

Kelseya

Newsletter of the Montana Native Plant Society

www.umt.edu/mnps/

Frederick Pursh and the Lewis and Clark Expedition Part 1

By H. Wayne Phillips

Frederick Pursh? No, he wasn't one of the members of the Lewis and Clark Expedition, however, Pursh made a key contribution to one of the objectives of the Expedition. President Jefferson directed the captains to notice "the face of the country, it's growth & vegetable productions; especially those not of the U. S....the dates at which particular plants put forth or lose their flowers, or leaf..." [Cutright]. The Expedition was to be, in part, one of botanical exploration. The plants discovered by the explorers would be of great interest to President Jefferson and the citizens of the United States.

In 1814 the Journals were published in Philadelphia in *History of the Expedition Under the Command of Captains Lewis and Clark...* This was a literary paraphrase of the Journals, edited by Nicholas Biddle, a travelogue that contained none of



Pedimelum (Psoralea) esculentum, Indian Breadroot, in a beautifully hand colored, original drawing by Frederick Pursh from his book, *Flora Americae Septentrionalis*

nounced in the book, were new to the science of botany.

So, who was Frederick Pursh, and how did he happen to include Lewis and Clark's plants in his book?

Pursh was born in 1774 in Grossenhain, Germany. He was educated at Dresden and worked at the Royal Botanic Gardens there. In 1799 he traveled to the United States, and from 1803-5 he was the manager of Woodlands, a botanical garden near Baltimore. While at Woodlands, Andre Michaux's *Flora Boreali-Americana*, America's first comprehensive floral manual, was published describing 1,600 species.

In 1805 Pursh began to work for Dr. Benjamin Barton, a professor of medicine and botany at the University of Pennsylvania in Philadelphia. Barton was a colleague of Thomas Jefferson through their joint membership in the American Philosophical Society. President Jefferson had enlisted Barton's help in training Meriwether Lewis, giving him a crash course in the science of botany, before setting out on the Expedition. Barton also agreed to help with the work needed to examine, describe, and publish the results of the botanical collections of the Expedition. In 1805, Lewis and Clark sent a box of 60 plant specimens down the Missouri River to President Jefferson in Washington, D. C. President Jefferson immediately sent these plants to the American Philosophical Society, which placed them in the hands of Dr. Barton.

In 1806-7 Pursh was doing field

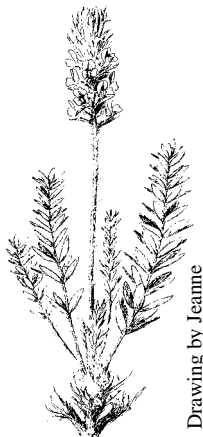
(Continued on page 7)

MOUNTAINS, REEFS, and PLAINS

The 2002 MNPS
Annual Meeting
June 28-30

DON'T MISS IT!

See the enclosed
registration
insert.



Drawing by Jeanne

Oxytropis splendens

the scientific discoveries. That same year *Flora Americae Septentrionalis* (Latin for *Flora of North America*) by Frederick Pursh was published in London. That volume described 132 plant species collected by Lewis and Clark on the Expedition, and included 13 plates illustrating them. This was the first botanical manual to span the continent, and it contained many interesting species from the Northwest. Beargrass, bitterroot, pink monkey-flower, shiny Oregon-grape, mockorange and scarlet gilia, an-



President's Platform

Betty Kuropat



Gardening with Natives

For years our Society has been promoting using native plants for landscaping, revegetation, and restoration projects. Now people are catching on and want to know how. People are turning to native plant societies in every state to help them get started using native plants. Some people want to grow a few natives in their garden. Some want to use natives for revegetating disturbed sites, such as roadsides or old gravel pits. Others want to restore native plant communities in old agricultural fields or "weed patches".

Some of our members are experts at (and many of us are trying to learn about) propagating native plants, using native plants for revegetation projects, and restoring native plant communities to disturbed sites. The Society and other organizations in Montana have several efforts in progress to respond to the requests we are getting and to reach out and promote using native plants.

MNPS Small Grants have been awarded to 4 native garden projects in the last 3 years. Several chapters are working on native gardens in their communities.

The Conservation and Landscape Committees are working on some voluntary guidelines for landscape and nursery professionals to help avoid introducing exotic or invasive

plants through their industry. The issues of introducing exotics and using native alternatives in landscaping are getting a lot of attention nationwide and have been the subject of articles in a variety of trade and scientific journals. A group of nursery professionals and other experts are currently developing codes of conduct for nursery professionals that should compliment the MNPS guidelines.

The Landscape committee is also revising our popular *Source Guide for Native Plants of Montana*. This is a handy compilation of where to get native plants and seed. It is cross-referenced so you can look up a plant and find out where to get it, or you can look up a nursery and find out what they sell. It also has guidelines for collecting plants. The new edition should be ready in time for our Annual Meeting in June.

The Flathead Chapter is compiling a set of handouts tailored to different types of requests they commonly get on how to plant natives and "What should I plant?" See page 6 for more information.

The USDA Bridger Plant Materials Center recently published an excellent booklet called *Creating Native Landscapes in the Northern Great Plains and Rocky Mountains*. It is full of "how-to" information, tips, and species descriptions and require-

ments. In the Winter 2001 *Kelsey*, Susan Winslow described this publication and how to get a copy.

There are several other publications, species lists, demonstration gardens, and practitioners that all add to the momentum for people successfully using native plants. Keep up the good work and share your ideas and experiences in the *Kelsey* so we can all keep learning.

Collection Guidelines for School Teachers

Another project we have been talking about for years is now done, thanks to Gertrud Lackschewitz and a small committee composed of MNPS members and educators. Many school teachers teach plant identification, ecology, basic botany and other topics that require the students to collect, identify, and mount specimens. MNPS members are often asked to come into the classroom to help after the students have collected their assigned plants, or to participate on plant collecting field trips. We wanted to provide teachers with some simple guidelines they can work into their curriculum so they can consistently teach minimum impact and proper collection techniques. This brochure will be available soon from Linda Iverson, Publications Chair, and on our website. See page 7 for additional informa-

Betty can be reached at 2688 Witty Ln. Columbia Falls, MT 59912 406-892-0129 e-mail: edk@digisys.net

WELCOME NEW MEMBERS!

Laura Alvey, Jerry Anderberg & Assoc., Aquatic Design & Construction, Tim & Beth Baker, Lex Blood, Kirsten Boyle, Corps of Engineers, Bonnie Chasteen, Jane Compton, Cathy Cripps, Deep Creek Green LLC, Jeff Dibenedetto, Paul Edwards, First Creek Seeds, Glacier Nursery, Gretchen Grayum, Jim Greene, Glenda Hammond, Roger Hayes, Sandy King, Laura Jones Lofink, Ronda Love, Janet McMillan, Missoula Urban Demonstration Project, Maria Newcomb, Yvette Ortega, Lori Jo Ortle, Jim & Cindy Romo, Kathy Ross, Cathy Schloeder, Shades of Green Landscaping, John Sheldon, Phyllis Smith, Spearmint Springs, Pete Strazdas, Mark Teply, Giles Thelen, Norm & Cathy Weedon and Karla Wiencek

Vote in 2002

It's Election Time! Don't be apathetic and throw the enclosed ballot away, like you've done for years. For the first time the Board of Directors has decided to award \$100 to the MNPS chapter with the largest percentage of votes (see page 4). The Election Committee is proud to announce that incumbents Patrick Plantenberg and Pattie Brown have agreed to run for two year terms (the MNPS Board has not yet felt the need to impose term limits). The most exciting news is that Jennifer Walker of Lewistown has agreed to run for Eastern Representative. If she is elected, she will add her refreshing youthful enthusiasm to the MNPS Board.

CONSERVATION

COAL BED METHANE and PLANTS

The extraction of coal bed methane (CBM) in Montana will adversely affect both native and cultivated plants. This article addresses some of those adverse effects. As you will find out, those are problems enough.

Within the coal seams underlying much of eastern Montana is an available supply of natural gas. The pressure within coal seams must be reduced in order to release the gas, methane. The producers do this by pumping out groundwater within the seams, thus bringing to the surface vast amounts of this water.

Before development of CBM can continue in Montana, the State and the Bureau of Land Management must have an Environmental Impact Statement (EIS). A hastily prepared draft EIS is now available for public comment. The region focused upon is the southeastern section of the state: the Tongue and Powder River basins. However, the joint EIS will apply to all state lands as well as to all federal lands (including Forest Service lands) and mineral rights within Montana. The draft EIS proposes ways in which CBM can be extracted and the adverse effects mitigated. It is up to us, the general public, to urge that those attempts at lessening the damage become part of the final EIS.

The estimates of the number of wells that will be drilled vary considerably. The estimates of the volume of groundwater that will be brought to the surface vary even more. No one really knows the quality of that groundwater until it is brought to the surface and tested. The draft EIS attempts to minimize all of those estimates. Elsewhere one hears obvious exaggerations. Making rational plans becomes a frustrating task.

