

Kelseya

Newsletter of the Montana Native Plant Society

www.umt.edu/mnps/

Water Moves in Mysterious Ways

by Peter Lesica

Plants need water to grow and reproduce, and this water is usually supplied by the soil. Wet soil has a higher water potential (Ψ) and provides more water than dry soil. Open stomates on leaves take in CO_2 for photosynthesis. At the same time, internal leaf moisture evaporates from the stomates in a process called evapotranspiration. In response to evapotranspiration, water moves from the roots through the xylem into the leaves to replenish the lost water. However, the precipitation-soil-plant hydration cycle isn't this simple, as plant ecologists have recently come to realize.

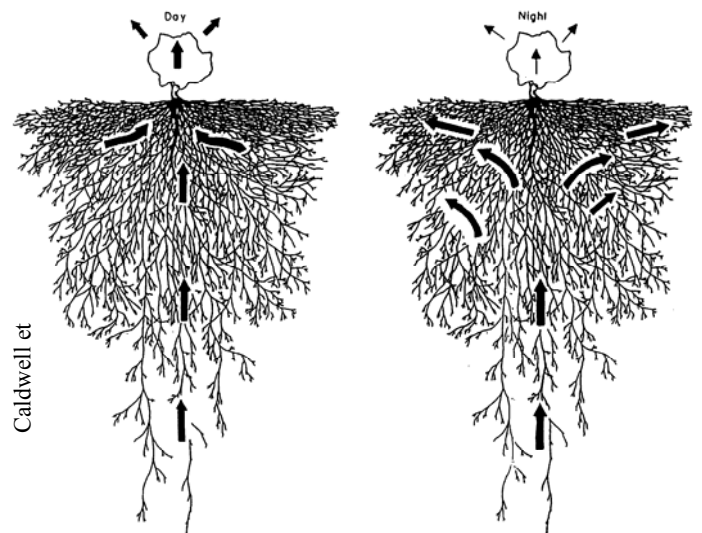
Twenty years ago Jim Richards and Martyn Caldwell noticed that surface soil beneath sagebrush plants (*Artemisia tridentata*) in Utah became moister at night. They used sensitive instruments to determine that water absorbed from deep in the ground was transported up and leaked out of the shallow roots into soil just below the surface. A few years later Todd Dawson found that sugar maple trees (*Acer saccharum*) in upstate New York also conducted "hydraulic lifting," as it was called. Currently about 50 species have been shown to hydraulic lift, including wheat, corn, and tomatoes, as well as oaks, poplars, junipers, and yuccas.

Hydraulic lift is a passive process requiring no effort on the part of the plant. Here's how it works. Water moves

from wet places (high Ψ) to dry places (low Ψ) as long as there is a suitable pathway. Place the tip of a sponge into a wet spot on your counter; water moves from the wet tip back into the dry sponge. Similarly, as a plant's leaves loose moisture through evapotranspiration, their water potential declines and moisture moves from moist soil (high Ψ) into roots, through the stem and into the drying leaves (low Ψ). This transpirational pull of water through the plant is strong during the day when the plant is photosynthesizing and stomates are open, but weak at night when they are closed because then the leaves don't lose water to the air. It is because leaves have low Ψ at night that hydraulic lift occurs.

Most temperate-zone plants have the majority of their

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A Floral Banquet

2006 Annual Meeting

Alpine and subalpine environments support some of the most spectacular wildflower displays in Montana. The flowering season is compressed into just a few weeks—everything blooms at once. In addition, the rugged topography can provide different habitats with very different assemblages of wildflowers over short distances.

You can see a lot above timberline, both on the horizon and at your feet.

This summer the Clark Fork Chapter is hosting the annual meeting at the Wall Creek Wildlife Management Area. Montana Fish, Wildlife and Parks has graciously agreed to let us use their facility on the east slope of the Gravelly Range, south of Ennis and 35 miles northwest of Yellowstone National Park. This was the site of our first field trip-oriented annual meeting in 1993. The Gravelly Range

is a particularly good place to visit the alpine because the Gravelly Range Road traverses the crest of the range between 9,000 and 10,000 feet for over 20 miles! The only other opportunity like this in Montana is the Beartooth Highway (mostly in Wyoming) where we met in 2004. However, the Gravellys' soils are different than the relatively dry granite-derived soils prevailing on the Beartooth. Gravelly Range soils are

(Continued on page 8)



President's Platform

Susan Winslow



Happy springtime! Although I must say there were times this past winter when a few nonnative plants were convinced it was actually the right time of year to put out flowers. Blossoms were seen on dandelions, alfalfa, and a couple of mustards. Some of the local natives were not all that much savvier, as extremely late flowering was witnessed in slim-flower scurfspea, scarlet globemallow, and American vetch. Truthfully, it is kind of scary to think that these plants were led down the garden path to floral initiation by faulty weather conditions that may have resulted in a very negative impact on their health and well being. Yikes! Be that as it may, I'm sure that many of us by now have happily seen some of our early spring-flowering favorites.

Last fall, the Board of Directors scheduled the spring meeting to coincide with the Montana Plant Conservation Conference in Helena. This was a pretty radical departure from the normal Saturday gatherings, but it worked very well for most everyone involved. Some of the highlights from the March 2 meeting include:

Fourth Montana Plant Conservation Conference

The earlier meetings were held in Missoula in 1995 and 1997, and in Pablo in 1999. These gatherings focused on the importance of governmental management of sensitive and rare plants, conservation strategies for federally listed species, habitat conservation, and recognition of culturally significant plants. The organizers of the 2006 conference set the lofty goals of developing a threats-ranking system and establishing criteria for designating critical plant areas. They did a great job and the meeting was a big success. More details about the conference can be found on page 4.

2006 Annual Meeting

The summer meeting is hosted by the Clark Fork Chapter and will be held in the Gravelly Mountains south of

Ennis on July 14-16. There was much discussion about registration, field trips, programs, etc. The location is remote and amenities primitive, so plan ahead and come prepared to enjoy another fun-filled event. Please register early with the enclosed form and see page 1 for more information.

10th Annual Small Grants Program Awards

After several years of reviewing grant proposals, the Small Grants Committee realized the need to revise the policy so committee members could use established criteria to objectively rank each submission. Their recommendations were reviewed last fall and approved with some modification by the board, in time for the procedures to be in place for this year's pool of applicants. Hats off to the hard working group. See page 14 to learn about this year's selected project.

Budget

Secretly I sometimes understand how the out-of-control federal deficit happened and how we seem to fully operate in red ink—just keep on keeping-on, develop a head-in-the-sand mentality, and hopefully the problem will somehow correct itself. Ya, right. MNPS is faced with the need to get back on firmer financial ground. The final 2005 and anticipated 2006 budget (see insert) clearly outlines our situation. So what's the answer? The board is still pursuing the idea of specific fund-raising activities, but also voted to raise membership dues effective 2007. This was not an easy decision, and after much discussion the board passed the motion.

Vacancies

Included in this issue is an election ballot for Vice President, Secretary, and Eastern Director At-large. Last year, for the first time, ballots were available online, so be sure to cast your vote by printing a ballot from the Society's web page, e-mailing

our Secretary with your vote, or using the enclosed ballot. Your vote counts, and good luck to the candidates! Don't forget that the chapter sending in the largest percentage of votes collects \$100!

Other Business

A field trip booklet is mailed out by MNPS each spring that contains a list of chapter-sponsored field trips. Chapter Presidents and other organizers need to submit before the deadline of April 10 (see the brief notice with pertinent information on page 11). Dave Hanna, Vice President, reported on his search to find an insurance company that is willing to provide appropriate liability coverage at a reasonable price. The decision was made in good faith to continue pursuing inquiries through non-profit avenues, and to purchase insurance as-needed for annual meetings. Marijka Wessner, Membership Chair, has received approximately 50% of the 2006 renewals with membership continuing to increase. Please send in your renewal and continue your support for MNPS. Marilyn Marler created our website and has done a tremendous amount of work to periodically update the appearance, utility, and information provided on the site. It is time, however, for her to move on to other interests, and there is a need to find her replacement (see page 11). Thanks to Marilyn for all her effort and dedication! Linda Iverson provided an update on the Landscape and Publications Committees and, in addition to the written materials, she is working to supply information and images that will be posted on the website. Thanks to Kathy and Drake for insuring that the membership continues to receive a timely, high-quality, and informative newsletter!

In closing, because press time is breathing down my neck, I hope to see everyone at the annual meeting at Wall Creek. Good plant hunting in 2006!

CONSERVATION

Restoration Volunteers and Native Plant Experts Needed!

