

Kelseya

Newsletter of the Montana Native Plant Society

www.umt.edu/mnps/

Line Creek Plateau Research Natural Area by Steve Shelly

On June 29, 2000, the Regional Foresters of the Northern and Rocky Mountain Regions of the U.S. Forest Service signed a landmark decision that greatly advanced the protection of biological diversity and natural areas in Montana and Wyoming -- they officially designated the Line Creek Plateau Research Natural Area (RNA). The decision was subsequently appealed, but was affirmed earlier this year. Ecologists and managers on the Custer and Shoshone National Forests deserve a huge amount of credit for their diligence in securing this important designation.

The Line Creek Plateau RNA lies in the Beartooth Mountains, and encompasses a spectacular array of alpine and montane plant communities. In the Montana portion of the RNA, one shrubland, nine alpine, and seven conifer forest vegetation types are protected, fulfilling a total of 17 plant community and habitat targets needed for the Northern Region RNA network. These targets include alpine grasslands, alpine wetlands, snowbed communities, dry and moist forests, and a representation of the mountain big sagebrush/Idaho fescue shrubland (*Artemisia tridentata vaseyana*/*Festuca idahoensis*). Two of the alpine plant communities in the RNA, Idaho fescue/Ross' avens (*Festuca idahoensis*/*Geum rossii*) and greenleaf willow/tufted hairgrass (*Salix glauca*/*Deschampsia cespitosa*), are not found elsewhere in Montana. In addition, Line Creek Plateau RNA permanently protects nu-

merous rare plant populations. A total of 24 species of vascular plants tracked by the Montana Natural Heritage Program (19 species) and the Wyoming Natural Diversity Database (5 species) are known to occur in the RNA. These include disjunct populations of such arctic and circumboreal species as *Draba porsildii* (Porsild's draba), *Pedicularis oederi* (Oeder's lousewort), and *Eriophorum callitrix* (beautiful cottongrass). The RNA also contains one of only two populations of *Salix barrattiana* (Barratt's willow) in the continental U.S. A total of 531 vascular plant species have been recorded. Habitat for several threatened, endangered or sensitive animal species, such as the gray wolf, grizzly bear, lynx, and wolverine, is present as well. Line Creek Plateau RNA has the distinction of being the largest designated natural area in the U.S. Forest Service RNA network, nearly twice the size of the next largest RNA in Alaska. The area protects a total of 22,422 acres, with 19,369 acres lying on the Custer National Forest in Montana, and 3,053 acres on the Shoshone National Forest in Wyoming. Nationally the Forest Service has designated approximately 450 RNAs, encompassing a total of over 570,000 acres. The Northern Region manages 104 RNAs, totaling approximately 147,350 acres.

The next time you travel over the Beartooth Highway, which traverses the Line Creek Plateau RNA, you can enjoy the incredible alpine scenery and know it is protected in perpetuity by its inclusion in this fabulous

Montana's New Plant

Montana has a new plant! Well, the plant is not new, but our awareness of it is.

Senecio spribillei was discovered late in 2001 by MNPS member Toby Spribille and was described in 2002 by William Weber (University of Colorado, Boulder), who honored Toby and his find by naming the species after him.

Senecio spribillei is a narrow endemic in the Asteraceae family related to *S. neowebsteri* and other Himalayan taxa, and is known only from the type locality on Snowshoe Peak, Lincoln County, Montana. It is listed by the Montana Natural Heritage Program as a state endemic with a G1, S1 ranking. The common name for our new plant is Spribille's groundsel.



Senecio spribillei, holotype



President's Platform

Betty Kuropat



Beargrass is blooming in the woods around my house. It must be summer. By the time this issue of *Kelsey* reaches our mailboxes, the *Flora of Discovery* Annual Meeting will be past. As always, I'm looking forward to renewing old friendships, starting new ones, and learning more about the flora of Montana. At the membership meeting on Saturday evening, the chapter and committee representatives will share the accomplishments of the past year and the goals for the coming year. I hope to include highlights in the fall *Kelsey*. Here are some noteworthy accomplishments of the Society, from my perspective:

The Calypso and Artemisia chapters were struggling for a few years to remain active. They have renewed their commitment to themselves and the Society and have been very active this year. Calypso Chapter is hosting our Annual Meeting this year. Artemisia Chapter will be hosting our meeting next year. We all know that hosting the Annual Meeting is a big job. Thank you to all the members of those chapters and especially chapter officers.

The *Plant Collection Guidelines for Teachers* brochure, written last year,

was printed this spring and distributed to MNPS chapters and science teachers around the state, and is also available for various functions, teachers and classes. Thank you Gertrud Lackschewitz, Maria Mantas, and Kim Goodwin.