After the groundwater is brought to the surface there are four options for the producers.

Released: The water can be released into dry washes and ephemeral streambeds to make its way into the rivers. Erosion and increased sediment in the stream is the result.

Stored: It can be stored within impoundments where it will evaporate over time, assuming the impoundments hold. Impoundments are already creating problems by preventing rainwater and snowmelt from reaching the streams.

Beneficial uses: The high estimate is that 20% of the water could be used for beneficial uses, but names only a few such uses. Water for livestock? All the cows in Montana could not drink the volume of water to be released.

Returned to the aquifer: It can be pumped back into the underground aquifer. The producers argue that doing so will defeat the purpose of pumping it out in the first place.

Besides the sheer volume of groundwater, the other concern is the amount of salts it contains. The groundwater contains not just sodium chloride but dissolved sodium ions, calcium and magnesium.

One rancher learned that for each year he used the groundwater to irrigate his hay meadow he would have 1500 pounds of salt dumped on each acre!

Native plants, as well as the hay the ranchers must have for winter-feed, are similarly affected. Will plants presently growing in the soil be able to grow in that altered soil with an irreversible accumulation of salt, after CBM? Riparian areas will be affected in the same manner as the irrigated fields.

There are at least six ways in which the CBM will affect vascular plant life:

Disturbance of the surface: The surface will be disturbed in the process of drilling and producing the methane. Each well site requires roads, utility lines, and pipelines.

Draw down: Removal of the groundwater will lower the water table affecting springs and wet areas where that water has surfaced. Plants growing around those springs and naturally moist areas will be lost.

Noxious weeds: Noxious weeds will be introduced by the increased traffic over disturbed ground. We know how to prevent the introduction of noxious weeds; yet weeds abound all

over Montana. Should we expect the CBM producers to do what Montanans are unwilling to do?

Alters structure of the soils: The excess sodium decreases porosity of clayey soils, which in turn decreases aeration of the soil and reduces the movement of water through the soil.

Salt stress: The increased salinity of the water in the soil decreases the ability of the plant to absorb water. The plants wither even though the soil is moist.

Toxic effects: The excessive sodium replaces the calcium on the plant cell membranes. This disrupts the cell membranes.

Take Action!! Go to the Northern Plains Resource Council's website: www.northernplains.org or call 406-233-3469 to ask that the draft EIS be mailed to you.

Make your comments about the draft EIS and urge others to do so. The draft EIS presents ways in which the damage might be lessened to some degree - if, and I emphasize if, the many federal and state agencies adopt and enforce these recommendations.

Here are examples of a few comments:

Urge monitoring not only of effluent and stream water, but also of soils in irrigated farmland and riparian areas. What limit should be set for the accumulation of salts in those soils? The salt in the soil should be monitored at specified intervals and given any increase in salinity in the irrigated cropland those soils must be protected from salty water.

Recommend that permits to release groundwater be renewed annually. Disposition of the groundwater might have to be altered depending upon the quality and quantity of the water in relation to the effects that release is having downstream. Producers not complying with their permit should have their permit revoked or be fined significantly until compliance is in their financial interest.

CBM extraction is a new challenge to Montana. Though rules and regulations are being hastily prepared, our state agencies do not have the capa-

(Continued on page 4)

...CBM (Continued from page 3)

bility to monitor the effects and police the developers. The overlapping jurisdictions and the need to cooperate across departmental boundaries increase the effort the agencies must expend. It would be best if no further development of CBM were allowed until the state has in place sound rules and regulations and the agencies are appropriately staffed for the additional workload.

No one has presented an analysis of the cost to our state of developing the regulations, issuing permits, monitoring the effects and policing the producers. As taxpayers we might ask if the income to our state from the methane will be more than the cost to the state for administering this "development?"

Written comments will be accepted until May 15. Mail to: Mary Bloom, Project Leader, Bureau of Land Management, 111 Garyowen Road, Miles City, Montana 59301.

Clayton McCracken

The opinions expressed are those of the author and do not necessarily represent MNPS.

Seeds of Success - Intern Positions Available

The Student Conservation Association, in conjunction with the BLM's Seeds of Success program and the Royal Botanical Gardens, Kew, is taking part in a worldwide effort to safeguard plant species against extinction. The program will involve several teams of interns working at various locations in western states. Team members will assist in establishing a high quality native plant species seed collection at the population level. The positions involve long hours in the field in primitive conditions. Required: Coursework in plant taxonomy or local flora, and good plant identification skills, valid driver's license, ability to work as part of a team. Positions start April 1 and April 22 and run for 5 months. Summer positions are also available. For more information contact the SCA recruiting department at 603-543-1700, the website at www.sca-inc.org, or the Program Director David Critton at 206-324-4649.

BOARD NEWS

The Beartooth Mountain Chapter has been idle for several years, with low membership and not many activities. After talking with most of the chapter members, the Board of Directors decided to dissolve the chapter. Members may either join the Artemisia Chapter or become At-Large members. The Beartooth's funds will be transferred to Artemisia's account. We're sorry to lose the chapter and hope it doesn't mean we lose members. Hopefully, they can contribute and strengthen the Artemisia Chapter.

The Calypso Chapter has also been inactive. They have quite a few members, but haven't been doing anything together. Betty contacted all the chapter members and heard back from several that they would like to be more active. They will have a few activities in the next year and may be our next Annual Meeting host. If you live in the Butte or Dillon areas, stay tuned. If you have any ideas for the Calypso Chapter, please contact Betty.

The fiscal year was changed to January 1 through December 31 to facilitate the bookkeeping and banking chores.

If you belong to a chapter, there will be an incentive for you to vote this year, even if there is only one candidate running for each office. The Board decided to offer \$100 to the chapter that returns the highest percentage of votes. This is a way for chapters to participate in state-level affairs and earn a little cash for native plant projects.

We approved a donation of \$500 a year to Friends of the U. of M. Herbarium (to be reviewed annually at the fall Board Meeting) to cover part of the cost of an honorarium for a volunteer curator.

We approved a grant of \$250 to the Bull River Outdoor Education Association to sponsor summer workshops. See page 11 for details on MNPS involvement.

MNPS Awards Policy

The Montana Native Plant Society will have two awards. The **Outstanding Service Award** will be given no more than once a year to a member of MNPS for service to the Society. The award will consist of a certificate accompanied by an individualized gift. The **Special Achievement Award** may be awarded to anyone, member or not, whose work has contributed to the mission and goals of MNPS. The award will consist of a certificate and possibly a small gift. Several Special Achievement Awards may be given in a year at the discretion of the awards committee. Neither award has to be given in any year if the awards committee fails to find suitable candidates. The awards will be presented at the annual meeting of the Society. The call for award nominations will be published in the spring issue of *Kelseya* and any member may make a nomination. The awards committee must receive nominations no later than May 1. All nominations should include a brief statement about the nominee's contribution to MNPS and relate why the nominee should receive an award.

MNPS Issues Policy

The MNPS Board has established a policy on how chapters, area representatives, or others can submit comments representing the Society on an issue. Any letter taking a position on an issue should be reviewed by the appropriate state committee chair and the President to ensure there is no conflict with statewide positions. The President will confirm that true representation has occurred and MNPS is reflected in a professional manner. The state committee chair will confirm that the position is consistent with the purpose, goals and mission of MNPS. The President can waive the need for the state committee chair to review the letter if the chair cannot be contacted in a timely manner.

Eschew Peat, for Pete's Sake!

By Joe Elliott

Peat, a natural organic material that many gardeners till into their flowerbeds and vegetable gardens, helps grow nice tomatoes but is also important ecologically. Fens and bogs, wetlands that accumulate peat, are crucial habitat for many rare plants and animals. The Montana Natural Heritage Program tracks the location and composition of Montana fens in its database because of their rarity and important ecological values.

Peat consists of partially decomposed plants that grow in cold, moist sites, usually where groundwater seeps to the surface. When biomass production of grasses, sedges, mosses, and other plants exceeds the rate of decomposition, peat accumulates at the rate of a few millimeters per year. Fens in Montana can have peat deposits more than five feet thick, indicating that they are thousands of years old.

Although most peat is produced from mines in Canada, Montana has five active peat mines, located in the Big Hole Valley, Swan Valley, and Flathead Valley. The Montana Department of Environmental Quality (DEQ) regulates peat mines under the Open-cut Mining Act, but only if a given operator mines 10,000 cubic yards of peat over the life of operation of a mine (or mines). Because none of the active Montana peat mines meet this production threshold, they are excluded from reclamation, monitoring, and other mining regulations. The total acreage disturbed by active Montana peat mines is currently 5 to 10 acres, and inactive mines total less than 5 acres.

The Army Corps of Engineers (COE) regulates *filling* of wetlands under Section 404 of the Clean Water Act, but does not have jurisdiction over *mining* peat from wetlands. Although COE has specific policies that prohibit placing fill in fens, it does not regulate destruction of fens by

peat mining.