Would you like to have an excuse to explore a part of the Bob you have never seen while lending your expertise in native plant identification? How about getting your hands dirty using native plants to restore damaged campsites?

The Bob Marshall Foundation promotes increased public stewardship of the Bob Marshall Wilderness Complex in order to ensure the preservation of wilderness values and continuing opportunities for recreation. Volunteers from local schools, summer camps, community organizations, national volunteer groups, youth-at-risk programs, and private individuals annually participate in volunteer projects.

In addition to coordinating over 300 miles of annual trail maintenance, the Bob Marshall Foundation also coordinates wilderness restoration projects in cooperation with the Forest Service.

Restoration projects have primarily taken place in the Spotted Bear Ranger District on high priority sites identified by monitoring. Volunteers recruited by the Bob Marshall Foundation annually work with USFS botanists and rangers to complete campsite rehabilitation, vegetative restoration, site analysis, campsite rehabilitation, and seed collecting.

The Bob Marshall Foundation currently has six projects scheduled for the summer of 2006. Most of these projects range in length from an extended weekend to a weeklong trip. Many trips come with

packing support, and the Bob Marshall Foundation will provide the food and tools needed for each project. Specific site work activities include utilization of native materials to limit use in sensitive areas, scarification of impacted soils, user trail obliteration, stock containment management, fire ring and litter removal, tree root mulching, seed collection, seed spreading, and planting.



Seed collection near Schafer Meadows

Seed collection will take place in a variety of areas and elevations. These seeds will then be processed in cooperation with the Confederated Salish Kootenai Tribe greenhouse where plants will either be grown for transplanting or for seed production. Seeds produced through the greenhouse will be reserved for micro-site use in campsite restoration, fire rehab, and erosion control in the Bob Marshall Wilderness Complex.

The Bob Marshall Foundation would like to increase its efforts in restoration and seed collection projects. We are currently reliant on Forest Service botanists to provide plant identification expertise to collect seeds in the field.

With limited budgets and time, we have struggled to place an expert on all of our projects. In order to increase the number of seed collection and restoration projects, we need to recruit individual volunteers who have skills in native plant identification.

Please let us know if you would like to volunteer for a project this summer or in the future as a plant expert. All of our projects for 2006 are listed at www.bobmarshallfoundation.org. You can also call our office at 406-863-5411 to request more information.

Carla Cline Belski

Billings Land Reclamation Symposium and Governor's Restoration Forum

The 2006 Billings Land Reclamation Symposium and Governor's Restoration Forum is scheduled for the week of June 4th through the 9th at the Billings Sheraton, in Billings, Montana. The weeklong event includes regional tours, technical workshops, and papers dealing with reclamation and restoration of damaged and/or developed landscapes. Over a hundred papers will be presented in topics ranging from revegetation, to hydrology, to Superfund projects, to hazardous waste remediation.

This year also marks the first time a special forum will be convened to

discuss how land and water restoration fits into Montana's future economy. The governor's office is working to assemble a group of speakers in the field of landscape restoration to generate ideas and facilitate discussions on restoration goals and policies to carry Montana into the next century.

Interested people should visit the Internet website at: www.billingslandreclamationsymposium.org for detailed information on tours, workshops, accommodations, and technical sessions. Past symposiums have drawn over 400 participants from throughout the U.S. and Canada, as well as scientists from Europe, Australia, and South America.

Phil Johnson

And this from the Native Plant Conservation Campaign...

March is lining up to be a very important month for the Endangered Species Act. The Senate Environment and Public Works Committee has said it will consider an ESA "reform" bill sometime in March. All legislation currently under consideration would damage or destroy crucial provisions of the Act. It is critically important that Senators hear from their constituents in support of a strong Endangered Species Act. Please call your Senators and ask them to support the Endangered Species Act. Call the Capitol Switchboard: (202) 224-3121.

Emily Roberson

2006 MONTANA PLANT CONSERVATION CONFERENCE

Thoughts from MTNHP

After a seven-year absence, a Plant Conservation Conference was hosted in Helena at the end of February. Attendance was in the neighborhood of 70 professional and amateur botanists and natural resource professionals, as well as many native plant enthusiasts from around the state. Additionally, we had the benefit of the experience of two other professional botanists from out-of-state, Michael Mancuso from Idaho and Walt Fertig from Utah.

I'd like to share a few of my thoughts, as well as those expressed by others either on the conference critique form or in conversations. Let me start out these thoughts by saying, "Thank goodness that's over!" Helping to organize one of these events every year does not sound too appealing. Seriously, what I was looking forward to the most was interacting with other plant-minded folks and meeting several other botanists I hadn't yet had the privilege to meet. I wasn't disappointed. Many other

attendees also expressed similar reasons for attending. Other reasons people expressed for attending included: learning about rare plants, interests in plant conservation, rare plant modeling, having "drinks," and "it was a long time since the last one," all good reasons for attending. What about the facilities? The interesting points here are that folks tended to say it was too pricey or fancy of a venue, but many also added that it was a good location. Next time around, some folks want additional refreshments in the form of cookies, iced tea, or soda. It's hard to please everyone and keep costs reasonable, but organizers for the next one should take note! The suggestions for topics to include in future conferences were almost as numerous as the number of critique forms submitted. This gives organizers a lot of options, but it also means that we'll never be able to pack into a two-day conference the range of subjects that people want covered.

Finally, I'd like to touch on the "threats" information that was gath-

ered. Thanks to Maria Mantas for tackling a tough job! Hopefully, the threats committee will be able to utilize this information and establish a methodology for ranking or prioritizing plant species and their threats in conjunction with the Montana Natural Heritage Program (MTNHP) over the next year. In the meantime, MTNHP will be using the information gathered at the conference to help update the Plant Species of Concern (SOC) list. The information people provided at the conference will be used to update and revise the SOC list in terms of ranking species and the format in which it's presented. This process isn't as fast and transparent as I would like, so please don't expect immediate results; nonetheless progress is being made.

Thanks to everyone who attended. It was a pleasure to interact and share ideas and information. I look forward to seeing you at the next conference, if not before. In the meantime, keep sending in your data, thoughts, or comments concerning rare plants to us at the MTNHP.

Scott Mincemoyer

Thoughts from MNPS

Rare and endangered plant conservation began in Montana 20 years ago with publication of our first rare plant inventory ("the blue book") by the Montana Academy of Sciences, and the establishment of the Montana Natural Heritage Program. At that time, Montana botanists had seen few of the plants on the rare list; nearly all of our information came from labels on herbarium specimens. Inventory was the first order of business. During the past 20 years the U.S. Forest Service, Bureau of Land Management, State of Montana, and The Nature Conservancy funded rare plant research. Today we have a lot more information and many more botanists who know these plants on the ground. We have a much better idea of which plants are really rare rather than just under-collected. With this knowledge in hand it is time to focus on efforts



Giant Helleborine (*Epipactis gigantea*)

Jeanne

that will better enable conservation of these species.

Last month MNPS, in conjunction with the Montana Natural Heritage Program, organized and hosted the Fourth Montana Plant Conservation Conference in Helena. The conference focused almost entirely on rare plant conservation. On the first morning, we heard about plant conservation efforts from the U.S. Forest Service, Bureau of Land Management, and Montana Natural Heritage Program as well as a primer on the Federal Endangered Species Act and updates on our three listed species: *Howellia aquatilis*, *Silene spaldingii*, and *Spiranthes diluvialis*. That afternoon was a workshop on developing threat ranks for plant species of concern. This is the beginning of an effort to gather information on threats from Montana botanists and use it to help prioritize future conservation efforts.

The second day of the conference started with a lecture on plant habitat modeling, a computer-assisted

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...Plant Conference (Continued from page 4)
method for predicting where rare plants might be expected to occur. Habitat modeling holds promise for aiding future inventory work. A symposium on sensitive plant habitat restoration was presented later in the morning, including talks on raising rare plants for re-introduction into the wild, using fire to restore rare plant habitat, and how Federal Farm Bill programs can benefit sensitive plant restoration. The conference closed with a symposium and workshop on important plant areas. These are sites that harbor large or multiple rare plant populations and/or threatened plant communities. For the past 20 years ornithologists have had an Important Bird Areas program, and five years ago Plantlife International initiated an Important Plant Areas program in Europe. Participants in the workshop discussed the values of a similar program for Montana and how to design criteria for choosing such sites. Conference attendees agreed that an Important Plant Areas program would be valuable to further aid in the mission to conserve native plants in Montana. What remained undecided was whether the program should encompass rare plant sites only, or also include rare plant community types.