The Small Grants Committee received many good proposals and awarded two grants. Since the Small Grants Committee was formed in 1996, we have awarded 15 Small Grants totaling \$6900. Thank you committee chair Cathie Jean and the whole committee.

The Landscape Committee revised and printed the *Source Guide for Native Plants of Montana* (3rd edition). It is better than ever. Thank you Linda Iverson, Harvey Bjornlie, and many others who contributed.

The Landscape and Conservation committees worked with the Montana Nursery and Landscape Association to write *Guidelines for Selecting Horticultural Plant Material for Montana*. Thank you Peter Lesica, Linda Iverson, Madeline Mazurski, Sandi Blake and others.

The beautiful and informative handout, *Plants Collected in Montana During the Lewis and Clark Expedition* was researched, written,

printed, and included in the spring *Kelsey* and distributed to chapters to hand out at events. Thank you Kathy Lloyd, Drake Barton, Sandi Blake and others.

Most of our publications are now posted and updated regularly on our website at www.umt.edu/mnps. Thank you Marilyn Marler and everyone who contributes material.

Wow! That's quite a list. I have more, but I must stop sometime. That's just a few of the things you've done this year to conserve, study, and educate others about Montana's native plants.

Friends of the Herbarium (FOH)

You have already noticed a copy of the Friends of the Herbarium newsletter in your *Kelsey*.

MNPS has helped support FOH's honorarium fund for the last 2 years and has granted funds for new cabinets. Friends of the Herbarium wanted all MNPS members to know more about FOH by providing us with a complimentary copy of their newsletter. I hope you enjoy it. Perhaps you'll get inspired to visit or become involved with the herbarium at the University of Montana.

Betty Kuropat

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

Montana Heritage Welcomes New Ecologists

Dr. Greg Kudray joined the Natural Heritage Program as Senior Ecologist in May. Greg brings a wealth of experience as a landscape ecologist. He earned his Ph.D. in Forest Science from Michigan Tech and worked as a consulting ecologist on wetland classification and mapping in Michigan's Upper Peninsula. He has been involved in a wide variety of other projects, from surveys of rare *Botrychium* species to founding a land trust and working with the Keweenaw Bay Chippewa on culturally significant plants.

Also joining the Heritage Program this spring is Elizabeth Crowe, who will be leading inventory efforts on the Upper Missouri River Breaks National Monument, a cooperative project with the BLM. Elizabeth is a plant ecologist with over a decade of experience in the Northwest, and particular expertise in wetland/riparian ecology and classification.

Sue Crispin

WELCOME new members!

Elaine Anderson, Nancy Anderson, Margare Augustine, Amy Bamber, Bruce Boody, David Branson, John L. Brown, Mark Buehl, Jack & Bernice Burns, Karen Burton, Helen Bushby, Richard Casteel, Jeff Collins, Cory Davis, Sara Dedekam, Holly Difani, Tracy Dougher, Molly Galusha, John Gaskin, Ginger Gauss, Gordon & Leesa Gregory, Judy Hamilton, Lee Harry, Carla Hoopes, Peter Husby, Ed Jakobson, Priscilla Korb, Dean Littlepage, Jennifer Lyman, Rod McIver, Karen & Brent Nelson, Alice Okon, Karen Porter, Marietta Reviczky, Jeanne & John Ring, Gretchen Von Rittberg, Shades of Green, Susan Sindt, Beverly Skinner, Paula Smith, Allan & Paula Tavid, Maureen Theisen, Bruce Threlkeld, Heidi Tureck, Westscape Wholesale, Robert Wooley, Zoo Montana.

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

Equal Protection for Plants ...another view

Peter Lesica makes good points in his letter on equal protection for plants (*Kelsey*, spring 2003). There are undoubtedly grave problems with our current system of unequal protection for animals and plants under the federal Endangered Species Act (ESA). As his letter points out, problems may also be created by a system of equal protection. While recognizing the gloomy reality that there is no easy answer, the California Native Plant Society (CNPS) and the Native Plant Conservation Campaign (NPCC) have been circulating a statement calling for equal protection. The statement is based on (1) principle and (2) optimistic pragmatism. The principle is the fact that the "ecological value" of plants and animals is, of course, equal. The optimistic pragmatism is our analysis that effective conservation would be more attainable under a system of equal protection than under the current system of law. The classification of animals (game) as public property and of plants as private property goes back through centuries of law, and is reflected throughout U.S. state and federal law. The ESA is only one example. The legal distinction clearly is not based on biological reality regarding the relative value of these organisms. Conservation of both plant and animal diversity is essential to maintenance of native ecosystems, and to the socially and economically essential processes such as water storage and purification, flood control, nutrient cycling, etc., they provide to humankind. Under the current ESA, it is illegal to destroy federally listed animals without a permit wherever they occur. But federally listed plants that are not so fortunate as to occur on areas under federal jurisdiction, such as national parks, must rely for conservation on (1) state endangered species laws which are highly variable and generally weak or (2) protection by government or private entities such as The Nature Conservancy. Where such measures fail, federally listed plants, by definition among the most imperiled in the

U.S., may be destroyed, even extirpated, with impunity. We lose populations of federally listed plants in this way on a regular basis.

