



Minnesota Plant Press

Vol. 10:3 Newsletter Of The Minnesota Native Plant Society, Spring 1991

Upcoming Monthly Meetings

May - Nature photography show, field trip preview, plant sale

Creating a Picture Perfect Wildflower Garden

Goodman Larson

In the winter I enjoy cross country skiing and carry my camera to capture the beauty of a wooded trail or a shaggy cattail almost smothered by a drift of sparkling snow. As the days grow longer and weather milder my thoughts project to more colorful photographic subjects that will soon be emerging through a bed of leaves in our wooded back yard.

By mid April the snow white flowers of the bloodroot should be at their best. What photographer can resist kneeling down to capture on film these 8-petaled beauties? We have a dozen groups of bloodroot scattered among the naked oak trees. Less conspicuous but even more photogenic are the hepaticas with several dozen light blue blooms on each plant. Everywhere there is wild ginger pushing aside the leaves and exposing their hairy heart-shaped leaves. On the ground at the base of each plant is an unusual brown bellshaped fleshy flower which is a real challenge to a photographer with a macro lense.

By early May, large-flowered bellwort and trout lily have added their beauty and grace to the woodland environment. Later in May several species of *trillium*, wild blue phlox, *clintonia*, blue bead lily, and yellow lady-slippers will be in full bloom, while the jack-in-the-pulpit and ferns are emerging. Each hour and each day the character of the woodland garden changes and there are numerous opportunities to photograph wild plants in a natural setting.

Only ten years ago, what is now a natural woodland wild flower garden was part of our lawn. The sparse and weedy grass had to be mowed and the leaves had to be raked and carted off. Here is my recipe for creating a wild flower environment of your own:

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Editors Notes: Bob Jacobson & Sarah Vest

- The Society's Board of Directors is interested in receiving input from the membership on a number of issues such as topics presented at the general meetings, the formation of outstate chapters, activities the Society should be involved in, and the newsletter. A survey will be mailed out to the membership this spring. Please take time to fill out and return the survey. **YOUR INPUT IN THE SOCIETY'S BUSINESS IS IMPORTANT!**
- The next newsletter is scheduled to come out in the fall. We need articles, so if you would like to submit one please do so. The newsletter is produced on an Apple Macintosh computer and we ask that long articles be submitted on disk to save us typing time. We have the capability of translating IBM (DOS) formatted files from 3.5 inch disks. However, if you submit an article on a DOS formatted disk, please do so as a text or ASCII file that is unformatted. If you have any questions on how to submit articles please contact Bob Jacobson
- The newsletter is now being mailed out via bulk mail to save money, so if you have noticed that it is slow in arriving that is why.

Note From Your President

In addition to the newsletter, a questionnaire will be mailed to the membership this spring. Please also take this opportunity to give us feedback on the Society. We want the Society to be meaningful for all its members, whether or not they are able to attend meetings, but in order to do this we need to know what the members want from the Society and what they have to contribute. Perhaps it would be helpful for members to be reminded of the present institutional structure of the Society and the scope of our activities. In addition to our eight monthly meetings, held from October to May, we sponsor an annual day-long symposium, a number of summer field trips, annual seed and plant exchanges, and an annual nature photography show. We have a Conservation Committee and have occasionally provided expert testimony at public hearings, written letters in support of or opposition to public issues, and engaged in one lawsuit in defense of a federally endangered plant. Topics for the monthly speakers and Symposium are based on the Board's best guess at member's interests. Our guess is based on the fact that our membership is a mixture of wildflower lovers, gardeners, horticulturists, natural resource professionals, conservationists, and professional botanists from all parts of Minnesota as well as a few out-of-state members.

The Minnesota Native Plant Society is a completely volunteer organization. Although we use the university Department of Plant Biology office as our official mailing address no services are provided by the Department itself. Our membership and mailing list is maintained by volunteers. The Board, newsletter editors, field trip organizers, providers of refreshment, presenters, symposium organizers, seed exchange coordinators and publicity committee are all members who volunteer their time and energy. Of our 230 members a core of about 25 active members are doing almost all this work! The society is a nonprofit organization, and as such, is ruled by a set of bylaws that mandate an annual meeting of the general membership to elect Board members and hear an annual Treasurer's report. The officers of the Board are elected by the Board. It has been our experience for several years that the nominating committee is having

an increasingly difficult time securing members willing to serve on the Board. The Board is comprised of 9 members, each serving a 3 year term. We make an effort to solicit Board participation from all our various constituencies, including general members, horticulturists, resource professionals, academic members and gardeners, as well as members from both within and outside the Twin Cities.

Although it may seem very undemocratic, we have chosen the route of presenting a slate of the same size as the number of vacancies because we are simply unable to find enough people willing to serve on the Board in order to have meaningful contested elections for Board members. The one time in recent history when we did have a contested election the loser was approached the following year and begged to run again because no one else could be found to run. Our slate of officers is filled the same way. We have to beg Board members to take positions as officers. If you are interested in serving on the Society's governing body, please make yourself known to us, so we can get you involved. In some cases there may be a lag of a year or so in following up on your interest in Board membership, because of our attempts to balance Board membership. For example, at the present time we are heavy on agency representatives on the Board and would like to encourage members of the academic community and general members to come forward to serve on the Board.

