 1990's spring symposium to May Wright, founding member of the society and expert native plant gardener.

The program will feature both lecture and workshop. Lecture topics include:

Why Native Plants? ..an investigation of which plants are truly native and why we should garden with them.

Native Plant Marketplace: propagation and wild collection ..a discussion of conservation issues involved in selling of native plants.

Designing with Native Plants ..a look at many ways of using native plants in home landscaping.

The afternoon will consist of concurrent workshops on the design, planting and maintenance of woodland, prairie and wetland gardens.

A brochure with program and registration information ~~is included in this newsletter~~. ^{will be sent.}

For more information contact Cole Burrell

Eastern Native Plant Alliance (ENPA)

The Eastern Native Plant Alliance is an association of representatives from organizations that promote and demonstrate commitment to protecting indigenous plant species and their habitats within the eastern deciduous forest and coastal plain provinces of eastern U. S. and southeastern Canada. Its goal is to provide a forum for sharing ideas and information, thus stimulating more effective programs and activities in all matters relating to native plant conservation. 29 representatives from 25 groups were represented at the second annual meeting of ENPA in Fletcher, NC, July 29-30, 1989. At this meeting, priorities for ENPA were set, based upon the interests and expertizes of the participants. Working groups were established to discuss these priorities and to explore ways of accomplishing the stated goals. The third annual meeting of ENPA will be held August 17-19, 1990, at the Holden Arboretum, Mentor, Ohio.

If you would like more information concerning ENPA or the upcoming meeting, please contact Cole Burrell

Volunteers

Like so many organizations, the Minnesota Native Plant Society relies heavily upon volunteer time, talent, enthusiasm, suggestions, and work. For those of you who believe that your efforts can make the future of Minnesota native plants more secure, there are many opportunities to combine your special skills and energies with those of others who believe as you do.

Just a few of the opportunities available to you are listed:

CONTRIBUTIONS TO THE NEWSLETTER
 DISPLAYS: MAKING AND MANNING
 FIELD TRIPS: PLANNING, MANAGING, ATTENDING
 MEETINGS AND SYMPOSIA
 PUBLICITY
 MEMBERSHIP
 MAILINGS: ADDRESSING, STAMPING, FOLDING
 COMMITTEES: MEMBERS, OFFICERS

Take a moment to consider how you would like to participate
 and then mail or call in the following:

M N P S Volunteer Sign-up

Name.....	Interest(s).....
Address.....	
.....	
City.....	Availability
State.....Zip.....	weekdays.....
Tel:(h).....	weekends.....
(w).....	evenings.....
	daytime.....

Your comments and suggestions are welcome.....

Please mail to: or call:
 MINN NATIVE PLANT SOC. SHIRLEY MAIT KOODYMAN
 DEPT OF BOTANY, U OF MINN
 220 BIO SCI CENTER
 ST. PAUL, MN 55108

1989/1990 MNPS OFFICERS AND BOARD OF DIRECTORS

David McLaughlin, *Pres. (1990)* Don Knutson, *Vice pres. (1990)*
Robin Fox, *Secr. (1991)* Charlotte Menzel, *Treas (1990)*
Cole Burrell, *Director (1990)* Steve Eggers, *Director (1990)*
Ellen Fuge, *Director (1992)* John Moriarty, *Director (1991)*
Gerald Ownbey, *Director (1991)* Nancy Sather, *Director (1992)*
Ellen Fuge, Don Knutson, *Field Trips and Workshops*
James Ketchum, *Newsletter* Chris Soutter, *Historian*
Don Knutson, *Conservation* May Wright, *Education*

Donations made to M.N.P.S. are tax-deductible

Minnesota Plant Press may be obtained through membership in the *Minnesota Native Plant Society*. The newsletter is distributed three times a year (fall, winter, spring). Items of interest for inclusion in the newsletter will be welcome. Please submit typed, double-spaced copy: submissions via computer disks are welcome, but please include hard copy and identify word processing program.

Minnesota Native Plant Society,
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University of Minnesota,
St. Paul, Minnesota 55102