Peat miners in Montana often leave behind water-filled, unreclaimed depressions. DEQ has complaints on file from neighboring landowners claiming that peat mines have lowered the groundwater on their property, killing spruce trees and other vegetation. The steep-walled pits are also reported to trap and drown the livestock, deer, and elk that fall into them.

There do not appear to be any systematic data for the status of fens after peat has been removed. File information at DEQ indicates that



Sphagnum wulfianum

An uncommon *Sphagnum*, not normally associated with peatlands in Montana, but illustrating the *Sphagnum* look.

some fens naturally revegetate fairly quickly, but the composition of the vegetation is not reported. I was not able to find information on the hydrology of fens following mining, but it appears from photographs that ditches constructed to drain fens prior to mining remain after mining is completed. These ditches likely continue to divert water from mined fens, preventing reestablishment of hydrological conditions necessary to support natural fen vegetation.

Reclamation studies in Canada have been ongoing for more than a decade in fens and bogs where the surface layer of *Sphagnum* has been removed. Because of its adsorbent

properties, *Sphagnum* is used worldwide by the pharmaceutical industry in the manufacture of disposable diapers and sanitary napkins.

Canadian studies have found that *Sphagnum* and associated plants are slow to reestablish on the bare peat deposits that remain in place after harvest of *Sphagnum*. These studies focused on reclamation where *Sphagnum* cover had been removed, and not sites where surface vegetation and underlying peat had been mined. Mines that remove peat for gardening and horticulture take the vegetated surface of a fen *and* the underlying peat, leaving no suitable substrate for regrowth of fen species.

Peat is a popular and effective ingredient for improvement of soil structure, but is it worth the destruction of rare and ecologically valuable fens? Compost is easy to make and widely available commercially, from local producers. Compost made from leaves, lawn clippings, and household vegetable waste is as good as, or better than, peat for gardening. Compost provides organic material to improve soil structure and also provides nutrients that typically are deficient in peat.

Using compost rather than peat would benefit several rare orchids, bog lemmings, rare sedges and mosses, and numerous other species, not to mention preserving an aesthetically valuable resource. I intend to stop using peat. Maybe I'll have a bumper sticker that reads "Save a Fen, Eschew Peat."

It has been brought to the attention of the editors that compost may not be a useful substitute for peat in all instances. For example, compost may not have the same absorbent capacity as peat for use in diapers, and compost, used as a sterile dressing, may not be a sufficiently hygienic alternative. For those individuals who line their pith helmets with peat to absorb moisture, compost may be an unhappy choice. For further information, consult your local Master Gardeners' Club.

LANDSCAPING & GARDENING WITH NATIVES

dealing with requests

Over the last few years, the Flathead Chapter of MNPS has received an increasing number of requests for information regarding landscaping and gardening with native plants. Some restoration and revegetation contractors have also contacted us looking for information on the local flora and sources for material.

Our chapter decided it would be prudent to put together a packet to answer some of the typical questions we get asked. The packet will consist mostly of pre-printed material, references, and lists of local contacts to help meet their specific needs, although some information prepared by chapter members will be included as well. We realized that many efforts to provide this type of information are simultaneously occurring, so we wanted to be careful not to duplicate efforts by writing our own "How to..." guide. Also, we didn't overlook the fact that writing our own guide would take a lot more time and effort!

We held a focus meeting in February to specifically address this topic. We identified three audiences that have asked for this information in the past: individual home/small acreage owners who want to garden and landscape with natives; non-profit groups or organizations (i.e. schools, libraries, community centers) that have a desire to landscape with natives in their activities or at their facilities; and for-profit nursery, landscaping, and restoration businesses that need information mostly on what species are appropriate to use locally, and where to get them. In time, we hope to provide tailored information to all these groups. Our goal is to have something available for the first two groups by summer.

I know that there are other folks in MNPS who are working on similar projects. It is my hope that someday soon, some of us can get together with other groups working on similar projects (such as the Bridger Plant Materials Center, local Conservation Districts, native plant growers, etc.) to coordinate production of a native plant gardening and landscaping guide that would present a consistent message. I think MNPS has already done a great job addressing this topic by producing the *Source Guide for Native Plants of Montana* and the collection guidelines. Others, such as the Bridger Plant Materials Center, have also created some great references. Now it's time to go one step further and coordinate our efforts so that when MNPS members get asked, "How do I garden with natives?" we know exactly what to tell them!

The following outline identifies the materials and information we will include in our native plant gardening/landscaping packet. I know many of you have given a great deal of thought to this topic, so your comments and suggestions for improvements to this outline are appreciated.

What should I plant?

- ❖ Our chapter will provide a short list of native species

that we recommend for gardening/landscaping in our area. Species from the four major life forms (trees, shrubs, forbs and grasses) for several different growing sites will be listed.

- ❖ For those wanting more extensive lists of the local flora, we will reference the plant checklists for Glacier National Park and the Flathead National Forest.

Where do I get plant material?

- ❖ A list of the local nurseries and growers and the native species they provide will be included. We plan to update this list annually. This information is also included in the *Source Guide for Native Plants of Montana*, but our list will only include local information and it will be updated more frequently.
- ❖ The *Source Guide for Native Plants of Montana* will also be referenced for more extensive information.

How do I do it?

- ❖ The Bridger Plant Materials Center brochure *Creating Native Landscapes in the Northern Great Plains and Rocky Mountains* will be included (See *Kelsey* Volume 15 No. 2 for information on how to order the brochure). Although not totally applicable to our area, the concepts of using natives, preparing the growing site, and key factors to consider in creating a native landscape are well documented in this beautifully assembled publication.
- ❖ Again, the list of local nurseries and growers will be provided with the expectation that some native plant gardening experts may be on staff.
- ❖ We will provide a list of native plant gardening and landscaping experts that offer their services either for free or on contract.
- ❖ A list references on how to propagate native species by seed will be included.

References

- ❖ We will include a list of references for printed material and websites that we recommend. We will include information on how to obtain these references.

Other material

- ❖ The MNPS Collection Guidelines will be provided, along with a small brochure that we plan to prepare that introduces the topic and provides basic information for the beginning native plant gardener.

Maria Mantas

Call for Award Nominations

The MNPS Awards Committee is seeking nominations for the Outstanding Service Award and the Special Achievement Award (see page 4). If you know of a MNPS member who has contributed something special to the Society, why not nominate them for an award? Or maybe you know of someone who has devoted many years to the flora of Montana or the conservation of habitat, or in other ways has helped to further the goals of the Montana Native Plant Society. Consider nominating them for an award. All award nominations must be received by May 1, 2002. Send your nominations to Peter Lesica, Awards Committee Chair, 929 Locust, Missoula, MT 59802. Don't forget to include a brief statement about why your candidate should receive an award.

PUBLICATIONS

RARE PLANTS FEATURED

The March/April issue of *Montana Magazine* features two MNPS members, Steve Shelly and Maria Mantas, both professional botanists with the U. S. Forest Service. They discuss Montana's diverse plant habitats and the number of rare flowering species, 15 of which are found only in Montana. The 12-page article is lavishly illustrated with color photographs of some of the 337 species of concern tracked by the Montana Natural Heritage Program. Many of Montana's flowering plants occur in less than 20 locations. This rarity may be from unusual habitat requirements, but may also be influenced by various land uses and the spread of aggressive weed species. *Montana Magazine* is available now at retail outlets and excerpts are available at www.montanamagazine.com

MNPS Guidelines for Plant Collecting for Schools

At last! A guide for teachers and educators to use in planning classroom plant collecting activities is available from the Montana Native Plant Society. To get a copy for yourself or your favorite teacher, send a SASE to: Linda Iverson, 1270 Lower Sweet Grass Road, Big Timber, MT 59011 or e-mail: jliver-son@mcn.net

Vascular Plants of Wyoming. Ed. 3 by Robert D. Dorn, 2001.

This work contains a brief introduction, descriptions of families (142) and genera (723), and indented keys to 2509 species or 2800 unique taxa known to occur in Wyoming. All infraspecific taxa recognized are at the varietal level. Dorn 1977 contained 2,144 species, while the first edition of the *Vascular Plants of Wyoming* included 2369 species, and the second edition covered 2398 species. This represents an increase of 365 species since Dorn 1977. Since 1975, 26 species, 1 subspecies and 7 varieties have been described as new to science for Wyoming; 2 species were the sole basis of new genera. Dorn was responsible for 12 of these new species, 5 new varieties, and the novel genus *Yermo*. The appendix of the third edition contains taxonomic notes, references to taxonomic changes, and new nomenclatural combinations (47). Taxon distributions are given in greater detail. Distributed by The Rocky Mountain Herbarium, Department of Botany, University of Wyoming, Laramie, WY 82071-3165. Copies sell for \$20, shipping included in USA. Make checks payable to the Rocky Mountain Herbarium. For info contact Ronald L. Hartman: rhartman@uwyo.edu or 307-766-2236.