We need a broader base of active members. We need you to suggest activities you would like to see, newsletter changes, speakers, field trips. Come to Board meetings to share your ideas. We need your leadership. We desperately need a volunteer coordinator, membership committee, field trip leaders, potential Board members, refreshment organizer, publicity chairperson and someone to sit at booths at public events. Board meetings are held the first Wednesday of the month, immediately preceding Plant Society meetings, starting at 6 PM in the University of Minnesota's St. Paul Campus Student Center cafeteria. These meetings are open to all members.

Announcements

- REMINDER: The MNPS publication, "Guide to Spring Wild Flowers in the Twin City Region", is available and the perfect time of year to use it is here! This pamphlet will lead you to a selection of prime locations around the cities where the exquisite array of spring ephemerals can be enjoyed. Send \$2 (\$1 for the pamphlet, \$1 for postage and handling) to:

Marcie O'Connor

- "Atlas of the Flora of Minnesota", Ownbey, G. and T. Morley, 1991, announced delivery date was April 15, 1991. We anticipate having them available at the May 6 meeting. Both dates follow the writing of this notice. If you did not pick up the books you ordered through the MNPS at the May meeting, contact Ellen Fuge, and she will arrange for delivery. There will be an additional charge for postage and handling if it is necessary to mail the books to you.

- MYCOLOGICAL SOCIETY: The Minnesota Mycological Society would like to extend an invitation to the members of the Minnesota Native Plant Society for a special evening on Friday, May 17th, at 7:00 PM at the University of Minnesota St Paul Campus, Room 335 Borlaug Hall. Roger Phillips, author of Mushrooms and Other Fungi of Great Britain and Europe, Wild Food,

and The Photographic Guide to Identify Common and Important Mushrooms, will present his latest book, Mushrooms of North America. Roger's presentation will include identification, history, mystery and medicine, and the future of mycology including the role of the amateur. Those attending will have the opportunity to purchase Roger's book at a reduced price and have it autographed. Doors will open at 6:30 PM.

Summary Of Guest Presentations At The General Meetings

Ellen Fuge

The scheduled speaker for the February meeting, Dr. Charles Burnham, was unable to give his presentation on the American Chestnut because of illness. Nancy Sather, the president of the Society and Botanist for the MN/DNR Natural Heritage Program, gave a talk about how she has recruited volunteers to carry out rare plant research in Minnesota. Her presentation was illustrated with slides from sites in southwestern Minnesota where *Lespedeza leptostachya* (prairie bush clover) has been found and where searches for new populations are being conducted.

Again in March bad bugs struck down our scheduled speaker and again a willing and very capable person was found to step in and give an excellent presentation. Robert Dana, Plant Ecologist with the MN/DNR Natural Heritage Program, was ill. His co-worker, Plant Ecologist Norm Aaseng, was able to assemble a slide show with only 10 hours notice and the assistance of Nancy Sather. In his talk he summarized the work he and Robert are doing in Kittson, Marshall and Roseau counties for the Minnesota County Biological Survey. The ecologists' work includes ground survey of sites selected through air photo interpretation. The field work also provides data for the refinement of the Natural Heritage Program's Natural Community Classification, particularly in the classification of brushland and peatland. The data is also being used to develop a vegetation map of the survey area using computer assisted classification from satellite (Landsat TM) imagery in a cooperative project with the U of M Remote Sensing Lab.

Wildflower Garden continued from pg. 1

1. Select a shady part of your lawn where you have difficulty maintaining grass cover.
2. Do not rake up the leaves in the fall. Up to 5 inches of leaf cover are necessary to keep down unwanted grass and weeds and to provide the proper soil texture and protection for woodland flowers.
3. Map the area you have selected locating existing trees, rocks, and bushes. Draw in a network of trails crossing the area. Curved trails are usually more esthetic than straight ones. Paths are important so you do not walk on emerging vegetation and they provide a place to stand or kneel while planting, weeding, or photographing your flowers.
4. Shade tolerant wild flowers and ferns can be planted any time when plants are available, but survival is usually best if planted in the spring or fall when the weather is cooler and wetter. Use your map in deciding where to plant. Low growing plants like the hardy wild ginger can be planted bordering the trail while the tall ostrich fern and trillium belong in the background or center positions.

5. Transplants for your garden can be purchased at the Landscape Arboretum plant sale in May or you can ask a friend for some plants from their garden. Many plants such as ferns and ginger are prolific and must be thinned out or they would dominate a well established garden.

6. Seeds from bloodroot, jack-in-the pulpit, and many other woodland flowers can be collected when the seeds ripen in the summer and fall, and planted in the fall in bare soil, then covered with leaves. In the late spring periodically check the seed beds and remove some of the heavy leaf cover as the new plants germinate and grow. If the new plants come up too thick, some can be transplanted to other sites.

7. It takes a number of years to establish a wild flower garden that resembles the natural wild environment of a wooded area. Avoid planting in straight lines or geometric patterns. A squirrel hides acorns in a random pattern. We should do the same with minor adjustments for artistic or size consideration.

If you now enjoy photographing woodland flowers while on trips away from home, why not get double enjoyment in starting a wild flower garden in your backyard?