Contrary to Mr. Lesica's assertion that a system of equal protection would "impl[y] that [the Feds] have jurisdiction over all the plants in your yard", under equal protection those who wish to destroy federally listed plants would be required first to obtain a permit, as they do for listed animals. An equal protection system would not prohibit such destruction, nor would it extend any new protections to unlisted plants.

There is a legitimate fear that resistance to plant listings may stiffen if plant and animal listing carried the same protections. But listing is already extremely difficult. Congress and federal administrations have severely underfunded the Fish and Wildlife Service (FWS) listing program, leading to long delays in the listing of declining species. Recent FWS court statements estimate that \$153 million would be required to clear the listing program backlog. Despite this estimate, the Administration has requested only approximately \$13 million for the listing program for Fiscal Year 2004.

Fear of, and hostility to, listings does complicate efforts to protect species. However, most fear is not due to any draconian provisions in the ESA. Rather it stems largely from fear mongering by those who oppose the ESA. The fear mongering depends to a large extent on myths, such as the myth that the ESA shuts down land and development projects. In fact Congressional studies have found that less than 1% of ESA consultations result in project termination.

Efforts to discredit the ESA are also greatly aided by the aforementioned failure of Congress and our Presidents to adequately fund the law. The FWS does not have sufficient resources to efficiently process permit applications, causing delays which can create inconvenience and uncertainty for some project proponents.

There is no reason to accept the myths about the ESA, and there is no reason to accept deliberate under-

funding by Congress and the Administration. Instead, we should demand that the ESA be adequately funded so that it can be a fully effective - and user friendly - conservation and recovery tool. In the same spirit, we should not accept inferior protection for plants because it is inconsistent with current political reality. Instead we should work to change the political climate to one that accepts the biological value of plants and protects them accordingly.

Finally, certainly no one expects legislation to provide equal protection any time soon. The current Congress and Administration are more likely to decrease conservation than increase it. A primary purpose of the CNPS/NPCC equal protection statement is to increase awareness of this important, but little known, issue within the botanical community, and to stimulate further debate.

This exchange is an excellent example of our goals for the project.

2003 Montana Legislative Review

During the 2003 Montana Legislature Audubon's efforts could be characterized as a lot of hard work just to keep existing environmental laws and programs intact.

The only bill that impacted native plants changed the definition of native plant from "a plant endemic to the State of Montana" to "a plant indigenous to the State of Montana." The new definition is both more correct and more workable

In addition, we worked to defeat bills aimed at weakening perpetual conservation easements, pass a bill that allows for the regulation of invasive exotic animals, kill legislation that would have gutted the Montana Environmental Policy Act, and defeat legislation that would have prohibited state involvement in habitat management for rare wildlife.

This session proved to be a difficult one—and the MNPS's support was *much* appreciated! If you want to know how your legislators voted we will send you our 2003 Voting Record. Requests should be made to Montana Audubon, P.O. Box 595, Helena, MT, 59424. The voting record will also be posted at:

http://www.mtaudubon.org/html/take_action_voting_records.htm.

Janet Ellis

Montana's Native Plant Society and Nursery and Landscape Association Team Up to Stop the Introduction of Invasive Plants

Invasive exotic plants pose a threat to Montana's native grassland, woodland and riparian communities. A great deal of effort is expended controlling noxious weeds already in the state. However, the problem will never abate until we are able to prevent the introduction of new invasive exotics. Many of our worst weeds, such as Dalmatian toadflax, purple loosestrife, tamarisk and Russian olive, got their start with the nursery-landscape trade, so it stands to reason that this industry can play a positive role in preventing future ill-advised introductions. No one wants to introduce or propagate plants that cause environmental damage or erode their neighbor's livelihood, but how can nursery and landscape professionals identify potentially invasive plants?

Many nursery and landscape professionals are aware of the problem and are concerned about it. Articles on the subject of the nursery trade and invasive exotics have appeared in *American Nurseryman*, *The American Gardener*, and the newsletter of Lawyer Nursery, right here in Montana. More significantly, an international meeting of nursery and landscape professionals, botanists and government agencies was held at the Missouri Botanical Garden in late 2001 to address the issue. The group has released the St. Louis Declaration on Invasive Plant Species and Draft Voluntary Codes of Conduct. Craig Regelbrugge of the American Nursery and Landscape Association said the industry is committed to implementing voluntary guidelines and educating both members and consumers about the problem. Although the Codes of Conduct spell out a philosophy, they do little to spell out how a nursery professional can identify a potentially invasive species.