Building Inside Nature's Envelope: How New Construction and Land Preservation Can Work Together

by Andy Wasowski with Sally Wasowski, Oxford University Press, 2000.

"In this book, Andy lays out in straightforward fashion and easily understandable terms, the logic and methods for minimizing disruption of natural systems when we build on the land." (From the forward by Darrel Morrison). Andy has written an excellent reference for builders and homeowners that introduces the idea of the envelope, an approach to construction that is cost effective, simple and environmentally responsible. A structure built within nature's envelope looks as if it has been gently set down into a mature and established landscape-which is the easiest kind of landscape to maintain. He highlights useful techniques for revegetation, discusses the importance of soils and argues for the preservation and maintenance of natural habitats. He has written eight books on native landscaping with his wife Sally and is nationally recognized as an expert in this field. His concepts will help us live in harmony with our landscape.

Linda Iverson

...Pursh (Continued from page 1)

work for Dr. Barton, who was planning to write a flora of North America. Pursh claims to have traveled 3000 miles on foot each of these two seasons collecting plants and observing the geography, soil, and vegetation of the Atlantic states. In 1806 he collected 895 plant specimens while traveling through the southern states from Maryland to North Carolina; in 1807 his botanical explorations took him north to New Hampshire and the Great Lakes area.

In 1807 Pursh was introduced to Meriwether Lewis by his landlord, Bernard McMahon, a florist and seed dealer in Philadelphia. Lewis was favorably impressed with Pursh. He left his plant collections with Pursh, and paid him \$60 to organize the collection and prepare some drawings. Lewis told Pursh that he would be back later to help him in the preparation of the botanical material, which Lewis intended to publish with the Journals.

Pursh described the collection received from Lewis as "a small but highly interesting collection of dried plants...consisting of about one hundred and fifty specimens, contained not above a dozen plants well known to me..." [Ewan]. These were the plants that were collected, according to Pursh: "...during the rapid return of the expedition from the Pacific Ocean... A much more extensive one, made on their slow ascent towards the Rocky Mountains... had unfortunately been lost, by being deposited [in caches]...at the foot of those mountains" [Ewan].

Lewis's tragic death in 1809 prevented further collaboration with Pursh, who had sought work in New York. Pursh received additional funds from Clark in 1810 for the work contracted by Lewis. However, apparently without Clark's permission, Pursh retained a copy of the drawings and duplicate plant specimens from Lewis's collections, some appearing to have been snipped off the collections that were left in Philadelphia. Clark reminded Dr. Barton of his agreement to help with the Lewis and Clark plant discoveries, but Barton failed to follow up, and the planned volume documenting the scientific discoveries of the Expedition never materialized.

Pursh's story will continue with Part 2 in the Summer, 2002 Kelsey.

Big Sky Sketches

By James R. Habeck

Montana Blue Violet: More Than Just a Pretty Face

Everyone knows how the lyric begins: "Roses are red, violets are blue..." This poetic reference to violets could be directly applied to the Western Montana Blue Violet which occurs widely in many of our undisturbed shrub-grasslands and forests. Blue Violet spans North America from the Pacific Northwest to the Atlantic Coast. In west-central Montana there are about ten different species of violet, colored white, yellow, purple or various shades of blue. Violets and pansies are in the same plant family.

The petal bases of our common wild Blue Violet may be tinged with a whitish color. The Blue Violet usually seen in our area is *Viola adunca*, named by J. E. Smith in 1817. Blue Violet and its varieties, occur from valley floors at 3000 feet, up to subalpine meadows at timberline over 9000 feet. If encountered without developed flowers, Blue Violet plants may be identified by their ovate, spade-shaped or heart-shaped leaves.

A variety of archaic-sounding, descriptive terms, often of Greek origin, are associated with our native violets, such as: "zygomorphic", "cleistogamous", "caruncle" and "myrmecophily", terms coined by early-day botanists to describe special features of violets. First of all, the violets we see in early spring, exhibiting showy, blue-purple flowers on long scapes, have five petals, but one is shaped into a narrow, basal, often hooked, spur. The spur is equipped with a nectar gland at its base. This spur gives the violet flower the appearance of being irregular in shape. This condition is called, "zygomorphic", or

"bilaterally symmetrical", meaning the violet flower can only be divided into two equal halves along one plane.

Early spring brings the conspicuous, showy flowers we all know and admire. However, these gorgeous flowers may not, strangely, be the ones importantly involved in the Blue Violet's routine annual seed production, even though the bright, blue flowers are equipped to engage in sexual reproduction. What's going on? What happens, a bit later in midsummer, is the development of flowers having no petals at all. These petal-less flowers (called "apetalous") are inconspicuous or completely out of sight; that is, hidden in the litter layer or even subterranean! By design, self-pollination is assured and takes place in closed flower buds, usually yielding an abundance of seeds within the violet fruit capsules. After fertilization, the maturing fruits work their way to the soil surface for seed dispersal. The term "cleistogamous" is employed by botanists to describe this form of cryptic, "secret" reproduction, which takes place within closed flower buds.

Why might violets have such showy flowers if they're not importantly involved in reproducing the species? Why the secret, underground reproduction? It seems like a waste of energy to produce conspicuous flowers that yield nectar (a food reward for visiting insects), but then rely on cleistogamy. What's going on? Common sense suggests a fail-

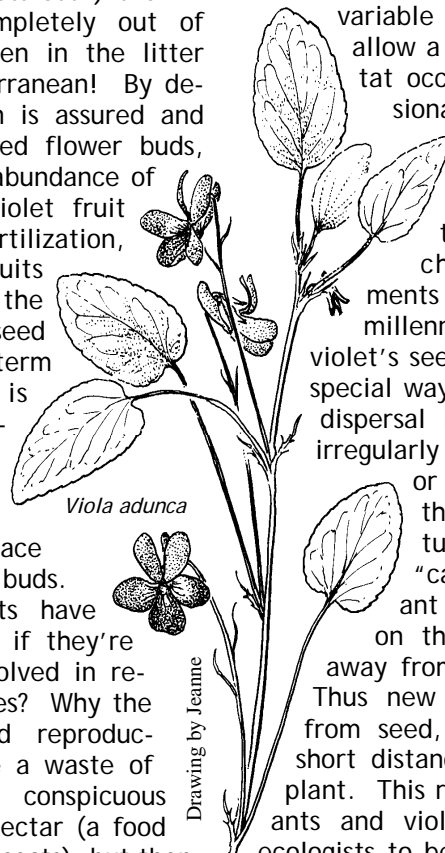
safe, long term survival mechanism at work. Self-pollination serves short term success, maintaining the genetics-based adaptations for the specific habitat a violet plant is growing in, either a shady forest or sunlit meadow. Off-spring from self-pollination are better adapted for the same habitat the parents are occupying.

However, plant geneticists also suggest that the long term survival of violet species is enhanced by preserving the flower structures that allow occasional cross-fertilization (or "out-crossing"), thus the need to maintain the showy flowers. Sexual reproduction of this usual kind has the potential of generating greater genetic diversity amongst the offspring, and these "new" violets may successfully establish in different habitats than the parent plant. This double sex life has probably been happening for a very long time and explains why we can find Blue Violets in so many different habitats. The Blue Violets we see are given the same Latin name because they look

alike, but they are genetically variable in subtle ways that allow a wide range of habitat occupancy. The occasional exchange of pollen between different violet plants also facilitates survival in changing environments and climates over millennia of time. Finally, violet's seeds are adapted in a special way to encourage their dispersal by ants. A small, irregularly shaped outgrowth or knob of tissue on the side of the mature seed, called a "caruncle", allows an ant to take a firm grip on the seed to carry it away from the parent plant.

Thus new violets, originating from seed, appear at least a short distance from the parent plant. This relationship between ants and violets is believed by ecologists to be a form of mutualism, called myrmecophily. This is an

(Continued on page 12)



CALENDAR

ARTEMISIA CHAPTER

Saturday, June 1, 9:00 a.m.

"Meteetse Spires", led by Dr. McCracken, and co-sponsored by the Montana Wilderness Association (MWA). Meet at the Red Lodge Ranger Station at 9 a.m. for convoy coordination and information sharing. Bring water, lunch, camera and hiking boots. Contact Clayton McCracken at 252-2807 or e-mail: chmc9@attbi.com

Saturday, June 8, 7:30 a.m.

"Pryor Mountains Wildflower Tour" with Hal Vosen and Edwin Jacobson of the Lewis & Clark Trail Heritage Foundation. Meet at 7:30 a.m. at the MSU-Billings Science Hall parking lot for convoy coordination, maps and directions. We will make a brief stop across from the Post Office in Bridger to await stragglers and those meeting us there, before heading east to the Pryors. Bring water, lunch, camera, rain/windbreaker, and binoculars. Contact Hal Vosen at 232-2608 or htrees@midrivers.com or Edwin Jacobson at 252-2568.

Saturday, July 6, 8:30 a.m.