Early Herbarium History at the U of M

Thomas Morley

A herbarium like the one at St. Paul has as one of its primary functions that of providing a permanent record of the plants known to grow in the state with their locations. Without the actual specimens with their label data to verify reports of plant occurrences, those reports would be unreliable because of the difficulty of correctly identifying many species in the field where careful comparisons with related plants cannot be made. Errors would be numerous. Such comparisons are possible in the herbarium, and thus determining identifications is another of its chief uses. Even the most experienced persons need this function. In addition the herbarium can provide information on individual localities of plants; plant characteristics such as size, shape, and color of parts; flowering and fruiting times; variation within species; and habitats. While this herbarium concentrates on Minnesota it also contains specimens from all over the world, and therefore these same uses are available to a lesser degree for plants growing elsewhere. The herbarium is consulted further for research of several kinds, for teaching, and for other purposes. Specimens are lent to other institutions and we borrow from and exchange with them.

The utility of the herbarium depends largely on the completeness of its collections, and relatively complete collections usually reflect a long history of collecting. Out of curiosity the author decided to find out how old the earliest Minnesota specimens of vascular plants in this herbarium are. Inquiry showed that no one familiar with the herbarium knew. Upham (1884) and MacMillan (1892) cite numerous early explorers whose publications mention plants of the area; the first published list of plants known to Upham to include Minnesota species is dated 1822. However, there is no indication whether any plant specimens from these early sources eventually found their way into the University of Minnesota herbarium.

The first records of the herbarium's contents occur in an early inventory of the collections of The Geological and Natural History Survey of Minnesota, (hereafter referred to as the Survey) in which the total number of specimens is 3276 (Winchell, 1885)¹. The meaning of the number is not fully clear since Winchell appears to use the words "specimens" and "species" interchangeably on

these pages. In the inventory usually only the dates of receipt are given for the different plant collections, but for a few the dates of actual collections are noted. The earliest of these is the collection of W. E. Leonard, made in 1875-76. However, since collection dates are lacking for most entries and the early records are incomplete, one cannot tell from this reference alone if those are the earliest collections.

Computerization of the label data for Minnesota specimens has begun but is not yet complete enough to supply the needed information. In its absence it was evident that only a search of the herbarium would reveal if any specimens antedating 1875 were to be found. A representative sample of the Minnesota species was thought to be adequate for this purpose. The species selected to be searched were not random but were chosen as being common, reasonably conspicuous, widespread, and diverse, and were judged to be of interest both to amateurs and professionals. The specimens of each species were listed by date and collector from the earliest collections through 1900. Sixty species were tallied, a number thought to be adequate since the basic pattern that emerged was evident by the time ten species had been done and never varied; however, it was only when studying the other 50 that the exceptions to the rule were found. A dozen other species were quickly searched for early specimens and rejected.

In the basic pattern the earliest specimens encountered date mostly from 1875 to 1878 but are often later. Exceptions are an 1849 and an 1861 specimen of *Calylophus serrulata*, an evening primrose (both on the same sheet), a remounted 1861 collection of *Astragalus crassicaupus* (buffalo bean), and an 1872 collection of *Agastache anethiodora* (giant hyssop). Earlier specimens from the state may of course be in the herbarium. The double mount was purchased from the Missouri Botanical Garden, as was probably the second 1861 collection since both specimens of that date were collected by the same person, T. J. Hale. Index Herbarium records state that the Hale specimens were originally sent to the U. S. National Herbarium in Washington D.C. The *Agastache* collection is from the herbarium of M. S. Bebb, from which no original shipments except willows were sent to Minnesota. Thus one must believe that all collections in the state prior to 1875 were sent to out-of-state institutions or lost. Specimens sent to such institutions were never returned to their source state when storage facilities later became available there, except by exchange or purchase. Direct contributions date from 1875 or later. There was no state organization with facilities for storing and caring for specimens until the formation of the Survey's herbarium in 1875.

In March 1872 the State Legislature passed an Act establishing a Geological and Natural History Survey of the State, and entrusted the implementation of the Act to the University of Minnesota (Laws, 1872, Chapter 30 p. 86; Schwartz, 1964). The Act had in fact been drawn up by W. W. Folwell, President of the University. It included a provision for collecting and preserving plants and storing them for public inspection. Conducting the plant collecting program was initially one of the duties undertaken by N. H. Winchell, State Geologist and Director of the Survey. Since Winchell had to teach botany and zoology as well as geology at first (Regents minutes, 1873; Report of the President, 1876) broad responsibilities were no stranger to him. He apparently began botanical field work in 1873 when he drew up plant lists for certain areas of the state, but he first made collections in 1875 as did two men working for him. The herbarium of the Survey technically dates from this year with the collection of the first Survey specimens.

In its first official recognition of the botanical program the Board of Regents in 1875 (Regent's minutes) ordered preparation of a circular inviting botanical contributions from schools and calling for plant specimens from different parts of the state (also noted in Winchell, 1877). Winchell in response (1876) prepared a two page circular with collecting suggestions for the state's botanists. According to Winchell (1885) this call for specimens was mainly responsible for

the receipt of the collections he listed in 1885. In 1878, however, the University temporarily de-emphasized botanical and zoological work in order to advance geological studies (Winchell, 1879). As the University grew and departments were formed, the Survey herbarium because of its relation to the Survey itself seems to have been treated at first as a state operation independent of and unrelated to the University departments.