The 60+ conference attendees agreed to continue to work towards a statewide threats assessment and ranking system, and develop an Important Plant Areas program for Montana. A committee was formed to pursue these goals. Several attendees suggested having a plant conservation conference every other year, and the "Threats Committee" meeting in alternate years to update the ranking. We are grateful to Walt Fertig, former botanist for the Wyoming Natural Diversity Database, Michael Mancuso, botanist for the Idaho Conservation Data Center, and Susan Lenard, zoologist for the Montana Natural Heritage Program, for coming to share their insights. An electronic copy of the conference proceedings, with a complete list of conference presenters and talk abstracts, can be downloaded from the MNPS website (www.umt.edu/mnps) by clicking on Conservation.

Peter Lesica and Melissa Waggy

Save our National Forest Backcountry The Governor is waiting to hear from you...

On May 5, 2005, the Bush Administration announced the end to a Forest Service policy that had protected over 6 million acres of Montana's precious backcountry: National Forest lands accessed by trails. These public places—technically called "roadless areas"—include portions of the Swan Range in the Flathead, the Rocky Mountain Front, and the Bridgers near Bozeman, to name a few. As you may know, roadless areas are the headwaters of our clean rivers, and are often the healthiest ecosystems left in Montana. Roadless lands help prevent the spread of weeds and support fish, wildlife, and rare plants.

The Bush Administration has rejected a straightforward policy of protecting America's last wildlands, and has put a poorly defined "petition" process in its place. In the current scenario, the Governor of each state is "allowed" to petition the Department of Agriculture (USDA) with recommendations to maintain roadless areas.

Over the past 6 months, Governor Schweitzer met with Montana County Commissioners for their input on his petition. During these meetings he asked County Commissioners to submit very specific and thorough recommendations for any new roads they might want built in their counties and how they would be economically justified. He asked for building and maintenance costs, weed control costs, and specifics on how a new road would benefit the public. Any economic gain would have to be weighed against possible losses of clean water, wildlife security, and native habitat integrity.

To date, 11 counties have submitted letters of recommendations (see www.bigskylegacy.org to view letters). After reviewing the requests from the counties and stakeholder comments, the Governor will "petition" the USDA concerning the future of more than 6 million acres of pristine, backcountry public lands in Montana. More than 100 Montana scientists have urged the Governor to

keep roadless lands in Montana as they are.

Now is the time to act.

The Governor's final decision on whether or not to protect these valuable backcountry areas will be affected by your calls, e-mails and letters. Write or call the Governor and tell him you and your family want to keep Montana the way it is. Tell him Forest Service roadless lands provide our clean water, are refuges for native plants and wildlife, are important for our economy, and support our unique Montana way of life. You'll be doing it for the future—yours and your children's.

Contact the Governor at:

Governor Brian Schweitzer

P.O. Box 200801, Capitol Station
Helena, MT 59620

406-444-3111 or governor@mt.gov

For more information on how you can help visit the Montana Roadless Working Group Website www.bigskylegacy.org or contact: Elizabeth Andrews, Lead Organizer
Montana Roadless Working Group
P.O. Box 1604, Helena, MT 59624
(406) 459-1377

MNPS Weighs in on Roadless Issue

"The Montana Native Plant Society has a vital interest in the disposition of the state's roadless federal lands because roads facilitate the spread of invasive plants, a significant issue from the perspective of native plant conservation. According to former Forest Service Chief, Mike Dombeck 'The problem of noxious weeds and nonnative invasive species threatens every aspect of ecosystem health and productivity, in forests and on rangelands, on public and on private lands. The increasingly devastating effects include reducing biological diversity, impacting threatened and endangered species and wildlife habitat, modifying vegetative seral stages, changing fire and nutrient cycles, and degrading soil structure.'" These words are taken from the letter submitted to the Governor by MNPS in support of roadless area conservation. The letter is meticulously referenced. Visit www.umt.edu/mnps to read MNPS's position on roads and roadless areas.

LANDSCAPING

Landscape Committee News

Regional & Statewide Information on Using Native Plants in Landscaping

With planting season coming on, I wanted to remind you that we have several helpful publications on native landscaping. Much of this info can be downloaded from our website: www.umt.edu/mnps/

For printed copies see the contacts below. All prices include postage. Packets will be available at spring chapter meetings, too.

Regional Information

Native Plant Landscaping in the Helena Area To order contact Kathy at 449-6586 or e-mail: drakekath@direcway.com. The packet can be mailed to you for \$3.50 and includes detailed information on growing natives, recommended species for landscaping, and resources available on native plants in the area, including books and websites.

Landscaping with Natives in the Flathead Valley To order contact Tara Carolin at 334 North Many Lakes Drive, Kalispell, MT 59901. The packet can be mailed to you for \$5 and includes recommended species for landscaping, resources available, a list of nurseries that carry a large selection of natives, and gardens that showcase natives, with species lists for several.

Landscaping with Native Plants in Southcentral Montana To order contact Denise Montgomery at 586-0156 or e-mail: nmontgomery@montanadsl.net. A bound booklet can be mailed to you for \$6.50 that includes specific information on growing native plants, recommended species for Bozeman and surrounding areas, reference/website lists, nurseries in the area that carry a large

selection of natives, and a list of demonstration native gardens in the area. Look for items on the website, available soon.

Statewide Information

Available as inserts in all regional packets: NRCS publication: *Creating Native Landscapes in the Northern Great Plains and Rocky Mountains*; MNPS publications: *Plant Collection Guidelines for Teachers* and *Guide to Collecting Native Plants*. Publications that are free of charge and available on our website include *Weeds Listed as Noxious by Montana Counties* and a joint MNPS and Montana Nursery and Landscape Association publication: *Selecting Horticultural Plant Material for Montana*.

We also have information on *Growing Echinacea* commercially. For a hard copy, order from Linda Iverson (see contact information below) or download from our website.

Source Guide for Native Plants of Montana To order contact Linda Iverson at 932-5840 or e-mail: jliveron@mcn.net. The booklet can be mailed to you for \$6 and contains over 55 sources for 500 trees, shrubs, forbs, grasses, and wetland species. The guide is helpful for home landscapers and those involved in reclamation projects. This booklet is not available on the website, but updates are. The updates list new and corrected contact information and new sources.

Linda Iverson,
Landscape/Reveg Committee Chair

Take a Look...

Linda Iverson, MNPS past-president and current MNPS Landscape Committee chair, is featured in the March/April 2006 issue of *Western Interiors and Design*. The article highlights one of Linda's native plant landscape projects south of Livingston. There are great pictures of the plantings, but best of all are Linda's musings on native plants, landscaping in our Montana climate, and her approach to natural design. She stresses the importance of knowing a site and its native vegetation, and how much of her inspiration comes from being open and curious about the natural landscape. She particu-

larly addresses maintenance and the awareness that is needed to keep a native landscape planting successful. Linda notes that with all the attention paid to 'sustainability' as the new buzzword, native plants, with care and planning, are the ultimate example of keeping our landscapes sustainable. The article is a good insight into her work and a wonderful way to outreach to an audience that may not usually encounter native plant landscaping. (And yes, Linda is aware that *Penstemon strictus* isn't a Montana native, although there is one in the garden!).

Madeline Mazurski

PLANT WEBSITE

Fresh and full of new photos, the new issue of *Northwest Native Plant Journal* is here! A great read and beautiful to see. Visit: http://nwplants.com/information/emag/emag_index.html

SPRING PLANTING TIME IS HERE!

Help is at your fingertips with this guide to growing your own native plants.



Order now from:
Montana Native Plant Press
3912 Lincoln Rd.
Missoula, MT 59802
\$18.95 + \$3.00 S&H

Auspicious Beginnings

Having a native plant garden is easy and may have the most auspicious of beginnings. My first experience with native plant gardening was in Oregon while doing fungi surveys in national forests. The fieldwork was remote and in some of the most challenging terrain I had ever worked. I was living out of my car, fulfilling my Kerouac longings. One day, deep in the Coast Range, I came upon a ridge where there was some abandoned logging trash. Among it was a little sterno can that had filled with soil. Growing in the can was the most wonderful fern I had ever seen, delicately perfect. How exquisite, life sprouting in the most unassuming places! I hiked back to my car with it and placed it in the cup holder where it lived with me for two months.

Years later when my partner and I bought our house here in the Flathead Valley, neither of us were thrilled with the huge amount of lawn. The next-door neighbor asked us with a wry smile if we, too, were going to try to grow a plush green lawn on the patchy dandelion area that separated our land. We told him no; we were going to bring back the forest.