About the same time as the international meeting in St. Louis, the Montana Native Plant Society formed a committee of MNPS members who were also nursery and landscape pro-

fessionals. Over the course of the next year and a half this committee worked with the Montana Nursery and Landscape Association (MNLA) to develop a set of voluntary guidelines to help MNLA members choose plant materials safe for introduction. The guidelines are based on the research of many in the scientific community, most notable of whom is Sarah Reichard, a former nursery owner. After incorporating members' comments, the MNLA Board of Directors approved the voluntary guidelines at their meeting in May. Thanks go to Sandi Blake, Claire Dunne, Linda Iverson, Madeline Mazurski and Les Pederson of MNPS and Mary Keck, Bruce Forde and Robin Childers of MNLA for their efforts. We believe our guidelines will allow concerned nursery professionals to make better decisions and help prevent future weed problems.

The voluntary guidelines are:

1. Use horticultural plants with a long history of non-invasiveness (e.g., daffodil, caragana).
2. Whenever possible, use plants native to North America, especially to Montana and surrounding states (e.g., mock orange, elderberry, purple coneflower, liatris).
3. Choose plants and cultivars that do not produce viable seed (e.g., petunia, lilac).
4. Avoid plants that produce prolific seeds or fruits, especially woody plants with edible fruit dispersed by animals (e.g., buckthorn, Russian olive).
5. Avoid plants that spread aggressively by roots or underground stems as well as seed.
6. Avoid plants that grow rapidly and become tall quickly.
7. Be cautious of exotics that originate in parts of Europe, Asia, Africa, South America and Australia with a climate similar to Montana. Know where plants originate.
8. Don't use plants that are known to be invasive in Montana; it is unlawful to use plants listed as noxious by the Montana Department of Agriculture. Avoid using plants or their close relatives that are invasive elsewhere in western North America. Plant invasions start in one place first; invasive plants don't become

invasive everywhere at once.

The full text of the guidelines including introductory material, lists of noxious weeds and potential problem plants as well as the scientific underpinnings of the guidelines can be found on the MNPS website at: www.umt.edu/mnps.

Peter Lesica

2003 Plant Species of Concern

The 2003 Plant Species of Concern report is now complete and available on the Natural Heritage Program website at <http://nhp.nris.state.mt.us/reports.htm>. Hard-copy format is available on request from Martin Miller at martinm@state.mt.us.

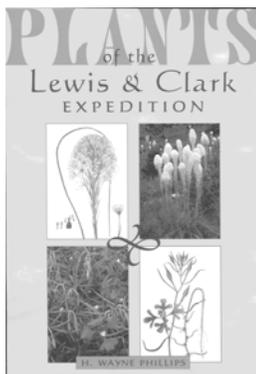
The 2003 revision does not contain major changes, adding just one Species of Concern and downgrading seven to Potential Concern status. We did, however, make a significant format change by printing the Species of Concern list in a portrait layout. This made the document shorter and easier to read, but necessitated dropping the column for Counties of Occurrence from the printed document. That information is still available on our website, where a version with the County of Occurrence listings can be downloaded and printed.

Another change in the 2003 publication is the language in our status rank definitions (the actual criteria remain unchanged), which has been updated and clarified. We also dropped many of the variety and subspecies designations for Species of Concern when that status is independent of the subspecies or variety. The purpose of this is to avoid confusion and the need to make difficult infra-specific identifications when they're not essential to the status determination.

This update was produced with information and input from many botanists, reviewers, and partners. Drake Barton and Coburn Currier deserve special thanks for many hours of careful compilation, review, and tireless nit-picking to get it right. We hope you find the result helpful and easy-to-use. If you have any questions or feedback related to content, please feel free to contact Sue Crispin: scrispin@state.mt.us

***Plants of the Lewis & Clark Expedition* by H. Wayne Phillips, Mountain Press, 2003**

The western landscape described in the journals of Meriwether Lewis and William Clark was a source of amazement and wonder to the Corps of Discovery and continues to be for



many of us with an affinity for native plants and natural places. We cannot go back in time to the days of the buffalo and seemingly endless expanses of unturned prairie and uncut forest, but *Plants of the Lewis and Clark Expedition* presents a botanical piece of the natural world that depicts the West before noxious weeds, interstate highways, and computers. Wayne Phillips's book fosters a pioneer spirit that allows us to vicariously slog, paddle, and marvel at plants with Lewis and Clark as they somehow make it across the continent and back. All of the native plants that Lewis and Clark described in their journals, some new to science, are still extant and many are familiar friends.