Perhaps as a consequence a second herbarium was begun in the nascent Botany Department in 1888, apparently an early initiative of C. MacMillan who was hired in 1887 as instructor in botany and collector for the Survey (Executive minutes 1887; Johnson 1908; Bartlett 1989). The first acquisitions were 6000 specimens of the Sandberg collection, not paid for till 1889 (accession records; Executive minutes 1889). Three years later Ariel (1891), the student newspaper of the day, said that the new herbarium contained 35,000 specimens. A year after that MacMillan (1892) gave the number of specimens as nearly 62,000; he gave no corresponding figure for the Survey herbarium but made it plain (pp. 8, 9) that the two were still separate. He was then both State Botanist for the Survey and Chairman of the Botany Department and thus was in charge of both herbaria; doubtless he promoted their being combined. They evidently had been united by 1894 when a new facility was provided for the Botany Department herbarium (Ariel, 1894). Ariel gave the total number of specimens in the Department's herbarium as about 120,000, a figure which because of its large size must have included the Survey's plants. No notice of the merger was found in a search of the Regent's minutes, the Executive Committee minutes, the annual Survey reports, or the biennial reports of the Regents. MacMillan's own records have been lost.

The Department with its herbarium was housed, at that time, in Pillsbury Hall, a building with a largely wooden interior. In Dec. 1896 MacMillan (1897) in pleading for a fireproof building for the herbarium stated that the latter contained almost 200,000 specimens; he claimed that the herbarium was fifth in the nation in size and value and outlined its contents in some detail. Nearly 50,000 of the specimens were from Minnesota, he said, including all plant groups. Major collectors of the Minnesota specimens are named and the list includes both private collectors and those of the Survey. MacMillan further stated that as a systematic state collection he believed that that of Minnesota "stands easily first in America." Two years later (1899) his estimate for the size of the herbarium was over 200,000 specimens. In succeeding biennial reports the total estimate was omitted.

Table 1 lists all of the collectors who collected ten or more of the 60 species checked, in approximate chronologic order through 1900. Fifty-one collectors are unlisted, those with fewer than ten species; these mostly had one or two, none over seven. Many specimens collected by O. Lugg are undated and could not be included in the count. In the table the years of collection, number of species (of 60) and the number of collections made are given. To give an idea of the sizes of the collections these people made, the total number of specimens each contributed to the herbarium is also given in the right hand column, when the figures are available. The records begin with Winchell's inventory (1885), then there is a gap of three years till the herbarium accession records start in 1888. Those records seem moderately complete but nonetheless there are many omissions in the early years as is seen in the table. In particular the major collections of Sara Manning and Lycurgus Moyer are absent; however, some collections of each had been received by 1896, since MacMillan (1897) includes both in his list of contributors to the herbarium. The figure given for Moyer comes from Bray (1982) and Bartlett (1989). Holzinger, Lyon, Moyer, Wheeler, and sometimes Roberts collected into the twentieth century and the totals given for them must include some of those specimens, since it is impossible to separate in the records collections from the two centuries when the major donations were made in the later century as was especially

the case with Holzinger, Moyer, and Roberts. The dates of the accession records are given for general interest.

Table 1.

Name	Yrs Collected	# Species	# Collections	Accession Records
Leonard, W.E.	1875, 76	12	13	64+ (1885)
Herrick, C.L.	1875-79, 84	25	28	529 (1885)
Gage, A. Jr.	1876	10	10	
Roberts, T. S.	1876-80,85,87,89	36	58	954 (1928,31)
Kassube, J. C.	1877,78	33	35	440 (1885)
Lang, H.D. & W.A.	1878	15	15	
Aiton, G.B.	1878,79,89-92,96	42	74	6,000 (1894)
Manning, S.M.	1878,80,82-90,92,93, 95,98	46	76	
Garrison, O.E.	1879,80	14	19	
Sandberg, J.H.	1879,81-87,89-95,98	57	154	21,101 (1888,94,95)
Hammond, G.A.	1881	12	13	
G. & L.	1884,85	22	22	
Oestlund, O.W.	1884,86,88	26	29	
Foote, L.	1884,86,93,99	11	11	
Moyer, L.R. et al	1885,90-98,1900	33	61	5,000 (1917)
Arthur, J.C., Bailey, L.H., Holway, E.W.D.,	1886	39	44	570 vasc. (1887)
Campbell, J.E.	1886, 95-97	20	27	229 (1897)
Holzinger, J.M.	1886,88,89,91, 95-97,99,1900	30	52	2,037 (1896,1901, 1906,18,20)
Sheldon, E.P.	1889-95	60	335	8,010 (1893-95)
Wickersheim, W.J.	1890,91	11	11	178 (1893)
MacMillan, C. et al	1890-92,94,95,1900	32	42	3,615 (1894,1902)
Sandstein, E.	1891	10	11	187 (1893)
Burglehaus, F.H.	1891,92	19	25	
Ballard, C.A.	1891-93, 1900	55	159	2,181 (1893,96,1900)
Taylor, B.C.	1891,92,96	45	95	1,848 (1893)
Menzel, M.	1891,92,94-97	24	40	261 (1893,96,98)
Frost, W.D.	1892,94	37	53	543 (1893,94)
Anderson, A.P.	1893	17	18	903 (1893,94)
Wheeler, W.A.	1893,96,99	25	30	676 (1900, 02)
Lyon, H.L.	1899,1900	22	24	269 (1900)
Miscellaneous survey collections				5,000 (1893)
Estimate for unrecorded major collectors				3,550 (# collections)
Estimate for the 51 minor collectors (some recorded, some not)				3,000 (# collections)