It started slowly, with a few transplanted aspen trees making a little island. The lawn grew up around it, and one day it was time for all the turf to go and the native plant area was marked with a rock boundary. The plants that had been persisting all these years under the mower blades suddenly had a place to thrive. *Antennaria* sp., *Mahonia repens*, *Rosa* sp., and *Carex* sp. had all been waiting, stubbornly refusing to succumb to the grassy monoculture prized by so many. Little plants out of the safety zone were transplanted into the garden. *Aster conspicuus* and *Anaphalis margaritacea* seeded themselves into the garden and thrived, and *Gaillardia aristata* proved the most vivid and persistent flowerer. We laid down some newspaper and mulch to help combat the weeds, and did our best to weed diligently. We put in some charismatic stones and wood, and marveled at its

beauty. It has taken a lot of work, and there is always more grass or *Linaria vulgaris* to contend with. Overall, it has been one of the most rewarding experiences in our new home.

This winter, during the arctic blast that plummeted the temperature, I stepped outside for some fresh air and a jaunt about the yard. The native plant garden was a place of wonder, even in the bitter cold days of February. Larch needles, now faded from golden to burnt sienna, were strewn atop the mulch. The dried stalks of blanket flower and showy aster rose stiffly from the frozen earth, a silent reminder of the splendor of past blooms and hope of blooms to come. Conspicuous within the rock boundaries were many lichen thalli, including fluorescent *Letharia vulpina* and *Hypogymnia* sp. with its green-gray hollow lobes.

In just a few months spring will grace us with the vibrant return of all things green and good. New native plant seedlings and the return of the established perennials in our garden will be as exciting as the return of thrushes and the blooming of glacier lilies. Maybe you are also greatly anticipating the stirrings in your native plant garden. If you haven't yet taken the first step in creating your own, perhaps this is the summer to start. After all, maybe all you need is a sterno can, and the persistence of life will do the rest.

Rebecca Durham



Sagebrush Buttercup (*Ranunculus glaberrimus*)

Photo: Drake Barton

Early Bloomers

Early bloomers were reported from several areas in the state during late winter. Kathy Sweet noted that she observed prairie smoke, biscuitroot, and cut-leaved daisy in bloom on Saturday, January 22 on the Pintler District in the Beaverhead-Deerlodge National Forest.

An article by Vince Devlin (excerpts follow) of the Missoulian reported that sagebrush buttercup (*Ranunculus glaberrimus*) was collected by Wayne Tree on January 11 in the Lee Metcalf Wildlife Refuge in the Bitterroot Valley. Tree took a specimen to Jim Habeck, who pressed it and entered it in the University of Montana Herbarium. Habeck knew that of the 100 mounted specimens of this buttercup dating back a century, the earliest flowering dates were several weeks later. "By all the records I was able to dig up," he says, "including those of Morton Elrod (UM's first botanist) at the turn of the century, no one had ever connected a blooming buttercup to a date any earlier than some day in March." Buttercups require freezing temperatures in order to go into dormancy. They bloom when temperatures warm up enough. The significance, Habeck said, could be great. It could be a piece of evidence—in addition to things like shrinking glaciers and mountaintop snow lines that get higher with passing years—that global warming threatens to turn nature on its head. "The worst-case scenario," he says, "if ever western Montana was so warm that the buttercup couldn't experience the cold treatment it needs to break into dormancy, what would happen? Without that cold conditioning, plants can't complete their life cycle, they can't exchange pollen, and they get wiped out." We experienced typical winter weather in December, with large amounts of snowfall and a cold snap that sent temperatures below zero—just what the buttercup needs to go into dormancy. But since then it's been unseasonably warm—sometimes temperatures haven't even dropped below freezing at night—warm enough for buttercups to bloom in January.

My Favorite Garden Plants

When someone asks about my favorite plant, my response is, "That depends..." usually on what I am working with or what is blooming at the moment. Right now my favorites are the plants that bloom in April, breaking the monotony of the grays and browns of winter's dormant and dead plants.

At the University of Montana Native Plant Garden, douglasia, Missoula phlox, and cous biscuitroot are among the first to burst forth with their pink, blue, and yellow blossoms.

Douglasia (*Douglasia montana*) blooms first, with flat patches of plants completely covered with bright pink flowers. Before these fade, the huge mats (nearly three feet across) of Missoula phlox (*Phlox kelseyi* var. *missoulensis*) start blooming. These blossoms also completely cover the plant, this time in pale blue. Cous biscuitroot (*Lomatium cous*) then chimes in with splotches of bright yellow flowers and ferny green leaves. Some biscuitroots even come up in the edges of the phlox mats and among the prickly pear pads.

These plants can be grown in the home garden with some care. Their strictest requirement is a gravelly, well-drained soil. A mix of one part each soil, sand, and a small gravel like turkey grit works well. They also need sun most of the day, and slope to drain away excess water. Without attention to these needs, the roots simply rot.

All three plants can be started from seed. Douglasia seeds



Missoula Phlox (*Phlox kelseyi* var. *missoulensis*)
Photo: Drake Barton

reportedly can be planted immediately upon ripening and left outdoors for germination the following spring. My experience is with seeds held at room temperature for some weeks after collection. In that case, they need to ripen for a year at room temperature. Then they require a month of warm, moist treatment, followed by three months cold treatment outdoors. Plants do not develop if they are moved to a very warm space immediately after germination. Interestingly, another primrose family member, the shooting star (*Dodecatheon pulchellum*) won't develop either, if warmed too soon after germination. (A few douglasia plants will be available at the Clark Fork Chapter plant sale on May 20.)

Douglasia seeds sit conveniently on the surface of the plant when blooming is done and are easily gathered. Not so the phlox. Phlox seeds nestle down among the prickly leaves, making them difficult to find and painful to collect. Furthermore, the seeds are dumped into the dense mat of foliage shortly after ripening. So you have to be sharp-eyed, brave, and quick to collect them.

Phlox germination is simpler than douglasia. Seeds germinate over a period of three to four months at 40 degrees and don't mind being warmed soon after germination. A Montana endemic, this plant is rated G2/S2 by the Montana Natural Heritage Program, meaning it is at risk globally because it has been found at fewer than 20 locations, all in Montana, of course. Missoula's Waterworks Hill is one known site. Obviously no plant should be dug in the wild, but a few seeds might be collected if your timing is good.

Cous biscuitroot germinates best planted outdoors in the fall. It then self-sows generously, developing the fat, starchy roots that grizzly bears enjoy. Its leaves die down in early summer, but phlox and douglasia leaves will remain green throughout the summer if watered a little in the driest periods.

While we enjoy these plants as they bring an end to winter, we also know that they are the promise of more color to come all summer.

Sheila Morrison

...*Floral Banquet* (Continued from page 1)
formed from sedimentary shales, limestones, and quartzites (except volcanic Black Butte) that weather to deep, fine-textured soils. The dominant vegetation is lush alpine grassland with cushion plant communities primarily on ridge crests and unweathered outcrops. We may see spectacular displays of old man of the mountain (*Hymenoxys grandiflora*), sky pilot (*Polemonium viscosum*), lupine (*Lupinus argenteus*), American bistort (*Polygonum bistortoides*) and green gentian (*Frasera speciosa*). All of the Saturday field trips will be staged on or near the alpine crest of the Gravellys. The Wall Creek meeting site is located at lower treeline, where sagebrush steppe meets Douglas-fir and limber pine woodland. Just below the site is the Madison Valley with one of Montana's most famous rivers flashing through it. Sunday field trips will be along the Madison River in Beartrap Canyon, and at Piedmont Swamp, a large wetland that hosts several plants found nowhere else in Montana!



Green Gentian (*Frasera speciosa*)

Jeanne

Of course, even if you don't go on any field trips the annual meeting is still worth attending. There will be the 12th annual Wayne Phillips Plant Identification Contest, hosted by Wayne himself, and the exciting results of this year's officers elections brought to you by Pat Plantenberg, MNPS's answer to Jerry Seinfeld. As if that weren't enough, don't miss a collaboration of the Clark Fork Chapter's finest epicureans who will prepare an excellent meal on Saturday evening. So register today by cutting off the bottom of the annual meeting insert, filling it out, and mailing it in with your check. Don't hesitate for a minute, and we'll see you there.

Peter Lesica

MNPS ELECTIONS – CAN THEY BE MATCHED?

It's election time again! The MNPS Election Committee is proud to announce that incumbents Vice President Dave Hanna of Choteau, and Secretary Patrick Plantenberg of Townsend have agreed to run again for their offices and serve another two years. Of special interest is the fact that the recycled Secretary and Past-president of the MNPS and Past-president of the Great Falls non-chapter, Wayne Phillips of Great Falls, has agreed to run for Eastern Representative At-large. There is hope for all you past officers. (Note: the MNPS Board has not felt the need to impose term limits at this point, or to limit old members from being recycled).