"Beartooth Pass Ski Area", led by Jerry Moore. Meet at the Red Lodge Ranger Station at 8:30 a.m. for convoy coordination and information sharing. Bring water, lunch, sunscreen, camera, rain/windbreaker and sturdy shoes for walking on rock. Contact Jerry Moore at 628-7367 or joyjerry@earthlink.net

CALYPSO CHAPTER

Annie Greene 683-6594

CLARK FORK CHAPTER

Thursday, April 11, 7:30 p.m.

Get ready for wildflower season. Join Missoula photographers who will show slides of "Montana's Forest Wildflowers." Rm. L14 Gallagher Business Bldg, UM Campus.

Thursday, April 18, 6:30 p.m.

Peter Stickney, plant ecologist, will introduce us to late winter and early spring flora. He will teach us how to recognize last year's seed heads and this year's rosettes. Meet at the

trailhead at the base of Mt. Sentinel.

Thursday, May 9, 6:30 p.m.

"Spring Potluck" at Gertrud's home, 6322 Woods Road. If the weather cooperates we'll tour the gardens created by her husband, Klaus. Bring a plate, utensils and a dish to share. Call 543-5009 for information.

Wednesday, May 15, 6:30 p.m.

Celebrate Wildflower Week and join us for a wildflower identification walk on Mt. Sentinel's traverse trail. Paul Alaback, ecologist at the University of Montana, and Anne Garde, plant connoisseur, will lead the easy walk. Meet at the trailhead at the base of Mt. Sentinel.

Thursday, May 16, 7:30 p.m.

Celebrating Wildflower Week, Marilyn Marler, noxious weed coordinator, will lead a wildflower walk to the saddle of Mt. Jumbo. She will also show ongoing methods of weed control on Jumbo. City Parks & Recreation is the co-sponsor. Meet at the Lincoln Hills Trailhead. Contact Marilyn at 243-6642.

Saturday, May 18, 9 a.m.-12:00

Annual Farmer's Market-Montana Native Plant Society Plant Sale.

Tuesday, May 21, 7:00-p.m.

Dyer's Woad Weed Pull #1. The Chapter is paid \$10.00 an hour per person, up to a total of \$400.00. Ten years ago the Dyer's Woad infestation was 7000 plants; now we are pulling only 400 plants a year. The pull takes about two hours. Call Marilyn at 243-6642.

May 20-24

This is Weed Week! Get out and pull a few noxious weeds!

Wednesday, May 22, 2-8:00 p.m.

There will be information and speakers at the Boone and Crockett Club. Come discuss land management goals, weed control methods, and revegetation options.

Thursday, May 23, 6:30 p.m.

Join Peter Lesica, botanist and naturalist, for an "Exotic Plant Field Trip" in his yard. Learn about plant diversity in your own backyard and enjoy some of Peter's famous homemade pie. Meet at 929 Locust in the lower Rattlesnake or call 728-8740.

Sunday, June 2, 11:00-4:00 p.m.

Celebrate the 100th birthday of Greenough Park! The Native Plant Society will have an information booth, selling seeds and plants. We will also lead a field trip in the park. Contact Kathleen Kennedy at 543-3189 for more details.

Tuesday, June 4, 7:00 p.m.

Dyer's Woad Weed Pull #2! Contact Marilyn Marler at 243-6642 for info.

Thursday, June 13, 7:30 p.m.

Come help John Pierce weed and maintain his prairie at John Toole Park.

Thursday, June 20, 6:00 p.m.

Helen Atthowe, Missoula County Extension Agent, will teach us about "Insects and Diseases that Attack Native Plants." The meeting place will be later listed on our webpage www.umt.edu/mnps/clarkforkchapter.htm or contact Helen at 777-3723 or Kelly at 258-5439 for information.

EASTERN MONTANA

position vacant

FLATHEAD CHAPTER

All Flathead Chapter meetings are at the Montana Logging Association Building, 2224 Highway 35, east of Kalispell, across and just east of Hooper's Nursery. The conference room door is at the back of the building. Everyone is invited to the 5:30 general meeting. Programs start at 7:00. Call Rachel Potter (892-2446) for more information.

Wednesday, April 17, 7:00 p.m.

"Native Plant Gardener's Open House." Native plant growers of the area will be invited to share information on how to obtain and grow native plants. Bring your own success stories to share with other gardeners! Native plants will also be available to purchase.

Every Tuesday in May and June

"Bigfork Wild Mile Corridor Wildflower and Bird Walks." 10:00 a.m. to noon. Join Anne Morley of the Native Plant Society and Neal Brown of the Flathead Audubon Society for a gentle morning of wildflower and

(Continued on page 10)

...**Calendar** (Continued from page 9)

bird identification. This is an easy 2-mile hike along the Old Swan River Road. Meet in front of Showthyme! Restaurant in downtown Bigfork. Contact Neal at 837-5018 for details.

Wednesday, May 15, 7:00 p.m.

Maria Mantas, Flathead National Forest Botanist and Flathead Chapter President will give a hands-on workshop on "Preparing Herbarium Grade Plant Specimens" (collection ethics will also be discussed).

Saturday, May 18, 8:00 a.m.

"Birds, Wildflowers and Journaling." Hike the 3-mile Estes Lake Trail on Crane Mountain, south of Bigfork, with Cristina Eisenberg and Pattie Brown. This hike, a cooperative hike with Flathead Audubon, will be slow-paced with an emphasis on observation and listening. Bring lunch, water, field notebook, plant and bird field guides, hand lens, and drawing pen or pencils. Meet at the Raven in Woods Bay at 8:00 a.m. to arrange car-pooling for this one-way hike. Call Pattie at 837-5018 for reservations.

Saturday, June 1, 9:00 a.m.

"Karen May's Native Orchid Nursery." 9:00 a.m. to noon. Karen and Rod May have discovered ways to successfully propagate some of Montana's rare and beautiful native orchid species. Come and visit their operation in Ferndale and see some of their successes in full bloom! Reservations required. Call Maria Mantas at 862-3044 for more details.

Friday, June 7, 6:30 p.m.

"Johnson Mountain Terraces." This is an easy, off-trail, 3-mile round trip hike to mossy bedrock terraces with a variety of diminutive plants. Meet at 6:30 p.m. at the Tally Lake Ranger Station on Hwy. 93. Call Mary or Gary Sloan for info at 862-3360.

Wednesday, June 19, 5:30 p.m.

"Spring Creek Cemetery." 5:30 p.m. to 8:00 p.m. Visit an old cemetery in the West Valley where a rare remnant patch of native grassland still exists. See what the Flathead Valley floor looked like 200 years ago before cultivation and development. Call Maria Mantas at 862-3044 for details.

KELSEY CHAPTER

Kelsey Chapter programs will be held

throughout the spring. Members will be notified by e-mail or telephone and by a notice in The Independent Record. For more information call Kathy at 449-6586.

Tuesday, April 9, 7:00 p.m.

Hands-on moss! The study group will be led by Andrea Pipp in room 321 in the Science Bldg. at Carroll College. Bring your hand lens and moss keys.

Saturday, April 13, 9:00 a.m.

Moss hike led by Andrea Pipp and Drake Barton. Meet by Center Stage in the Lundy Center parking lot for carpooling. Call Drake at 449-6586 for information.

Tuesday, April 23, 7:00 p.m.

Cathie Jean, Montana Natural Heritage Program ecologist, will present a program called "Plant Communities Natural to Montana's Ecoregions" at the Lewis & Clark Library.

Saturday, May 18

Join the Kelsey Chapter and Montana Wilderness Association (MWA) for a trip to Crown Butte. The hike is led by Helen Fee, Diane Cannon and Drake Barton. Reservations are required. Call 933-5760.

Tuesday, May 21, 8:45 to 12 a.m.

Celebrate National Wildflower Week by sharing your appreciation for native plants with Helena students. Call Kathy Martin at 443-1712 to sign up as a hike leader.

May 24-26

The Great Divide Orchid Society's annual orchid show and sale will be held in the Capital Hill Mall. Stop by!

Friday, June 14, 6:00 p.m.

Join Celestine Duncan, Barbra Mullin and Mel Brown for a weed walk on Mount Helena. The hike will focus on weed species and management issues. A picnic supper will be provided. Meet at 6 p.m. at the Mount Helena parking lot.

Sunday June 16

Join the Kelsey Chapter and MWA for a history and wildflower hike to Lewis & Clark Pass. Wilbur Rehmann will fill us in on the history and Drake Barton will help with plant ID. Reservations are required. Call Wilbur at 443-5677 for details.

Wednesday, June 26, 6 p.m.

Join the Kelsey Chapter and MWA for a joint hike into the Brooklyn Bridge area. Led by Tim Baker and Kathy Lloyd, the hike will focus on birds,

wildflowers and management issues for the area. Bring a picnic dinner. Reservations required. Call 449-6563.