Unfortunately, some of the accession numbers apparently include duplicate specimens while others include only numbers of collections and exclude the duplicates, so that no accurate total can be made for either category. Judging by the large totals given, the figures for Aiton, Sandberg, and Moyer must include duplicates. On the other hand, a check of the available field notebooks, those of Anderson, Ballard, Frost, Sheldon, Taylor and Wheeler shows collection numbers that match the accession numbers rather well. Therefore the latter are judged in these

cases to be numbers of collections as are probably most of the rest of the entries. Another consideration is that the Survey collectors at least took nonvascular plants as well as vascular, so that an accurate total for vascular plants cannot be had. Judging by a scan of the field notebooks, not over 30% of the collections were nonvascular. A rough estimate is that there were between 28,000 and 32,000 specimens of Minnesota vascular plants in the herbarium at the turn of the century, an estimate arrived at using the numbers of the 60 counted species as points of reference.

The first count of all specimens, after the 1899 estimate, was begun in 1927 using a numbering machine and was completed for the vascular plants (world-wide) in 1928 when there were 179,790 specimens; the world-wide nonvascular count of ca. 44,866 was finished in 1929 (herbarium records). More specimens of both groups were rapidly added so that by the end of 1929 the total count for the whole herbarium was 269,042.

Several observations can be made regarding the early collectors. One of them, T. S. Roberts, became a renowned ornithologist. Only Sheldon collected all 60 of the selected species, with Sandberg and Ballard close behind. The difference between the amateur and the more professional approach is plain in that in the former usually a single collection of each species was made whereas in the latter the same species was collected more than once in order to show its distribution and variation. The earliest collectors often gave inadequate label data since the format had not been established and it was often not realized how important certain details would be. The data were often very general; the labels for the 1849 and two 1861 collections referred to above give only the year for the date, which was frequently done; sometimes the date was omitted. The labels for the 1849 specimen of *Calylophus* and the 1872 specimen of *Agastache* give the location only as "Minnesota", and O. E. Garrison's labels often state only "Upper Mississippi"; it was common to give only the county. Some collectors, in modesty, omitted their names or gave only their initials, some of which are still unidentified such as "G. & L." and "E. D.". Dr. J. W. Moore (personal communication) suggests C. J. Gedge and J. B. Leiberg for the former. Serial numbers were often omitted at first.

The number of collectors active in a given year varied widely. Starting at four in 1875, the number rose to eight in 1878, dropped to two by 1881 and 1882, then rose irregularly to 18 in 1891 and dropped again to ten by 1900. The first peak suggests a rise in enthusiasm following the call for collections in 1876, combined with the early collecting program of the Survey under Winchell for which Leonard, Herrick, and Roberts worked (Upham 1884; Winchell 1885). The drop in numbers following 1878 correlates with the temporary deemphasis of botanical and zoological studies referred to above. The second peak appears to be a response to the developing field of botany and the leadership of MacMillan who as State Botanist employed Ballard, Sheldon, and Taylor to collect for the Survey in 1891 (MacMillan 1892); Anderson, Frost, and J. Tilden also worked for the Survey under MacMillan (1897).

Wide differences appear in the number of times each of the 60 chosen species was collected. In general, the earliest collectors avoided trees, grasses, and aquatics, suggesting their amateur interests. Sometimes no reason can be ascribed for the failure to collect certain species. In the following list of the selected species the number of times each was collected is indicated:

Adiantum pedatum (maidenhair fern, 28), *Athyrium angustum* (lady fern, 30), *Botrychium virginianum* (Virginia grape fern, 36), *Cystopteris protrusa-tenuis* (fragile fern, 21), *Dryopteris carthusiana-expansa-intermedia* (toothed shield fern, 19), *Equisetum arvense* (field horsetail, 24), *Matteuccia struthiopteris* (ostrich fern, 14), *Osmunda regalis* (royal fern, 10), *Pellaea glabella* (smooth cliff brake, 9), *Acer saccharum* (sugar maple, 22), *Achillea lanulosa-millefolium* (yarrow, 37), *Agastache anethiodora* (giant hyssop, 45), *Amorpha canescens* (lead plant, 39), *Andropogon gerardi* (big bluestem, 35), *Anemone canadensis* (Canada anemone, 54), *Anemone quinquefolia* (wood anemone, 30), *Apocynum androsaemifolium* (spreading dogbane, 39), *Aquilegia canadensis* (columbine, 34), *Arisaema triphylla* (jack-in-the-pulpit, 26), *Artemisia ludoviciana* (wormwood, 46), *Asarum canadense* (wild ginger, 32), *Asclepias syriaca* (common milkweed, 13), *Astragalus*