Dave has been Vice President of MNPS for two years. He lives outside of Choteau, and has worked in land management and conservation for many years. Dave says, "I've enjoyed the last two years as your Vice President, and hope to continue to serve MNPS in that capacity. Although this position requires me to take on "other duties as assigned," I'm glad that I haven't had to work from an undisclosed location. It has been a privilege to work with the rest of the board in support of native plant conservation and education. MNPS continues to be a vibrant and engaged

organization and with your vote I'm looking forward to serving the society for another two years."

Patrick has been Secretary of MNPS for several terms and is patiently waiting for a contested election. Besides being the Election Committee chairperson, he works as a reclamation specialist for the State of Montana, does landscaping on the side, and is an edible wild plant enthusiast. He is also active in civic organizations in Townsend.

Wayne is a former Forest Service ecologist who is now spending much of his time teaching and writing about the flora of the Rocky Mountains and Great Plains. He has taught botany and wildflower classes at the Yellowstone Institute, Glacier Institute, University of Great Falls, and MSU-Northern. He has written three field guidebooks: *Central Rocky Mountain Wildflowers*, *Northern Rocky Mountain Wildflowers*, and *The Plants of the Lewis and Clark Expedition*. A member of the MNPS since 1987, Wayne has presented numerous programs and field trips. Wayne also is responsible for the plant identification contests at the annual meetings.

MNPS elections continue to exceed everyone's expectations for voter turnout in uncontested elections. For the past three years, the MNPS Board of Directors has offered \$100 to the chapter with the largest percentage

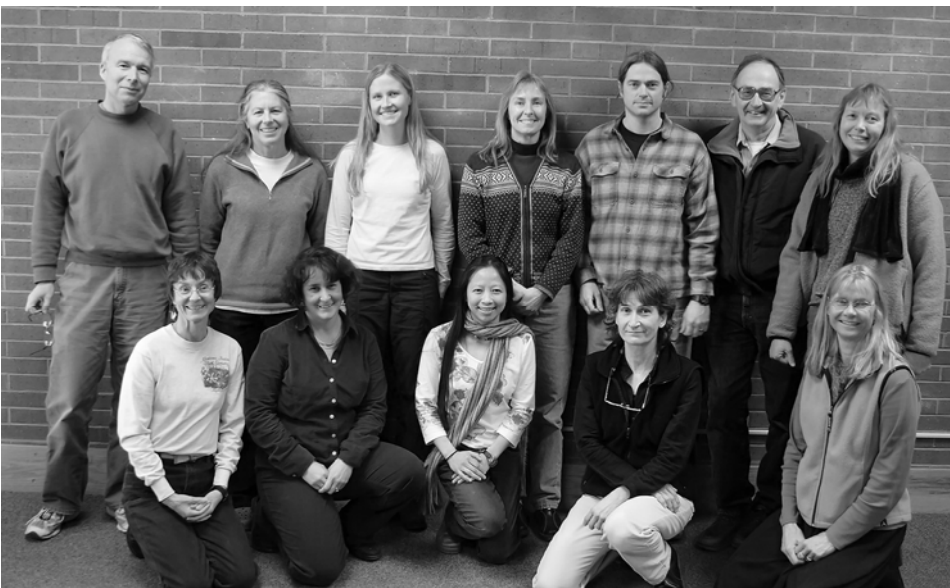
of voters. In 2005, the Maka Flora Chapter in northeastern Montana cast the largest percentage of votes in MNPS history, over 50%, and won the \$100 prize for the third year in a row! The MNPS Board of Directors has decided to award the \$100 prize again to the MNPS chapter with the largest percentage of votes.

Don't forget this will be the second year MNPS members can vote electronically. This is undoubtedly part of the reason the U.S. Postal Service has raised stamp prices. MNPS board members hope electronic ballots will counter the higher stamp prices and result in a higher level of voter participation. Please log on to the MNPS website at www.umd.edu/mnps/ and find the link to the 2006 election ballot. You can print the ballot and mail it in, or e-mail your choices to the MNPS Electoral College at pplantenberg@mt.gov.

If you prefer snail mail and the election analysis resulting from review of the hard copy ballots, fill out and mail the enclosed official ballot today and help your local chapter win in 2006. Results will be announced and the \$100 will be awarded at the MNPS Annual Meeting, July 14-16, 2006 at the Wall Creek Wildlife Management Area in the Gravelly Mountains south of Ennis. Can the Maka Flora Chapter win for a fourth year in a row, especially in the Calypso Chapter's territory and almost 500 miles from home? Remember that the MNPS Election Committee will analyze stamps used on the ballots. Rumor has it the U.S. Postal Service is trying to keep flower stamps off the market in 2006 to retaliate for our electronic elections. Regardless, MNPS members will find a way to use native plant stamps and address labels.

The MNPS Electoral College would like to thank MNPS members for their election support. The MNPS Election Committee challenges other similar professional societies and organizations to beat MNPS results in getting members to vote in uncontested elections! Are there any other professional organizations with over 500 members out there that want to try and compete in 2006?

Patrick Plantenberg



MNPS Board: L to R back: Peter Lesica, Betty Kuropat, Marijka Wessner, Susan Winslow, Dave Hanna, Pat Plantenberg, Linda Iverson; front: Kathy Lloyd, Marilyn Marler, Linh, Hoang, Cathie Jean, and Madeline Mazurski. Not shown: Erich Pfalzer, Dwayne Bondy, Sheila Thompson, Rebecca Kallevig, Monica Pokorny, and behind the camera Drake Barton

Jove's Buttercup Found in the Pryors

Last spring, in May 2005, Jennifer Lyman and Clayton McCracken found several populations of *Ranunculus jovis* on East Pryor Mountain in Carbon County, Montana. This finding of *Ranunculus jovis* in the Pryor Mountains is a significant northeastern extension of the plant's range—ninety miles over the Beartooth-Absaroka Range from the nearest previously known population in the northeast corner of Yellowstone National Park (YNP). This is the first report of *Ranunculus jovis* growing along the rim of the Bighorn Basin, of which the Pryors are the northern terminus.

Jove's buttercup is ranked S2 in Montana by the Montana Natural Heritage Program due to its perceived rarity in the state. However, additional surveys early in the field season, such as the one in the Pryors, may show that it is more abundant than previously thought. Botanists are unlikely to explore these sites with melting snow banks in early spring because of weather and road conditions. Globally, it is ranked G4 and is known from a six-state area. Heretofore, collections had been made in Montana locations immediately north of Yellowstone National

Park in Paradise Valley and in the Beaverhead and Gallatin National Forests to the west of YNP. Over the past fifty years it has been found at several locations in YNP, to the south in the mountains of Wyoming, in the Wasatch Mountains of Utah, as well as in Idaho.

R. jovis may be found in various soils and plant communities. Within the Pryors the collection sites varied from *Artemisia tridentata*/grasslands with loamy, clay soil among limestone cobbles at 7000 feet elevation, to openings within the Douglas-fir forest at 8000 feet where the soil was richly organic and overlain by mucky duff.

Jove's buttercup is an ephemeral spring plant emerging with *Claytonia lanceolata* from underneath deep snow banks. Within the Pryors, at all population sites, the snow banks were sufficiently deep to support subnivean activity of the pocket gopher, *Thomomys talpoides*. This association has not been noted in collections made elsewhere; however, whenever the site has been described, it is often noted as being at the foot of a melting snow bank. Nelson's students found it on the 13th of July, "growing on naked 'slide soil' where snow drifts had but lately lain." Just as pocket gophers do, *R. jovis* may need the insulation afforded by the deep snow, which keeps the ground temperature just above or slightly below freezing.

Ranunculus species have long, tapered roots occasionally described as somewhat fleshy. Although species' descriptions state that these roots are fibrous, there appear to be several taproots from one plant. Each root projects small secondary rootlets. *R. jovis* has evolved these long, tapered roots into thick storage roots. Later in the season when the plant is in seed, it has darker brown, withered roots and plump, shiny white roots—like old and new potatoes. The plump roots, we assume, are storing the energy needed next spring. Spring ephemerals/deep snow bank plants require that energy source to emerge in bloom from under a snow bank.

Because its roots resemble pudgy fingers, Sir William Hooker conferred the name *Ranunculus digitatus* upon

this plant, the initial collection having been made by Joseph Burke, probably in the spring of 1846, near Fort Hall in what is now Idaho.