Wayne's enthusiasm, attention to botanical and historical accuracy, and photographic skill have resulted in a unique book that has something for the plant enthusiast, history buff, and others who wish to honor the journey of Lewis and Clark on the 200th anniversary. *Plants of the Lewis and Clark Expedition* includes descriptions and photographs of 225 plant species collected or described by Lewis and Clark in their journals and excerpts from the original journal entries that describe plant species in the context of the adventures and locations when and where the plant was collected or observed. The journal entries describe interactions with Indians and the traditional use of plants for food, medicine, or other purposes. One journal entry describes how the Nez Perce set fire to

dry fir trees to create a spectacular fireworks display for the explorers and another describes how antelope rub against sagebrush to perfume their necks and bodies. There are many observations of nature recorded in the journals that are not widely known, but should be part of the western lore familiar to the informed naturalist.

An effective presentation in the book is the separation of the explorers' route into geographic regions. Geographic regions are described based on topography, climate, and general vegetation characteristics, and begin with the eastern Deciduous Forest and progress westward through the Tallgrass Prairie, High Plains, Rocky Mountains, Columbia Plains, and Pacific Forest. Each geographic region includes the plants that were described by Lewis and Clark as the expedition passed through regions with distinctly different floras. Wayne describes each plant by growth form (i.e., tree, shrub, grass, forb, or moss) flower and fruit features, flowering season, habitat, and range. He also includes a short interpretive narrative that identifies places the Lewis & Clark journals described by Indian names or descriptions. For example, the Blackfoot River was the Cokahlarishkit River or the "river of the road to buffalo", the glaciated pothole country near Ovando was the "prairie of knobs", and Multnomah Falls was unnamed.

I first met Wayne Phillips when he gave a public presentation on the plants of the Lewis and Clark Expedition, approximately ten years ago. Wayne was dressed in buckskin and had all the paraphernalia of the well-appointed mountain man or explorer of the period. As a storyteller and botanist, his enthusiasm was contagious. *Plants of the Lewis and Clark Expedition* preserves his inspired account and allows us to perpetually tap into his enthusiasm with the turn of a page. The only thing that would improve the book would be for Wayne to present it personally in buckskin, moccasins, and with the demeanor that could have been Lewis, Clark, or another sturdy member of the Corps of Discovery.

Joe Elliott

Available from MNPS

The third edition of the *Source Guide for Native Plants of Montana* is now available. The cost is \$6.00. Send a check made out to MNPS to: MNPS Publications, 1270 Lower Sweet Grass Road, Big Timber, Montana 59011. The cost will cover postage. The guide lists 55 sources for over 500 species of trees, shrubs, forbs and grasses. This edition has e-mail and website addresses for many sources and a handy common name index. The guide is a must for home landscapers, native plant gardeners and those involved in restoration projects.

Available free from MNPS Publications: MNPS membership brochures, *Plant Collection Guidelines for Teachers* brochures, and *Echinacea Cultivation Information*. Also available are additional copies of *Plants Collected in Montana During the Lewis & Clark Expedition*. Please send a SASE to the address above to receive any of these publications.

Available from the Flathead Chapter: *Native Plant Gardening and Landscaping References and Recommended Species for Native Plant Gardening in the Flathead*. The packet can be mailed to you for \$2.50. Contact Tara Carolin at P.O. Box 382, West Glacier, MT 59936, call 406-888-7919 or e-mail: Tara_Carolin@nps.gov

Available from the Kelsey Chapter: a packet of information on landscaping with natives in the Helena area. The packet will be mailed to you for \$3.50. Contact Kathy at 449-6586 or e-mail: drakekath64@msn.com to order.

Visit the MNPS website at www.umt.edu/mnps to download in pdf format *Weeds Listed as Noxious by Montana Counties*, a list of weeds that are targeted by each county; *Guidelines for Selecting Horticultural Plant Material for Montana*, voluntary guidelines by MNPS and the Montana Nursery and Landscape Association; and *Lewis & Clark Plants Collected Elsewhere That Occur in Montana*, an inclusive list of Lewis & Clark plants found in the state.

Focus on New Presidents

Artemisia Chapter – Leslie Marty

Over the last five years, I have led the Development of Acid/Heavy Metal-Tolerant Cultivars (DATC) Project, which is supported by grants from the EPA, Mine Waste Technology Program and the State of Montana, Natural Resource Damage Program. The DATC Project's mission is to select plant ecotypes that demonstrate superior tolerances to low pH and heavy-metal contaminated soils commonly associated with hardrock minelands. Previously, I worked as a cartographer for the NRCS, Assistant Propagator for the Arnold Arboretum of Harvard University, Forestry Technician for the USFS, and early on cooked and rowed my way across the West. I most enjoy hiking and skiing in the mountains with others interested in flora, fauna, and fun.