crassicaulus (buffalo bean, 36), *Caltha palustris* (marsh marigold, 22), *Calylophus serrulata* (evening primrose, 41), *Carex sprengelii* (Sprengel's sedge, 24), *Chamaedaphne calyculata* (leatherleaf, 16), *Coreopsis palmata* (stiff tickseed, 41), *Cornus stolonifera* (red osier dogwood, 53), *Delphinium virescens* (prairie larkspur, 33), *Elymus canadensis* (nodding wild rye, 25), *Erythronium albidum* (white trout lily, 14), *Geum triflorum* (prairie smoke, 24), *Hypericum pyramidatum* (St. John's wort, 14), *Lathyrus venosus* (veiny peavine, 38), *Liatris aspera* (blazing star, 20), *Lilium philadelphicum* (wood lily, 36), *Maianthemum canadensis* (Canada mayflower, 48), *Monarda fistulosa* (horsemint, 27), *Nymphaea tuberosa* (white waterlily, 12), *Oenothera biennis* (evening primrose, 24), *Panicum virgatum* (switch grass, 28), *Petalostemum purpureum* (purple prairie clover, 46), *Prunus virginiana* (choke cherry, 45), *Psoralea esculenta* (Indian breadroot, 16), *Pulsatilla nuttalliana* (pasque flower, 38), *Quercus macrocarpa* (bur oak, 19), *Ratibida pinnata* (gray-headed coneflower, 20), *Rosa blanda* (smooth wild rose, 35), *Sagittaria latifolia* (arrowhead, 32), *Sanguinaria canadensis* (bloodroot, 23), *Senecio pauperculus-plattensis* (ragwort, 44), *Smilacina stellata* (star-flowered false solomon's seal, 40), *Solidago rigida* (stiff goldenrod, 38), *Stipa spartea* (needlegrass, 21), *Tilia americana* (basswood, 27), *Uvularia grandiflora* (yellow bellwort, 31), *Vaccinium angustifolium* (blueberry, 20), *Viola pedatifida* (birdsfoot violet, 24), *Vitis riparia* (wild grape, 29). Average count = 29.

Acknowledgements: I am indebted to Penelope Krosch of the University Archives for assistance in finding several early references.

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The Flora of North America Project

Missouri Botanical Garden

The Flora of North America Project is a collaborative, bi-national effort of more than 20 major botanical institutions to compile the first comprehensive description of all plants growing spontaneously in the United States and Canada. About 17,000 species of vascular plants grow in this area, and of the native genera, 38% are found only in North America.

In addition to the twelve volumes of the Flora published by Oxford University Press (the first scheduled to appear in late 1991), all the information will be contained in a computerized database called TROPICOS. The data base will be continually updated and maintained as a permanent resource. It will allow users to access the information in a variety of ways, providing answers to such questions as, "What spring-flowering plant species with yellow flowers and simple leaves occur in the grasslands of Nebraska?"

The Flora will be useful not only for theoretical work in plant studies, but also for general reference in biology, conservation, wildlife management, forestry, horticulture, environmental sciences, and agriculture. As the single authoritative reference, the Flora will fill a crucially important need in providing thorough and reliable information for identifying endangered species.

The Missouri Botanical Garden serves as the organizational center for the Flora of North America. Dr. Gerald Ownbey and Dr. Anita Chowela (both from the University of Minnesota Plant Biology Department) are writing portions of the Flora.

1991 Spring & Summer Activities

QUEEN'S BLUFF HIKE: May 25, 8AM - 5 or 6PM. Dr. Gerald Ownbey will lead us on a tour of the prairie on Queen's Bluff at O.L.Kipp State Park south of Winona. In addition to being an exquisite example of the dry goat prairies of southeastern Minnesota, Queen's Bluff offers a spectacular view of the broad Mississippi River Valley. Dr. Ownbey's familiarity with this particular site, gives participants an intimate yet broad look at the plant community found here. Bring your binoculars, lunches, plenty to drink, protection from sun and rain and good hiking shoes. The size of the group will be limited due to the sensitivity of the area. The group will leave at 8AM from the U of MN St. Paul Campus. To sign up and get directions, call Don Knutson at

GRASS WORKSHOP: June 1, 10AM - Noon, 365 Borlaug Hall, U of MN, St. Paul Campus, \$3 fee (Proceeds to go to the U of MN Herbarium). Anita Cholewa from the University of Minnesota Herbarium will review the characteristic structures of grasses and teach participants how to identify many of Minnesota's grasses. Attendance is limited so sign up early by calling Anita at

INTRODUCTION TO MOSSES & LIVERWORTS: June 8, 9AM - 1PM, Cedar Creek Natural History Area. Jan Janssens from the U of M Ecology Department will present a slide show on moss and liverwort diversity and growth forms and will lead a field trip to the Cedar Bog Lake

cedar swamp and the Beckman Lake *Sphagnum* mat at the Cedar Creek Natural History Area. Meet at the laboratory building of the U of M Cedar Creek Natural History Area at 2260 Fawn Lake Drive NE, Bethel, MN. Take Highway 65 north to Anoka County Road 24 (76 gas station at intersection) go east to T-intersection and then north on Fawn Lake Drive to the laboratory. Bring boots, insect repellent, hand lens and a bag lunch. Maximum number of participants is 10. The session will be cancelled if it is raining. To sign up contact Jan Janssens at _____ or leave a message at _____.

PLATANThERA SEARCH: July 6, 9AM, Mac's Cafe, 106 Washington Ave. NW, Fertile, MN. Nancy Sather from the MN/DNR Heritage Program will lead the group to see the endangered *Platanthera praeclara* (Western prairie fringed orchid) at Burnham Wildlife Management Area and then go to search for the orchid in new areas. Participants will be out all day, so bring a lunch, plenty of liquids, protection from the sun and rain gear. To sign up call the Heritage Program's B.J. Farley at _____. In case of rain on the day of the trip, call _____ or _____ to be sure the group is still going out.