Leslie Gooding and Elias Nelson, two young students of Nelson at the University of Wyoming, collected this plant from the slopes of the Thunderer, a mountain near Pebble Creek in Yellowstone National Park, during Aven Nelson's extensive plant collecting trip through the Park in 1899. Since it was collected on the Thunderer, Aven Nelson, who had problems choosing correct Latin names for all his novelties, had a sure bet when naming this plant Jove's buttercup, *Ranunculus jovis*. This plant had been collected earlier in the 1890's in the Wasatch Mountains of Utah by such notables as Jones, Greene, and Rydberg as *R. digitatus*, which happened to be a name previously given to a European buttercup. Aven Nelson's *jovis* is now the recognized name.

Montana Conservation Voters Education Fund

Montana Conservation Voters Education Fund is pleased to announce its new webpage, *Congressional Watch*, to report the votes and actions on conservation measures of Montana's Congressional delegation—Senator Max Baucus, Senator Conrad Burns, and Congressman Dennis Rehberg.

This new webpage is part of our ongoing government accountability work, which serves to inform voters of whether elected officials are standing up for voters' shared conservation values. You can receive notices of *Congressional Watch* updates directly, by signing up. Simply send us your name and e-mail address. You can also sign up by visiting our website at: www.mcvedfund.org/congwatch.html and click onto the link to sign up for the program. If you would like more information about this service, please contact us at our Bozeman office (406) 586-0109 or at our Billings office (406) 254-1593.

Editors'note: Go to the site listed above, click on Conservation Groups; you'll see MNPS listed with a link to



Jove's Buttercup (*Ranunculus jovis*)

A note from Native Plant Cyberspace... we are looking for a new webmaster

I've enjoyed the past five or so years serving as the society's webmaster. Setting up the website and watching it grow with your contributions has been very satisfying, in much the same way as gardening. So it is with a little reluctance that I ask for another volunteer from the society to step up and cultivate the website for the next few years. Since beginning my term on the Missoula City Council this winter, I find that I have less time for my plant-related volunteer activities.

To take over as webmaster, you will need basic web programming skills and a simple HTML editing program like Microsoft Front Page. You'll need to be comfortable interacting with plant nerds from around this great state, and be willing to embrace the high quality editorial corrections of Kathy Lloyd, our *Kelsey* editor and honorary website editor (where would the website be without Kathy's careful eye?). You do not need to live in Missoula.

Until a new webmaster steps forward, I will continue to update the website. But please be patient during the next few months—updates to the site will take longer than usual from time to time. My highest priority for updates will be chapter events and other time-sensitive happenings. Send them to me at marilyn.marler@mso.umt.edu

Marilyn Marler

Memberships Are Due!

It's that time again! Your membership in MNPS expired the end of February. If you have not already done so, please send your membership to the address in Missoula.

Field Trip Booklet

The deadline for inclusion in our annual field trip booklet is April 10. Please send all material to the editors at: drakekath@direcway.com

Original Lewis and Clark Specimens Coming to Museum in Big Timber

This summer Crazy Mountain Museum (CMM) in Big Timber, Montana continues its celebration of the Lewis and Clark Expedition with a special exhibition featuring some of the original plants collected by the Corps of Discovery as it passed through present-day Montana. The Museum, in cooperation with the Sweet Grass County Lewis and Clark group, Rivers Across, has organized the second of its Lewis and Clark Bicentennial exhibitions that highlight the importance of plants to the success of the epic journey from Saint Louis to the Pacific Ocean and back between 1804 and 1806. While last summer's display focused on the explorers, the native people they encountered, and the role plants played in their relationship, this summer's show examines the expedition's botanical discoveries. Through a special loan from the Academy of Natural Sciences in Philadelphia, the museum is presenting four of Lewis and Clark's historic plant specimens: *Dalea purpurea* (purple prairie clover), *Euphorbia marginata* (snow-on-the-mountain), *Lewisia rediviva* (bitterroot), and *Philadelphus lewisii* (Lewis's mock-orange). This exhibition marks the 200th anniversary of their collection in Montana by Lewis and Clark during their return trip to Saint Louis in 1806. Billings artist Mike Mahoney illustrates the story of the expedition's botanical specimens from their collection in Montana to their final home at the Academy of Natural Sciences through a series of original artworks created for the exhibition. Additionally, the exhibition includes a rare copy of Frederick Pursh's comprehensive catalog of American plants, *Flora Americae Septentrionalis*, published in London in 1814. This volume was the first to present the plant specimens collected by the Lewis and Clark Expedition. In addition to the exhibit, the museum is home to a newly created Lewis and Clark Montana Native Plant Garden with thriving examples of many of the plants collected on the expedi-

tion. This garden has been recognized as a Lewis and Clark National Historic Trail site. Crazy Mountain Museum opens for the 2006 season on Monday, May 29 with its annual Memorial Day celebration. For more information, contact Crazy Mountain Museum in Big Timber at (406) 932-5126. Hours through Labor Day are Tuesday through Saturday 10 to 4:30, and Sunday 1:00-4:30. Other than Memorial Day, the museum is closed Mondays. CMM is located southeast of the west Interstate exit to Big Timber.

Sandi Blake



Purple Prairie Clover (*Dalea purpurea*), collected by Lewis on July 22, 1806

Lewis & Clark Plant Info

Copies of *Plants Collected in Montana During the Lewis & Clark Expedition* may be ordered from the Publication Committee (see page. 6), or downloaded from our website. Visit www.umt.edu/mnps to also download *Lewis & Clark Plants Collected Elsewhere That Occur in Montana*, an inclusive list of Lewis & Clark plants found in the state.

Rare plants are common where you find them, postulates Peter Lesica, Raymond Yurkewycz, and Elizabeth Crone in an article published in the *American Journal of Botany* 93(3): 454-459. The authors believe the local abundance of narrowly endemic species may be a sign of recent speciation. Take a look.

CALENDAR

Please remember to leave pets at home during MNPS field trips.

ARTEMISIA CHAPTER

For a schedule of Artemisia Chapter events or to get your questions answered, please call Leslie at 445-9178.

CALYPSO CHAPTER

Call Sheila Thompson at 846-1855 or Debbie Mueller at 782-6651 for times and details.

CLARK FORK CHAPTER

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

Some of our most spectacular wildflowers are also our best garden subjects. Tune up your identification skills and get some ideas for your garden by joining Clark Fork Chapter native plant gardeners and photographers for a primer on "Montana's Garden-worthy Wildflowers." Rm. L09 Gallagher Business Bldg., UM Campus.

Saturday, April 15, 9:00 a.m.

"Stalking *Dicentra uniflora*." Join Forest Service ecologist Mike Young and our navigator Lois Hartsey, in search of the very unique and peculiar steer's head in bloom. This will be a moderately strenuous 8-mile roundtrip hike on a good trail. Meet at the Rattlesnake Recreational Trailhead. Bring water and a lunch. Sturdy boots and raingear are recommended. Call Kelly at 258-5439 if you have questions.

Thursday, May 11, 6:30 p.m.

"Our Annual Spring Potluck" will be held at the home of Mike Young and Dyan Mazurana, 529 Evan Kelly Rd. Go north on Duncan Drive; it's at the end of the cul-de-sac on the 3rd street on the right after the top of the hill. Bring your own utensils and a dish to share. We can poke around in Mike's native garden and check out what's going on along Rattlesnake Creek.

Saturday, May 20, 9:00-12:00 a.m.

"Annual Native Plant Society Plant Sale at the Missoula Farmers Market." We will be selling over 30 species of natives, including our state flower the bitterroot. Come early for the best selection.

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

"Dyers Woad Pull #1." Help control weeds and raise money for the Clark Fork Chapter of the Montana Native Plant Society. The chapter is paid \$10.00 an hour per person, up to a total of \$400.00. Fifteen years ago the dyers woad infestation was 7,000 plants and now we rarely find more than 400; we are controlling the infestation without herbicides! The pull takes about two hours. Come enjoy the view and beautiful grasslands. Meet at the Mount Sentinel trailhead. Wear sturdy shoes and bring rain gear. Call Marilyn for more information at 243-6642.

Thursday, May 25, 6:30 p.m.

"Mount Jumbo Wildflower Walk." Marilyn Marler, botanist and noxious weed coordinator, will be our guide while we explore wildflowers and bunchgrasses in the saddle of Mount Jumbo and the adjacent forest. We will

meet at the parking lot at 1/4 mile beyond the black top Lincoln Hills. Call Marilyn at 243-6642 for details.

Saturday, June 3, 11:30 a.m.