Clark Fork Chapter – Marilyn Marler

I'm excited to serve as Clark Fork Chapter president. I currently work as the noxious weed coordinator for the University of Montana and City of Missoula open space program, and my emphasis in this position is native grassland restoration. I grew up in the beautiful foothills of the southwestern Sierra Nevada, and have been interested in the effects of invasive species on native plant

populations from a young age. I received a BS in biology from the University of California at Davis in 1994, and an MS in ecology from the University of Montana in 1997. I live with my husband, David, who is a fisheries biologist, and our two cats in Missoula, and we plan to be here for a long while. My non-botanical interests include hand-spinning, knitting, and traveling.

Flathead Chapter – Jen Asebrook

I have lived in the Flathead Valley for 10 years and have been a member of MNPS for most of that time. The Flathead Chapter has been a very fun group of people to get to know and I have been excited to take more active roles over the last several years. I work as a Biological Sciences Technician in Glacier National Park, a position I have held since 1993. I coordinate and supervise vegetation field crews that are responsible for plant inventory and monitoring in the Park. More recently I have started working only part-time since my husband, Richard Menicke, and I had a son, Sam, in 2001. I sometimes dabble in the world of consulting, preparing baseline reports for conservation easements, assisting with wetland delineations, and providing botanical inventories. I have a BS in environmental science from Wesleyan University and an MS in plant ecology from Duke University.

Trip to Bear Canyon, Pryors

A week of wet snow, snow mixed with rain, intermittent to steady cold drizzling rain. The May morning we scheduled the plant walk to the fabled Bear Canyon of the Pryors – raining and cold. Eight people laid down their book by the fireside to come out. No weather wuzzies these lovers of native plants.

We huddled among the rocks at the mouth of the canyon. Keying out a penstemon, an astragalus then a borage. Dorn is not daunting. You are asked a key question, you observe, you answer the key question and move on. Our botanist, Jennifer Lyman, with her back to the wind, was enthusiastic. The cold helped us to focus and work quickly. Then up into the canyon. Cottonwood trees just leafing out. Maple in bloom. Is this a male or a female flower? Chokecherry in early bud. Violets, three species, underfoot. The damp smell of a springtime woodland. A climb to the canyon rim. Clouds breaking up. We shed our winter coats. Is this gray-green mat plastered against the limestone outcrop *Kelseya uniflora*? Last years flower heads showed a cluster of flowers. So no, it cannot be kelseya that has one flower. It must then be the rock plant, *Petrophyton caespitosum*. Among the gravel on top there are two plants side by side. Both have budding yellow flowers seemingly without stems, that is, acaulis. Once again out come the hand lenses as

Jennifer demonstrates the differences. They are *Haplopappus acaulis* and *Hyomenoxys acaulis*. Over 50 species in this outdoor classroom. Each species a lesson in itself. Learning is fun and did we ever have fun! Back down into the canyon. Exploring a side canyon. No longer can I say the juniper of the Pryors is *Juniperus osteosperma*. In this side canyon all the junipers have berries with two to four nutlets, *Juniperus scopulorum*. The Pryors are a place of wonder – how did this come to be?

Then a moment of reflection. Bear Canyon is a special place. A riparian hardwood ecosystem without a stream. Not only the variety of plants but the well-known diversity of birds. The blue gray gnatcatchers that were courting further up the canyon. The warblers in the tops of the cottonwoods. Limestone is in demand today to neutralize the acidic output of our industries. It is used in the process of producing quality sugar from sugar beets. The limestone from the Madison limestone formation is of particularly high quality. The present quarry has increased its production. The ever present grinding of the haul trucks drowns out the soft hooting of the blue grouse seeking mates. More quarries are planned. Some are planned to reach around to Bear Canyon. The Bear Canyon Road extending south from the canyon would be used as the haul road. Let us not be surprised and

unprepared when additional public land, including the Bear Canyon area, is turned into a quarry. Let us start learning about these canyons and preparing now to preserve them.

Clayton McCracken

Clark Fork Chapter's Native Plant Sale a Huge Success

This year's native plant sale, held on May 17th at the Missoula Farmer's Market, was our most successful to date. Sheila Morrison again served as the committee chair and driving force behind the event. Thirteen members grew and donated over 46 species of Montana natives, all of which were either grown from seeds or collected from our own gardens. Sheila herself grew about 24 species of Montana natives for sale! Other plant donors include Peter Lesica, Elizabeth Crone, Dana D'Andrea, Mike Young, Calvin Duke, William Schlegel, Chinwon Reinhardt, Peter Stickney, Jean Pfeiffer, Lois Puckett and Jean Parker

This festive event serves a dual purpose. It is a fundraiser for the chapter, but is also a great educational event in terms of generating interest and awareness of native plants and the Montana Native Plant Society. This sale generated \$976 profit, and reached many potential new members and supporters.