MAKA FLORA CHAPTER

Aldon Joyes 385-2579

VALLEY OF FLOWERS

Valley of Flowers Chapter meets the second Monday of each month. Programs will begin at 7:00 p.m. in Room 108 (on the first floor using the door at the bend of the "L") of the Agbioscience Building on south 11th. Parking is available in the lot to the north of the building (they do not require a permit at night). For more information call Joanne Jennings at 586-9585.

Monday, April 8, 7:00 p.m.

Peter Lesica will present "Ecology and Natural History of Woody Draws in Eastern Montana."

Monday, May 13, 7:00 p.m.

Dick Pohl, MSU Horticulture professor will speak on "Working with Natives." A work Saturday will follow at the Wally Byam park at the corner of South 11th and College.

WESTERN MONTANA

Sal Culotta 837-4298

Thursday, July 11

"Noxious Weeds: The Bandits in Our Woods" sponsored by the Glacier Institute and supported with a grant from MNPS. FREE. To register call 406-755-1211.

Saturday, July 13, 8:00 a.m.

"The Turrets of Government Mountain." Join Pete Lesica for a moderately easy hike along the rocky crest of Government Mountain near Noxon. Meet at 8:00 a.m. in front of the Noxon Cafe. Following the hike will be a potluck at Jill Davies'. For info contact Dennis Nicholls at 406-847-2040 or e-mail: trj@blackfoot.net

August 2-4, 8:00 a.m.

"Scotchman Peak #2." A joint MWA and MNPS overnight hike led by Dennis Nicholls. The hike covers 20-25 miles, beginning at Spar Lake and ending at Ross Creek Cedars. This strenuous backpacking trip is geared for experienced hikers who want to

(Continued on page 11)

...Calendar (Continued from page 10)

explore the rugged backcountry of the West Cabinets on the Montana/Idaho border. Meet at 8:00 a.m. at Bull River Country Store at the junction of Hwy 200 and Hwy 56. Reservations required and group size limited. For info call Dennis Nicholls at 847-2040 or e-mail: trj@blackfoot.net
Saturday, July 27, 8:00 a.m.

"Dad Peak - Wilderness Ecology Hike" led by Peter Landres and Dennis Nicholls. This day hike into the Cabinet Mountains Wilderness will focus on the ecological management of Wilderness with Peter Landres, Research Ecologist for the Aldo Leopold Wilderness Research Institute in Missoula. The trail begins in Devil's Club Creek and is 10-12 miles round trip. Meet at 8:00 a.m. at Bull River Country Store at the junction of Hwy 200 and Hwy 56. For info contact Dennis at 847-2040 or e-mail: trj@blackfoot.net

MAKA FLORA NEWS

The Maka Flora Chapter has been working on several projects since last fall and hopes to be ready for hands-on field work this summer.

A request was made, and recently granted, by the Richland County Commission for chapter members to establish native plantings in several flowerbeds on the grounds of the county courthouse located in Sidney. Ramona Raffaell and Becky Kallevig will oversee the work, which will begin this spring.

Chapter members in Westby have been working with the Fish and Wildlife Service and The Nature Conservancy to secure funding from the Department of Interior's Challenge Grant program. The dollars will be used to develop three all weather panels to be mounted in the Westby community information kiosk, located along Highway 5. The panels will have photos, artwork and information on grassland ecosystems, individual plant species and grassland dependent wildlife species. The goal of the display is to raise awareness of grassland issues and values.

The chapter has committed itself to conducting a plant species inventory on a parcel of grassland that is controlled by the Medicine Lake Wildlife Refuge. In addition to the data, the

time contributed will be used as an in-kind match for a federal grant that has been approved for use on the Refuge.

Aldon Joyes

ARTEMISIA NEWS

Bill Milton of Roundup, a member of the Artemisia Chapter, was one of three individuals recently honored by the Public Lands Foundation in Washington DC. BLM director Kathleen Clarke presented Milton with the Outstanding Public Land Professional Award for his work as a facilitator in a series of meetings to develop a public-access plan in the Knowlton area, east of Miles City in southeastern Montana. Milton is a member of the BLM's eastern Montana Resource Advisory Council.

Hal Vosen

NORTHWEST NEWS

A partnership that has come to be known as the Bull River Outdoor Education Association (BROEA) is entering its ninth year, and a fine slate of programs is being prepared for this summer. What began as a modest effort to teach children about Nature has grown into a full-fledged educational program for kids and adults alike. BROEA is based in the Noxon area and was the brainchild of several members of the Cabinet Resource Group (CRG) in the early 1990s.

For the first few years the historic Bull River Ranger Station (the site of last year's MNPS Annual Meeting) was home to many successful presentations. The strong support of the Kootenai National Forest, and especially personnel at the Cabinet Ranger Station, has helped sustain the program all these years.

In addition to CRG and the Forest Service, other contributors include our own Montana Native Plant Society, the Cabinet Wilderness Historical Society, and the Liz Claiborne and Art Ortenburg Foundation.

This year MNPS is contributing in a larger way than ever before. At the spring board meeting in Helena the board agreed to commit \$250 to the effort. That will allow the organizers to promote MNPS throughout the summer at all the programs and in

all the PR materials that are distributed to local media. Though the schedule is still highly in flux, some of the programs coming up include "Following the Lynx Pathways" with Brian Baxter; an "Ice Age Floods Driving Tour" with representatives from the Ice Age Floods Institute; two programs called "Discovering the Yaak", potentially with renowned author Rick Bass; "Into the Turrets," a hike on Government Mountain with Pete Lesica; "Wilderness Ecology in the East Fork Bull River" with Peter Landres; and more. For more information and a definitive schedule, contact Dennis Nicholls at 406-847-2040 or by e-mail at trj@blackfoot.net

Dennis Nicholls

ELECTION NEWS

Newsletter Co-editor, Kathy *Lloydia* interviewed a member of the Election Committee from *Townsendia* and filed this report: When asked by *Lloydia*, "Why does the committee feel the need to award MNPS voters to get out and vote?", the Committee member, who asked to remain *Euonymus*, said, "Past election results has been *miserabilis!* We felt the need for some *media* attention to *inflata* the turnout at the *Poalls*. *montanus* Board members are not any different than those politicians in *Washingtonia*. Money talks. Look at the scandals associated with national elections since Nixon and *applegatei*. Since that time, that *Actaea* from *californicum*, *Clintonia* and *Hilaria* from *arkansana*, and those two exotic Bushes from *Taxus* haven't done any better. But they get elected! This has been going on for years. *Franklinii* and his new *Dahlia* was no different. It affects both parties whether they are donkeys or *Elephantella*. Let's face it, MNPS elections are a *Hellebore*. We need to get voters *backii* in the process. This may affect out *integra*. It may have a *foetida Aira* about it, but I *Betula* election results will be *spectabilis!*"

Editors' Note: You don't have to talk like this to be a MNPS Board member!

Pat Plantenberg

SMALL GRANT REPORT

SMALL GRANTS AWARDED

The MNPS Board of Directors, in conjunction with the Small Grants Committee, is pleased to announce the recipients of the 2002 Small Grants competition. The purpose of the small grants program is to support research and/or education activities that lead to better understanding, appreciation and conservation of Montana's native flora. We received five excellent proposals encompassing conservation, education and research projects. Choosing which proposals to fund was difficult because all the proposals were worthy of funding!

Two proposals were selected for funding at \$500 each. These include one conservation education project in the Bozeman area and one research project in the Missoula area. Descriptions of the projects follow below. Recipients will provide a final report and an article to be published in a future issue of the *Kelsey* newsletter. Thanks to everyone who participated in this year's competition. And the winners are...

Longfellow School Sculpture Native Plant Garden

This project will create a native plant exhibit within a small area surrounding a student-made sculpture/school sign. The students and parents from 5th grade classes will be involved in preparing and planting the garden. The teachers will use a private contractor and "Looking Back, Looking Forward" a native plants educational trunk (1997 Small Grant recipient) to design the garden and familiarize the students with native plants. Plants indigenous to local wild areas, some with historical and medicinal significance, will be planted. All plants will be obtained from nurseries and plant sales. Long term plans are to collect seed and/or cuttings to be grown at the MSU Plant Growth Center. These plants would be used to create further native plant garden areas on the other side of the school building.

Trillium ovatum in Western Montana - Implications for Conservation

This project will focus on advancing general scientific understanding of the problem of harvest of special (non-timber) forest products in Montana since the passage of Montana Legislature Senate Bill 178. A research project was started in 2001 to study Western Trillium, which is protected by SB 178, to provide local demographic documentation of this herbaceous perennial. The study will entail literature review, data review, documentation of historical range, and research of medicinal uses. To study population structure, plants will be aged by counting annual constriction rings on the rhizome to determine the relationship of rhizome development across a range of environments. Seeds will be collected for further studies on germination requirements. Because of the concern for over harvest of this market-driven product, documentation of historical range, use, and population structure is important in the conservation of this species.