"Old-Growth Stroll at the Sprunger-Whitney Nature Trail." Anne Morley will lead a leisurely two-mile walk meandering through riparian areas near the Swan River and through a majestic low-elevation old-growth forest. Missoula area folks meet at the NE corner of the Bonner Town Pump parking lot at 9:00 to carpool to the trailhead. Others take Hwy 83 approximately 7.1 miles south of the Swan Lake Trading Post in Swan Lake. Turn right at the Point Pleasant Campground (1/2 mile south of mile marker 64). Parking and trailhead are along the road into the campground. Call Kelly at 258-5439 for more information.

Tuesday, June 6, 6:30 p.m.

"Dyers Woad Pull #2." See above for details or call Marilyn at 243-6642.

Thursday, June 15, 6:30 p.m.

"John Toole Park Weed Pull." Help John Pierce and other volunteers continue to restore the native grasslands of the old Missoula Valley. Bring a tool for weeding and meet just north of the Waterwise Garden and east of the Missoulia, near Kim Williams Trail in John Toole Park. Call John at 542-2640 for more information.

Tuesday, June 20, 6:30 p.m.

"Dyers Woad Pull #3." See above for details or call Marilyn at 243-6642.

Friday-Sunday, June 23-25

"Little Belts Limestone and Short-styled Columbine Field Trip" with Wayne Phillips. We will camp Friday night at King's Hill Campground and on Saturday we go to King's Hill to see limestone (Jones's) columbine and associated alpine cushion plants; then tour beautiful wildflower meadows to view rare short-styled columbine. Later in the day we will hike to view Indian pictographs and camp Saturday evening at the restored, historic Judith Guard Station. For those interested in staying in the guard station Saturday evening, there are 8 spaces available on a first come, first served basis for \$5 each. Call Wayne at 406-453-0648 for reservations. Call Kelly at 258-5439 or Wayne at 453-0648 for carpool plans and details.

EASTERN MONTANA

For more information about Eastern Montana events call Wayne Phillips at 453-0648.

FLATHEAD CHAPTER

The Flathead Chapter is sponsoring a wildflower art and photo contest this summer. All of the field trips are good opportunities to photograph or illustrate plants, or get ideas for the contest. Entries are due by July 31. For more information about the contest, call Linh Hoang at 270-7533 or 758-5331, or check the Flathead Chapter events on the MNPS website.

All trips are free and open to the public. Please contact the leader if sign-up is re-

quested. Bring food, water, raingear, and a hand lens if you have one. Please leave your dogs at home.

Wednesday, April 19

"The World of Bryophytes." Joe Elliott will introduce us to mosses. This is our last regular meeting of the season at the Mountain View Mennonite Church in Creston. The church is at the corner of Mennonite Church Road and Creston Hatchery Road. The program begins at 7:00 p.m. Everyone is welcome to the business meeting at 5:30 p.m. to work on our photo and art contest plans. Call Rachel (892-2446) or Linh (270-7533) for more information or directions.

Every Tuesday in May and June

"Bigfork Wild Mile Corridor Wildflower and Bird Walks." 10:00 a.m. to noon. Join Anne Morley and Robin Magaddino for a gentle morning of wildflower and 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 Anne at 886-2242 for details.

May 8-14

"Flathead Forestry Expo." We need your help to educate 5th grade students about native plants during the week. MNPS volunteers work an educational station with 20-minute presentations as classes cycle through. Contact Linh Hoang (270-7533 or 758-5331).

Wednesday, May 17, 5:30 p.m.

"Columbia Mountain." Join botanist Mel Waggy on an evening hike up the Columbia Mountain trail. Enjoy a colorful display of wildflowers and views of the Flathead Valley. Meet at 5:30 p.m. at the Columbia Mountain parking lot and trailhead. Call Mel at 257-9051 for more information.

Saturday May 27, 10:00 a.m.

"Native ecosystems around Bigfork." Join Brett Thuma, native plant enthusiast and talented local artist, on a tour of an area of old-growth ponderosa pine with a prairie understory that is surrounded by development. After that, we'll visit some prairie restorations and the recently thinned forest at Harry Horn/Wayfarer's park. We may go to the Swan River Nature trail. Meet at Brett Thuma's gallery in Downtown Bigfork at 10:00 a.m. Brett's gallery phone is 837-4604 and home is 837-1239.

Saturday, June 3

"Old Growth Stroll at Sprunger-Whitney Nature Trail." Anne Morley will lead a leisurely two-mile walk through riparian areas near the Swan River and a majestic low-elevation old-growth forest. Flathead folks meet at 11:00 at Echo Lake Café on Hwy 83, north of Bigfork, or meet at 11:30 at the trailhead. Take Hwy 83 to approximately 7.1 miles south of the Swan Lake Trading Post in Swan Lake; turn right at the Point Pleasant Campground (1/2 mile south of mile marker 64). Parking and trailhead are along the road into the campground. Call Anne at 886-2242 for more information.

Wednesday, June 7, 7:00 p.m.

"Tour two local native plant gardens." Join

(Continued on page 13)

WESTERN MONTANA

For information about activities in western Montana, call Erich Pfalzer at 406-827-4078.

WELCOME new members!

The Montana Native Plant Society extends a warm welcome to the following new members:

Artemisia Chapter: Tom Torma; **Calypso Chapter:** Debbie Bishop, Thomas Elpel, Brian & Juanita Hockett; **Clark Fork Chapter:** Sarah Bisbing, Zachary, Kori & Kinsley Hassler, Lisa Hensley, Amanda James, Pamela Kittelson, Natalie Meyer, Rob Roberts, David Wright; **Flathead Chapter:** Nancy Zapotocki; **Kelsey Chapter:** AF Design Group, Mary Guokas, Merle Rognrud, Shades of Green Landscape; **Valley of Flowers:** Karen Christiansen, Mara Johnson, Nancy Laren, Karla Sartor; **Western Montana:** Karol Marlowe.

Your participation and support are important to us! Please contact your chapter representative with any ideas or suggestions you may have.

Rock Garden Conference

The North American Rock Garden Society is sponsoring the International Interim Rock Garden Plant Conference, hosted by the Wasatch Chapter. The conference is titled *Plants of the Western Cordilleras: Alpines in All Directions*, and will run from Friday, July 21st through Wednesday, July 26th, based at the Snowbird Ski and Summer Resort in Snowbird, Utah. The double-barreled format consists of a lecture series, followed by a three-day field trip. The lecture series will be held at Snowbird, where our knowledgeable and entertaining speakers will cover the geology, the plants, and the ecosystems to be seen in the field. The three-day trips will roam to the Ruby Mountains, eastern Nevada; Cedar Breaks, southern Utah; Snowy Range, southern Wyoming; Teton Mountains, western Wyoming; and Bear River Range, northern Utah. For further details (lectures, costs, lodging), please see our web page:

<http://www.nargs.org/IIRGPC.html>

Joyce Fingerut

...Calendar (Continued from page 12)

Bill McClaren for a tour of the Flathead Valley Community College Native Plant Garden followed by a tour of his home native garden. Meet in back of Blake Hall at the college at 7:00 p.m. Contact Bill McClaren at 257-2540 or e-mail mccl@bresnan.net for details. No RSVP necessary. The tour will be less than a block to walk and is wheelchair accessible.

Saturday, June 10, 9:00 a.m.

"Johnson Mountain Terraces." This is a rugged 4-5 mile cross-country hike along a series of moist, mossy rock terraces with a variety of diminutive plants. Meet at the Tally Lake Ranger Station in Whitefish at 9:00 a.m. Bring lunch and water. Call Mary Sloan (862-3360) or Betty Kuropat (892-0129) for details and to sign up.

Every Tuesday, June 13—August 29

"Volunteer opportunity at the Glacier National Park Nursery." 9:00-4:30 p.m. (come and leave as you choose). Help with seeding, transplanting, weeding, and cleaning. Those who are interested may also help with data management, or work on a particular research project. Bring a lunch, your favorite work gloves, and clothes that can tolerate dirt. Meet at the Native Plant Nursery at Glacier National Park. Contact Joyce Lapp at 888-7817 for details. RSVP appreciated.

Saturday, June 24

"Dancing Prairie Preserve." Visit The Nature Conservancy's Dancing Prairie Preserve with Maria Mantas, plant ecologist, wildflower photographer, and preserve manager. Walk the open grasslands and forested draws of the preserve, which will be in full spring bloom. RSVP no later than June 22. Call Maria at 466-3040 for details on when and where to meet.

KELSEY CHAPTER

For more information about Kelsey Chapter programs and events, call Kathy at 449-6586.

Thursday, April 6

"Landscaping with Natives—How To." Patrick Plantenberg and native plant landscapers and nurseries have put together a native landscaping exhibition and program. The exhibits will be available at 5:00 p.m. for viewing and questions, with a program at 7:00 p.m. The program is sponsored with the Helena Garden Club. The exhibition and program will be at the Covenant United Methodist Church at 2330 Broadway and is free of charge. Call Patrick at 266-5265 for details.