POLEMONIUM BOG WORK DAY(S): July 13 & (optional) 14, St. Louis Co. near Hibbing. Roger Lake, of MN/DNR Wildlife Research will host a field trip featuring the rare Western Jacob's Ladder (*Polemonium occidentale*). The first day's activities will involve seeing the plant and its swamp habitat, then helping on a project yet to be determined. The second day (optional) will involve more Polemonium work or visits to some of the other interesting sites in the area. Camping is available at Roger's cabin. For details call him at _____.

WEAVER BOTTOMS CANOE TRIP: August 3, 10:30AM, The Upper Mississippi River National Wildlife and Fish Refuge boat landing at Weaver, MN in Wabasha Co. Come see the spectacular water lotus in full bloom. Its creamy white flowers set off by the brilliant blue of pickerel weed. An expert in wetland biology will join the group to make this relaxing day on the water a memorable learning experience. Individuals must provide their own canoe, paddles and PFDs. It is also suggested that you bring lunch, plenty of liquids, protection from sun and rain, and binoculars. If you have any questions, please call Ellen Fuge at _____.

MNPS PICNIC: September 21, Crow Hassen Park. This date marks the annual Prairie Day Celebration at Crow Hassen Park. Come enjoy the Prairie Day activities (including interpretive hikes of the restored prairie areas and wagon rides) and meet with other MNPS member for a pot luck noon picnic. Check for the location of the picnic at the trail head building at the entrance to the park. Call John Moriarty at _____ for details and directions to the park.

SAVAGE FEN WORK DAY: October 19, 10AM - 4PM, Savage Fen Scientific and Natural Area (SNA). Ellen Fuge, Management Specialist for the MN/DNR SNA Program, will lead the trip. Follow Hwy 13 west through Savage (toward Shakopee) to the stoplight. Turn south and proceed about 1/2 mile to 128th street on the east side of Hwy 13. Follow 128th to where it dead ends after about 1/2 mile. The fen is a magical, calcium-rich wetland dominated by sedges that hosts an array of special plants found in few other places. Woody plants have begun to encroach on this plant community since periodic wild fires, historically responsible for keeping the brush out, have been suppressed. Volunteers are needed to girdle and cut back the woody invaders. Dress warmly, wear boots (or tennis shoes if its a warm day and you don't mind getting your feet wet), bring gloves, lunch, plenty of liquids, and protection from sun and rain. Some tools will be

available but bring a pair of loppers if you have them. Group size is limited to 15. Please reserve by calling The Nature Conservancy at 612/379-2134.

PRAIRIE DAY CELEBRATION: Minnesota Prairie Day is an annual celebration of our state's prairies- the open, grassy plains that once covered much of the Midwest. It is a day for Minnesotans to rediscover their prairie heritage, and have a fun time as well. We once had 18 million acres of prairie in Minnesota. Today less than 1 percent remains. Our surviving prairie remnants are wonderful areas. They are home to dozens of rare and endangered plants and animals, and contribute greatly to the natural beauty of our state. Mid-August is the peak time to enjoy the color and beauty of prairie wildflowers and grasses. So come and enjoy the many activities planned throughout the state for Prairie Day--August 10, 1991. Prairie Day celebrations will be held at:

- Blue Mounds State Park, near Luverne in SW MN - This park is situated on one of the outstanding physiographic features of the Coteau des Prairies- the precipitous escarpment of Sioux Quartzite known as the Blue Mounds. This outcrop forms a cliff over a mile long and up to 175 feet high. The top of the ridge consists of over 800 acres of prairie, with a number of rare plants and animals. The park also boasts a bison herd.
- Kellogg Weaver Dunes, near Kellogg in SE MN - This site encompasses three management units: the Weaver Dunes Preserve owned by The Nature Conservancy (TNC), the Kellogg Weaver Dunes Scientific and Natural Area, and the McCarthy Beach Wildlife Management Area (WMA) both owned by the Department of Natural Resources. These three sites encompass a good portion of the largest sand dune complex along the Mississippi River in southern Minnesota. The dunes contain a series of successional stages, ranging from active sand blowout, to stabilized dry and wet prairie, to oak and jack pine savanna. The WMA protects an extensive wetland complex. Fourteen rare plant species and 3 rare animal species occur here, including the state's largest population of Blandings turtles. Peregrine falcons have also been hacked out on the TNC preserve. The Native Plant Society is a co-sponsor of this Prairie Day event.
- Sherburne National Wildlife Refuge, near Zimmerman in East-Central MN - Sherburne National Wildlife Refuge is situated on the Anoka Sand Plain. The refuge has several native prairies and a number of prairie restorations. Minnesota's largest prairie nursery, Prairie Restoration Inc, is just down the road from the refuge. One likely focus of activities at this site will be prairie restoration.
- Minnesota Valley National Wildlife Refuge, in Bloomington- Metro - Minnesota Valley National Wildlife Refuge contains several prairies on the river-bluffs and in the floodplain and river terraces. The refuge has just opened a new visitor center with several prairie exhibits. Black Dog State Scientific and Natural Area is also nearby and contains some excellent prairie and fen habitat.
- Kittson County Prairies, near Karlstad in NW MN - This event will focus on northwest Minnesota's brush prairies and aspen parklands. Beginning in Karlstad, participants will visit some of the state's largest prairie complexes, many on state Wildlife Management Areas. Biologists from the DNR's County Biological Survey are just completing a biological survey of Kittson County and will talk about some of their discoveries.