Rachel Feigley

Thanks to Rachel Feigley for leading the Small Grants Committee since 1999 and welcome Cathie Jean, the new Small Grants Committee Chair. If you would like to become more involved with the Small Grants Committee call Cathie at 406-449-7354.

Montana Native Plant Society on the Web!

If you have internet access and haven't looked at our website, it's time you did. Our Webmaster, Marilyn Marler, wants to know what ideas you have to enhance it. How about an information exchange about gardening or good places to view plants? How about a seed exchange page? If you have any ideas, please share them with Marilyn at: marler@selway.umt.edu

Our web address is:
www.umt.edu/mnps/

...Violet (Continued from page 8)

obligate interaction, meaning the ants and violets would be worse off if the interaction didn't happen. Other literature describes violet seeds being ejected with some force from exploding mature fruit capsules. All in all, it appears a lot of interesting complexity has evolved amongst our violets which ought to command more of our attention when we see them in their native habitats. There's a lot more to violets than just their "pretty faces."

A subspecies of the common Blue Violet is restricted to very high elevations, in contrast to the variety we see at lower zones. The subalpine-timberline variety of Blue Violet is much smaller in size, usually no more than 2 inches tall; those found at lower elevations may reach heights of 8-10 inches. Collections of *Viola adunca* in the University of Montana's herbarium, reveal the wide range of habitats Blue Violet occupies: coarse, granitic, soils near Lolo Hot Springs, moist, shaded forests in the vicinity of Glacier Park, wet streamside sites, mossy hummocks, spruce thickets, and high country meadows on the Continental Divide. This range of habitats reflected in herbarium collections, supports the notion of significant genetic variation related to habitat selection. The Blue Violet occurs generally as a single cluster of stems, with the next one often occurring at some distance away; this might be explained by the methods of seed dispersal. Rarely do violets exhibit expansive mats or dense clusters.

Violet flowers are edible and palatable; people place them atop green salads to add brightness, but it's recommended that garden-grown violets be used rather than native ones. While violet flowers are perfectly safe for human consumption, the leaves are not! The leaves contain soap-like chemicals called saponins that can cause stomach distress if eaten in large amounts. Violet leaves and roots were used by Native Americans as laxatives and emetics. If you intend to live off the land, stay away from the violet's leaves; they're pretty to look at, but pack a wallop if eaten as salad greens!

MNPS FISCAL YEAR 2001 BUDGET SUMMARY

<u>CATEGORY</u>	<u>ACTUAL EXPENSES</u>	<u>DIFFERENCE</u>	<u>PROPOSED EXPENSES</u>	<u>PROPOSED INCOME</u>	<u>DIFFERENCE</u>
GENERAL OPERATING EXPENSES					
Membership	-91.00	+ 5359.00	- 275.00	4500.00	+ 4225.00
Newsletter*	-3986.00	- 3986.00	- 3600.00	0.00	- 3600.00
Operating Budget	- 324.00	+ 894.00	- 1750.00	950.00	- 800.00
Interest Income (0.00)	(678.00)	(0.00)	(750.00)	(200.00)	
Board Expenses (136.00)	(0.00)	(750.00)	(0.00)	(200.00)	
Donations	(0.00)	(0.00)	(100.00)	(0.00)	
Awards	(0.00)	(0.00)	(700.00)	(0.00)	
Committees	(50.00)	(0.00)	(200.00)	(0.00)	
Brochure Design & Printing	(38.00)	(0.00)	(0.00)	(0.00)	
Website	(100.00)	(0.00)	(0.00)	(0.00)	
TOTALS	- \$4401.00	+ \$2267.00	-\$ 5625.00	+ \$ 5450.00	- \$ 1775.00
SPECIAL PROJECTS					
Projects:					
Source Guide & Publications	-2323.00	- 2209.00	-2850.00	+ 50.00	- 2800.00
Small Grants Fund**	(- 134.00)	(114.00)	(- 850.00)	(50.00)	
Miscellaneous Projects	(-1000.00)	(0.00)	(-1000.00)	(0.00)	
- Audubon	(-1189.00)	(0.00)	(-1000.00)	(0.00)	
- Water Howellia (\$500.00)					
- Weed Calendar (\$29.00)					
Fundraisers:					
Annual Meeting 2001	-1962.00	+ 427.00	- 900.00	+ 1725.00	+ 825.00
Notecards	(2.00)	(39.00)	(0.00)	(25.00)	
TOTALS	- \$4285.00	- \$ 1782.00	- \$2280.00	+ \$ 925.0	- \$1975.00
SUMMARY TOTALS	- \$ 8686.00	+ \$ 485.00	-\$ 9375.00	+ \$ 7225.00	- \$ 2150.00

Savings: \$11,564.00
 Checking: \$ 301.00
 CD: \$10,000.00
 Total: \$21,865.00

Water Howellia Fund: \$839.72 sent to Flathead Chapter for interpretive sign (plus \$660.28 from this year's budget = \$1500.00)
 Friends of Echinacea Fund: \$183.14 (Hal Vosen, 12/31/2001)
 ** Glacier Institute (\$500.00): Central School, Whitefish (\$500.00)

2001 Annual Meeting Summary:

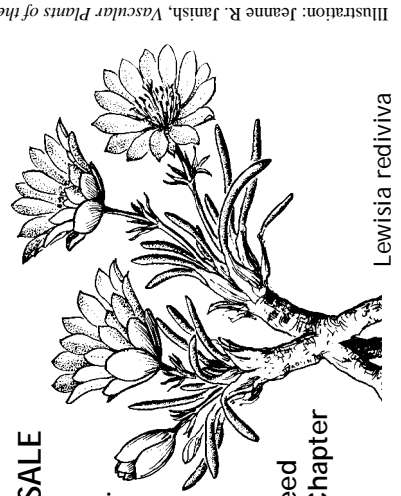
<u>Income/Expenses</u>	<u>Notes</u>
\$60.00	D. Nicholls, expenses
\$1058.70	T-shirts, Total Screen Design
\$224.55	W. Phillips, books
\$21.00	W. Phillips, book \$ donation
\$ 2.00	T-shirts
\$15.00	K. Lloyd, copying expenses
\$160.00	hats
\$224.75	t-shirts
\$1040.00	W. Phillips, books
\$545.00	Pre-registration
\$300.00	Registration and t-shirts
\$189.00	Action items
\$ 20.00	Canopy rental
\$135.00	beer keg
\$250.00	porta potties
\$1960.25	Guest speaker, travel and fee
\$2349.75	SUMMARY

MONTANA NATIVE PLANT SALE

SATURDAY, MAY 18, 9-12 A.M.

**FARMERS' MARKET IN
 MISSOULA
 (NORTH END OF HIGGINS AVE.)**

**Beautiful natives grown from seed
 by members of the Clark Fork Chapter**



Lewisia rediviva

Illustration: Jeanne R. Jamish, Vascular Plants of the

MNPS PROPOSED 2002 BUDGET

<u>CATEGORY</u>	<u>PROPOSED EXPENSES</u>	<u>PROPOSED INCOME</u>	<u>DIFFERENCE</u>
<u>GENERAL OPERATING EXPENSES</u>			
Membership	- 100.00	+ 5000.00	+ 4900.00
Newsletter	- 3600.00	0.00	- 3600.00
Operating Budget	- 1050.00	+ 850.00	- 200.00
Interest Income	(0.00)	(650.00)	
Board Expenses	(- 250.00)	(0.00)	
Donations	(0.00)	(200.00)	
Awards	(- 350.00)	(0.00)	
Committees	(- 150.00)	(0.00)	
Brochure Design & Printing	(- 300.00)	(0.00)	
Website	(0.00)	(0.00)	
TOTALS	-\$ 4750.00	+\$ 5850.00	+ \$ 1100.00
<u>SPECIAL PROJECTS</u>			
Projects:	- 4450.00	+ 1000.00	- 3450.00
Source Guide & Publications	(- 950.00)	(1000.00)	
Small Grants Fund	(- 2000.00)	(0.00)	
Chapter Projects	(- 1000.00)	(0.00)	
Friends of the Herbarium	(- 500.00)		
Fundraisers:	- 3550.00	+ 4050.00	+ 500.00
Annual Meeting 2002	(- 2600.00)	(2800.00)	
Glacier Flora	(950.00)	(1250.00)	
Notecards	(0.00)	(0.00)	
TOTALS	- \$ 8000.00	+ \$5050 .00	- \$2950.00
<u>SUMMARY TOTALS</u>	<u>-\$12750.00</u>	<u>+\$10900.00</u>	<u>- \$ 1850.00</u>

Budgets prepared by M. R. Mazurski, MNPS Treasurer, 2/18/2002; Amended 3/8/2002

Fifth Annual Montana Herb Gathering

Friday July 19-Sunday July 21
Just 20 mi NE of Missoula



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LANDSCAPING AND REVEGETATING WITH NATIVE PLANTS

You may have noticed that more and more people, organizations and businesses are aware of the importance and desirability of using native plants. And the interest in natives stretches from home gardening to major reclamation of disturbed sites. This issue of *Kelseya* featured timely comments from our President, Betty Kuropat, on this subject. The Flathead Chapter has initiated a wonderful project to help meet the increasing demand for information (see page 6). The Clark Fork Chapter has also jumped into the fray and has created an Education Committee to help meet the demand for native landscaping and revegetation information. Lori Parr Campbell of the Clark Fork Chapter has written an article about a project the Clark Fork Chapter did with the Rattlesnake Middle School in Missoula. Due to space limitations, we were unable to print the article in this issue, but look for it in the Summer 2002 issue of *Kelseya*.