Tuesday, April 11, 7:00 p.m.

"Wild Edible Plants Workshop." This is the first in a series of classes on wild edible plants, facilitated by Patrick Plantenberg. Participants will sign-up for the class, which includes field trips and a wild edibles potluck. A small fee entitles participants to receive a booklet to be published after the class that will include write-ups by the participants on an edible plant of their choice. Sponsored with the Montana Federation of Garden Clubs. Meet at the Covenant United Methodist Church at 2330 Broadway. Call Patrick at 266-5265 for details.

Sunday, May 14, 4:00-8:00 p.m.

"Wild Edible Plants Workshop." Meet at the Covenant United Methodist Church at 2330 Broadway in Helena for the first of our edible plant hikes. Call Patrick at 266-5265 for details.

Monday, May 22, 5:00 p.m.

"Wildflower Refresher" for the Celebrating Wildflowers hikes on May 23. The crash course will familiarize you with the course, and give you a sneak peak at what will actually be blooming the day of the hike. Meet at the Mount Helena parking lot.

Tuesday, May 23

Celebrate "National Wildflower Week" with hikes for 4th graders on Mount Helena. We need hike leaders for the morning and afternoon session. Meeting times are 8:30 a.m. for the morning hike and 12:00 p.m. for the afternoon hike. Volunteers can sign up for either session or both. Sponsored jointly with the Helena National Forest and Montana Discovery Foundation. E-mail Kathy Martin at : katbrim@peoplepc.com to sign-up and get additional details.

Thursday, June 8, 5:00-9:00 p.m.

"Wild Edible Plants Workshop." Meet at the Covenant United Methodist Church at 2330 Broadway in Helena for the second of our edible plant hikes. This hike will focus on backyard edibles. Call Patrick at 266-5265 for details.

Saturday, June 17, 9:30 a.m.

"Little Blackfoot River Meander." Meet at the west end of the Lundy Shopping Center at 9:30 to carpool. The stroll is near the Little Blackfoot River and features a native grassland next to national forest. Bring a sack lunch. Call Mary Johnson at 442-4676 for details.

MAKA FLORA CHAPTER

For information about the Maka Flora Chapter or events call Rebecca Kallevig at 488-5455.

VALLEY OF FLOWERS

During the winter, the Valley of Flowers Chapter meets on the second Tuesday of each month in Room 108 of the Agbioscience Building at MSU. The building is on South 11th, and parking is free in the evening in the lot to the north of the building. Meetings begin at 7:00 p.m. For more information contact Monica Pokorny at 763-4109.

Tuesday, April 11, 7:00 p.m.

Beth MacFawn, a member of the Montana Native Plant Society and owner of Beth MacFawn Landscape Design, will give a presentation "Designing with Natives." The presentation will cover defining native plants, the purpose of planting natives, and starting your own native landscape. Beth will share inspiring examples of landscape designs utilizing natives. As a landscape designer, she creates a sense of place in harmony with the existing environment while encouraging native plants, from trees to lawns.

SMALL GRANT AWARD

Congratulation to this year's recipient of the MNPS's small grant award. The successful award goes to Teresa Erickson, Staff Director for Northern Plains Resource Council. Teresa's small grant project titled 'Jewels on the Plains Native Garden' will create a native prairie garden at their new office facility, Home On the Range, an energy efficient, sustainable office building in downtown Billings. The garden will showcase an array of native forbs, grasses, and shrubs, and will be used by the Northern Plains Resource Council to demonstrate native and water-wise landscaping. The Jewels on the Plains Native Garden has already generated a lot of interest and native prairie and water-wise landscaping will be the topic of a panel discussion scheduled for next fall at the annual meeting of the Northern Plains Resource Council.

This year the small grant committee received seven excellent proposals. These proposals offered many unique ideas and included projects for prairie restoration and scientific research, as well as school educational activities that promote native plant conservation. Each proposal was worthy of funding and we only regret that we couldn't fund each one. Following is a list of proposals submitted in 2006:

RESEARCH

- ◆ Transplanting Natives into an Urban Landscape
- ◆ How do Stored Resources Affect Population Dynamics of Herbaceous Perennial Wildflowers?
- ◆ Speciation in *Synthyris* sect. *Dissecta* (plantaginaceae): a Phylogeographic Approach

EDUCATION

- ◆ The Exploration Garden
- ◆ Celebrating Wildflowers
- ◆ Jewels on the Plains Native Garden
- ◆ Ravalli County Weed District Demonstration Prairie

Thanks to everyone who participated in this year's competition. We hope to hear from you again in future year grant programs.

Cathie Jean
MNPS Small Grant Committee Chair

...Hydraulic lift (Continued from page 1)

roots in shallow soil in order to obtain moisture from light rain showers and capture nutrients that reside primarily in the surface layers. Deeper roots tap deep ground water that is replenished annually by winter snow or rain. As the growing season progresses the shallow soil layers dry out and the only available water is found in deeper layers. At this time of year, water moves from the deep roots into photosynthesizing leaves during the day. At night, leaves stay moist because their stomates are closed. Instead, water from deep roots moves through the shallow roots and into the dry soil because it is drier (has a lower potential) than the leaves. In this way shallow soil around hydraulic lifting plants becomes moister at night.

There are several potential consequences of hydraulic lift to the vegetation. By moistening shallow soil at night, plants can use both deep and shallow roots to move water into leaves during the day. Indeed, Richards and Caldwell showed that sagebrush plants deprived of the ability to hydraulic lift transpire 25-50% less and presumably suffer from reduced photosynthesis as a result. Hydraulic lifting can also help plants acquire nutrients. This happens because most nutrients and the microbes that release them are found in the surface soils, and nutrient exchange with plants occurs only when soil is moist.

Plants that hydraulic lift are not the only ones that benefit. Todd Dawson found that some herbaceous plants growing beneath sugar maples used water released by the trees in the shallow rooting zone. These understory plants showed increased growth as a result. Frederick Meinzer and his colleagues found that shallow soil beneath ponderosa pine (*Pinus ponderosa*) in western Oregon remained moist for up to three weeks longer due to hydraulic lift. This additional moisture was used by pine seedlings and may significantly enhance their survival under some circumstances. Of course, woody plants don't always benefit understory spe-

cies. Trees and shrubs intercept light as well as rain and snow, and can sometimes outcompete herbaceous species for moisture in shallow soil.

Hydraulic lift is a passive process; water simply moves along a gradient of moist to dry. No energy is required, and, as Martyn Caldwell and his colleagues discovered, this means that dead plants can lift water too! They found that significant amounts of water can move up and down through the stems of dead cheatgrass plants (*Bromus tectorum*). In some instances, dead cheatgrass could

Everything really is hitched to everything else.

move water up to aid the survival of its fall-germinating

seedlings. This example of post-mortem maternal care shows that a mother's love goes beyond the grave. More importantly, their study shows that wheat stubble could quickly move moisture to deeper soil layers following light rain, aiding water storage in fallow fields. Leaving stubble is considered a conservation practice because it reduces wind erosion of soil, but it could have the added benefit of improving field moisture. Clearly, more research will be needed to convince farmers who have always controlled weeds by plowing stubble under.

Hans Jenny, the father of modern soil science, believed that soil and vegetation are an interdependent communion. The soil (and climate) determines the vegetation, which, in turn, influences the soil. Hydraulic lift is a good example of this interdependence; plants facilitate other plants, both of their own and other species. As John Muir pointed out, everything really is hitched to everything else.

References:

- Caldwell, M. M., T. E. Dawson and J. H. Richards. 1998. Hydraulic lift: consequences of water efflux from the roots of plants. *Oecologia* 113: 151-161.
- Brooks, J. R. et al. 2002. Hydraulic redistribution of soil water during summer drought in two contrasting Pacific Northwest coniferous forests. *Tree Physiology* 22: 1107-1117.
- Leffler, A. J. et al. 2005. Hydraulic redistribution through root systems of senesced plants. *Ecology* 86: 633-642.

MNPS Chapters & the Areas They Serve:

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

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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 *Kelseya*, the quarterly newsletter of MNPS. We welcome your articles, field trip reports, 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. All items should be typed, saved in Microsoft Word or rich text format (rtf) for a PC, and sent electronically to: drakekath@direcway.com or mailed to *Kelseya* Editors, 314 Travis Creek Rd., Clancy, MT 59634.

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The deadline for each issue is: Fall— September 10; Winter— December 10; Spring— March 10; Summer— June 10. Please send web items to our webmaster concurrent with these dates.

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