Marilyn Marler

Big Sky ketches

OWL CLOVER LEADS A COMPLEX LIFE

by Jim Habeck

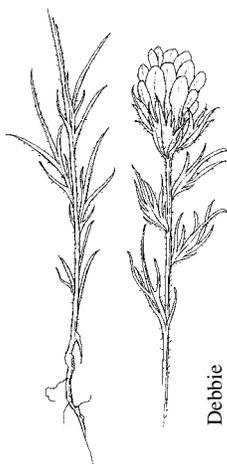
Lewis and Clark discovered and collected specimens of Owl Clover (also called Owl's Clover) at Traveler's Rest, near Lolo, Montana, in early July 1806 as they returned eastward. During summer Owl Clover would have been seen by the explorers throughout the Bitterroot and Missoula Valley grasslands. It was just one of many plants the Corps of Discovery gathered on their way back to St Louis. Although Lewis and Clark passed through this area on their way westward, they wouldn't have seen Owl Clover in September 1905, because, as an annual, it would have been present only as dormant seeds in the soil seed bank.

There are two species of Owl Clover common in west-central Montana: one with inflorescences composed of petals and bracts, both colored a bright yellow, and a second one composed of pink-purple colored bracts, and yellow flower petals tinged with purple. The flowers and bracts collectively form narrow, showy plume-like spikes. The "bracts" are really small, modified leaves, not flower petals. The bract's bright color, combined with the actual flowers, form a large visual target for pollinating insects and birds. For annuals, it is important that a seed crop be formed each year.

During spring, the presence of moisture triggers germination of Owl Clover's seed; usually a portion of an annual's seed supply remains dormant in the soil as a fail-safe mechanism. However, in years when precipitation is very abundant, Owl Clover may exhibit a mass flowering, producing a carpet of purple color.

Owl Clover is a member of the Snapdragon Family which includes other well known plants such as snapdragon, speedwell, beard-tongue, foxglove, monkey flower, and the well known, Indian paintbrush. The "brush" is a compact spike composed of red colored petals and bracts.

The Owl Clover collected by Lewis and Clark is named *Orthocarpus*



Orthocarpus tenuifolius

tenuifolius, and is the pinkish-purple one. The yellow one is *Orthocarpus luteus*. "Orthocarpus" comes from Greek meaning, "straight fruit." The species name, "tenuifolius", refers to the narrow, elongated leaves; "luteus" is Latin for yellow. No one knows exactly why it's called Owl Clover, although some believe the name may refer to the eyelike spots on the petals of some *Orthocarpus* species. Other botanists believe the rounded flower tops resemble an owl's head, with the projecting flowers being the owl's ears. It grows in habitats that are warm and dry during the summer, such as in grasslands

or open ponderosa pine forests. Collections in the University of Montana Herbarium reveal Owl Clover locations spanning elevations from 3000 to over 6000 feet, but typically in sunlit, open meadows and grasslands.

There's a lot more to Owl Clover than meets the eye. Plant ecologists have discovered that this plant, along with many other members of the Snapdragon Family, is a "root hemiparasite." The term "semi-parasitic" is also used. Owl Clover is fully capable of living independently, photosynthesizing its own food with chlorophyll and sunlight (called autotrophy, or "self-feeder"). However, if the first roots emerging from a germinating Owl Clover seed find themselves near the roots of a neighboring plant of a different species, such as prairie lupine, it will initiate structural connections called haustoria. These are modified roots capable of causing infection in the host plant.

The haustoria invade, literally grow into, the inner tissues of the host lupine's roots. The Owl Clover haustoria are triggered into formation when the lupine itself exudes chemicals from its roots; that is, the lupine chemically signals its presence to the Owl Clover. The haustoria connections are all completed and in place within a few hours! With functional haustoria in place, Owl Clover's growth is accelerated. The Owl Clover gains water, minerals and energy from the host plant. Being an annual, Owl Clover has a relatively small root system, so getting extra food really helps its growth rate. This host-parasite relationship is called heterotrophy, the opposite of autotrophy. Being semi-parasitic, Owl Clover may engage in both at the same time!