MNPS Chapters & the Areas They Serve:

- ARTEMISIA CHAPTER - Yellowstone and Carbon Counties; southeastern/south-central Montana
- CALYPSO CHAPTER - Beaverhead, Madison, Deer Lodge, Silver Bow Counties; southwestern Montana
- CLARK FORK CHAPTER - Lake, Mineral, Missoula, Powell, Ravalli Counties
- FLATHEAD CHAPTER - Flathead and Lake Counties plus Glacier National Park
- KELSEY CHAPTER - Lewis & Clark and Jefferson Counties
- MAKA FLORA CHAPTER - Richland, Roosevelt, McCone, Sheridan and Daniels Counties
- VALLEY OF FLOWERS CHAPTER - Gallatin, Park, Sweet Grass Counties plus Yellowstone National Park

All MNPS chapters welcome members from areas other than those indicated. We've listed counties just to give you some idea of what part of the state is served by each chapter. Watch for meeting announcements in your local newspaper. Ten paid members are required for a chapter to be eligible for acceptance in MNPS.

Your mailing label tells you the following:

CLASS OF MEMBERSHIP: See I, II, III, IV below

CHAPTER AFFILIATION: ART= Artemisia; CAL=Calypso; CF=Clark Fork; F=Flathead; K=Kelsey; MF= Maka Flora; VOF=Valley of Flowers

DATE YOUR MEMBERSHIP EXPIRES: If your label reads "2/99" your membership expired February 28, 1999. Use this form to renew your membership TODAY! Please drop us a note if any information on your label is incorrect. Please notify us promptly of address changes.

Membership in Montana Native Plant Society is on a calendar-year basis, March 1 through the end of February of the following year. New-member applications processed before the end of October each year will expire the following February; those processed after November 1 will expire in February of the year after. Membership renewal notices are included in the winter issue of *Kelsey*. Please renew your membership before the summer issue of *Kelsey* so your name is not dropped from our mailing list. Your continued support is crucial to the conservation of native plants in Montana. THANK YOU!

MONTANA NATIVE PLANT SOCIETY MEMBERSHIP

DATE _____

NAME (please print) _____ E-MAIL _____

ADDRESS _____ CITY/STATE/ZIP _____

PHONE _____ NEW MEMBERSHIP _____ RENEWAL _____

STATEWIDE MEMBERSHIP WITH CHAPTER AFFILIATION

___ \$18 I. Individual

___ \$22 II. Family

___ \$35 III. Business/Organization

___ \$300 IV. Lifetime Membership (one-Membership)

MEMBER-AT-LARGE (no chapter affiliation) or LIVING LIGHTLY (with chapter affiliation)

___ \$12 I. Individual

___ \$18 II. Family

___ \$30 III. Business/Organization

time payment) ___ \$300 IV. Lifetime

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P.O. Box 8783
Missoula, MT 59807-8783



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Montana Native Plant Society

The Montana Native Plant Society (MNPS) is a 501(c)(3) not-for-profit corporation chartered for the purpose of preserving, conserving and studying the native plants and plant communities of Montana, and educating the public about the value of our native flora. Contributions to MNPS are tax deductible, and may be designated for a specific project or chapter, for the Small Grants fund, or the general operating fund.

Your yearly membership fee includes a subscription to *Kelsey*, the newsletter of MNPS, published quarterly. We welcome your articles, clippings, field trip reports, meeting notices, book reviews or anything that relates to native plants or the Society. Please include a line or two of "bio" information with each article. Drawings should be in black ink or a good quality photocopy. If you send clippings, please note the source, volume/issue, and date. All meeting and field trip notices, field trip reports, articles or announcements should be mailed to *Kelsey* Editors, 314 Travis Creek Rd., Clancy, MT 59634. All items should be typed and if possible put on a 3.5" disk and saved in Microsoft Word or rich text format (rtf.) for a PC. Please include a hard copy with your disk. They can also be sent electronically in the same format as above.

Changes of address, inquires about membership and general correspondence should be sent to MNPS Membership, P.O. Box 8783, Missoula, MT 59807-8783.

Advertising space is available in each issue at \$5/column inch. Ads must be camera-ready and must meet the guidelines set by the Board of Directors for suitable subject matter; that is, be related in some way to native plants or the interests of MNPS members.

The deadline for each issue is: **Autumn— September 10;**
Winter— December 10; Spring— March 10; Summer— June 10.

If you want extra copies of *Kelsey* for friends or family, call the Newsletter Editors, write to the above address or e-mail: DrakeKath@aol.com

Visit our website at: www.umt.edu/mnps/ or contact our webmaster, Marilyn Marler at: marler@selway.umt.edu

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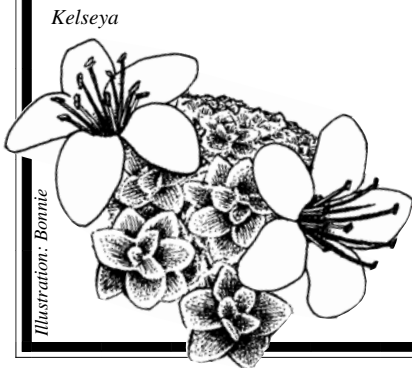
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Newsletter of the Montana Native Plant Society

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Frederick Pursh and the Lewis and Clark Expedition Part 1

By H. Wayne Phillips

Frederick Pursh? No, he wasn't one of the members of the Lewis and Clark Expedition, however, Pursh made a key contribution to one of the objectives of the Expedition. President Jefferson directed the captains to notice "the face of the country, it's growth & vegetable productions; especially those not of the U. S....the dates at which particular plants put forth or lose their flowers, or leaf..." [Cutright]. The Expedition was to be, in part, one of botanical exploration. The plants discovered by the explorers would be of great interest to President Jefferson and the citizens of the United States.

In 1814 the Journals were published in Philadelphia in *History of the Expedition Under the Command of Captains Lewis and Clark...* This was a literary paraphrase of the Journals, edited by Nicholas Biddle, a travelogue that contained none of



Pediomelum esculentum Indian Breadroot
A beautifully hand colored, original drawing by Frederick Pursh from his book, *Flora Americae Septentrionalis*

nounced in the book, were new to the science of botany.

So, who was Frederick Pursh, and how did he happen to include Lewis and Clark's plants in his book?

Pursh was born in 1774 in Grossenhain, Germany. He was educated at Dresden and worked at the Royal Botanic Gardens there. In 1799 he traveled to the United States, and from 1803-5 he was the manager of Woodlands, a botanical garden near Baltimore. While at Woodlands, Andre Michaux's *Flora Boreali-Americana*, America's first comprehensive floral manual, was published describing 1,600 species.

In 1805 Pursh began to work for Dr. Benjamin Barton, a professor of medicine and botany at the University of Pennsylvania in Philadelphia. Barton was a colleague of Thomas Jefferson through their joint membership in the American Philosophical Society. President Jefferson had enlisted Barton's help in training Meriwether Lewis, giving him a crash course in the science of botany, before setting out on the Expedition. Barton also agreed to help with the work needed to examine, describe, and publish the results of the botanical collections of the Expedition. In 1805, Lewis and Clark sent a box of 60 plant specimens down the Missouri River to President Jefferson in Washington, D. C. President Jefferson immediately sent these plants to the American Philosophical Society, which placed them in the hands of Dr. Barton.

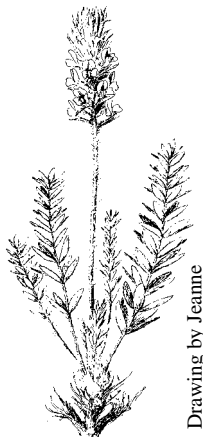
In 1806-7 Pursh was doing field work for Dr. Barton, who was plan-

MOUNTAINS, REEFS, and PLAINS

The 2002 MNPS
Annual Meeting
June 28-30

DON'T MISS IT!

See the enclosed
registration
insert.



Drawing by Jeanne

Oxytropis splendens

the scientific discoveries. That same year *Flora Americae Septentrionalis* (Latin for *Flora of North America*) by Frederick Pursh was published in London. That volume described 132 plant species collected by Lewis and Clark on the Expedition, and included 13 plates illustrating them. This was the first botanical manual to span the continent, and contained many interesting species from the Northwest. Beargrass, bitterroot, pink monkey-flower, shiny Oregon-grape, mockorange and scarlet gilia, an-