For more information about Prairie Day contact:

Peter Buesseler
DNR Prairie Biologist
1221 E. Fir Ave.
Fergus Falls, MN 56537
(218) 739-7576

or

DNR Information Center
500 Lafayette Road
St. Paul, MN 55155
Twin Cities: 296-6157
MN Toll Free: 1-800-652-9747 (ask for DNR)

WILDFLOWER ROUTES: On your way to some of this summer's activities get off the interstate and view some of our roadside prairies. The Department of Transportation and the DNR are burning a number of these prairie remnants. Excellent shows of prairie grasses and forbs can be found along the following highways: T.H. 22/109 (MN Lake to Alden, south of Mankato), T.H. 5 (Arlington to Gaylord, west of the cities), T.H. 218 (near Blooming Prairie), T.H. 56 (Rose Creek to LeRoy), T.H. 9 (Benson to Breckenridge, western MN), and T.H. 11 (west of Baudette, lots of orchids!).

Native Plant Watch.....

Landowners Put Prairie in the Bank

Peter Buesseler

The near elimination of native prairie in Minnesota has spurred a concerted effort to protect the remaining parcels. Public agencies and private conservation groups have acquired and now protect more than 35,000 acres. Landowners receive tax exemption for protecting 12,000 additional acres under the Minnesota Prairie Tax Exemption Program. There is, however, much left to be done. More than 100,000 acres of the state's native prairie receive no protection at all.

In 1987, as part of the Reinvest in Minnesota (RIM) legislation, the state legislature created the Native Prairie Bank. This program authorizes the DNR to protect native prairie by entering into conservation easements with landowners. The purpose of these easements is to provide protection for the prairie resource while still allowing the land to remain in private ownership.

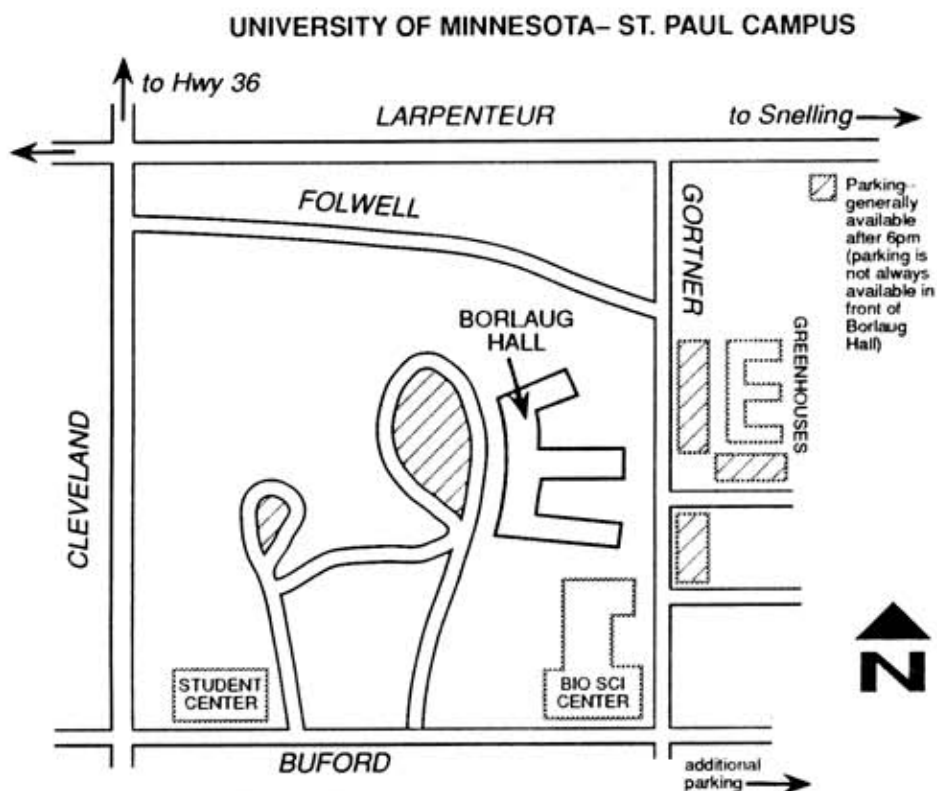
The program has only just begun, but by spring of this year a dozen landowners had enrolled, protecting 1250 acres. The RIM bill being considered by the Minnesota Legislature includes \$1,130,000 for an estimated 30 more easements--approximately 3000 acres. The goal is to eventually enroll 75,000 acres of native prairie. Landowners like the program because they can keep their land and make sure it will remain in native prairie for generations to come.

To be eligible for Prairie Bank a tract must be covered by native prairie vegetation, must never have been plowed, and must have less than 10% tree cover. In certain situations, agricultural practices such as haying may be benefiting the prairie. If so, the DNR and the landowner may agree to adjust the payment rate to allow the practice to continue.

For more information about the Native Prairie Bank Program, call or write:

Peter Buesseler
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1221 E. Fir Ave
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Minnesota Native Plant Society



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