Owl Clover, when functioning as a parasite, also takes in toxic chemicals the host plant produces; lupines have alkaloids (remember, plants like lupines are poisonous to livestock). These toxic chemicals are distributed into the Owl Clover's stem and leaf tissues. The consequences? The presence of the poisonous alkaloids, botanists have learned, reduces the level of feeding (herbivory) by butterfly and moth larvae that favor Owl Clover leaves for their growth and

(Continued on page 8)

... *Owl* (Continued from page 7)

development. Larvae feeding is hindered by the presence of the poisons, and the Owl Clover retains more of its leaf tissue for photosynthesis, an obvious benefit. Butterfly and moth larvae need alternative leaves to eat, but that's impossible since mature butterflies and moths lay their eggs on developing Owl Clover plants not knowing if the leaves are toxic or not. Larvae, it's assumed, survive better, and develop to maturity by feeding on Owl Clovers that are not parasitizing a lupine or other toxic host plant.

There's one remaining piece of this interesting relationship to be told: studies suggest that Owl Clover's flower nectar is not contaminated by the toxic alkaloids. Perhaps the alkaloids are detoxified by some means before reaching the nectar glands. Why is this important? Visiting pollinators, such as hummingbirds or bumble bees, can harvest the Owl Clover's nectar reward without suffering ill effects. Thus pollination is accomplished as they feed, assuring a new Owl Clover seed crop. One interpretation: this complex, bio-

chemically mediated hemiparasitic habit of Owl Clover has evolved to gain supplementary energy from the host, while reducing leaf tissue loss through larvae herbivory, and, finally, without experiencing reduction in reproductive efficiency and seed production. Indian paintbrush has evolved the same capabilities.

Many of western Montana's grassland and woodland plants live lives far more complicated than many of us imagine as we hike past them. We appreciate their presence, but are often unaware of the processes involved in their basic survival. Competition for necessary resources is fierce among plants living in the same habitat. In our local efforts to maintain and/or restore native grasslands currently over-run with weeds, we need to keep in mind the complex, but invisible, chemical interactions that go on between and among our native plants living side by side. Weeds, like knapweed, are successful partly because they did not co-evolve ecological and chemical relationships with our native plants, and thus do not, or cannot, participate in a balanced co-existence with the natives.

SMITHSONIAN EXHIBIT

"Listening to the Prairie: Farming in Nature's Image" is the title of a traveling Smithsonian exhibit that Missoula Public Library will host between July 3 and August 14. "Listening to the Prairie" explores the history of the vast grasslands of the North American prairie, one of the world's most productive agricultural regions.

In conjunction with the exhibit, the library has scheduled an exciting agenda of programs featuring Richard Manning, Dan Flores, Jim Romo, Wayne Phillips and more. For a complete schedule of events please contact the Missoula Public Library (406-721-2665) or visit: www.missoula.lib.mt.us.

When you visit the exhibit, be sure to look over our new prairie garden just off the southwest corner of the parking lot. This garden was made possible with a lot of volunteer help and assistance from many Missoula merchants and community organizations, particularly the Clark Fork Chapter of the Montana Native Plants Society.

Marilyn Marler

Follow the Plant Trail



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Small Things in the Rattlesnake

With enough spring moisture in the air to make the mosses and lichens stand out, yet enough sunshine to enjoy a stroll, Andrea Pipp and Joe Elliott co-led a hike along Rattlesnake Creek in the Rattlesnake National Recreation Area. April 12th was indeed a beautiful day for spying on lichens and mosses. About 15 people met at Joe Elliott's house where Joe gave a short talk and show-n-tell on the moss flora of the Rattlesnake drainage and even provided glimpses through a microscope. Andrea followed with a brief conversation on 'what are lichens' and 'which ones live in the Rattlesnake'. The group then proceeded to Rattlesnake Creek for a first-hand look. Everyone seemed to really enjoy looking for and conversing about mosses and lichens. As we walked, looked, and talked, the group discovered that there is a great diversity and abundance of mosses and lichens in the Rattlesnake area.

Andrea Pipp

CALENDAR

ARTEMISIA CHAPTER

July and August

Trips to the Pryor Mountain Wild Horse Range in the Billings area are being planned. The focus is on range conditions. They will be short walks, but roads are steep and rough and four wheel drive and high clearance is required. Contact Clayton McCracken at 252-2807 or e-mail: chmc9@attbi.com for information.

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

"Dryhead Vista Hike". Kim Reid, range management specialist, will lead this trip. The focus is on flowers of the subalpine Pryors. Meet at Rocky Mountain College parking lot in Billings at 8:00 a.m. Contact Clayton McCracken at 252-2807 or e-mail: chmc9@attbi.com for information.

CALYPSO CHAPTER

Catherine Cain 267-3362

CLARK FORK CHAPTER

Saturday, June 28, 10:00 a.m.

"Ross Creek Cedars". Botanist Peter Lesica will lead a hike up Ross Creek. We will start in the deep cedar forest and finish on the rocky outcrops above. This will be a moderately strenuous hike. Meet at the Ross Creek parking lot at 10 a.m., approximately a three-hour drive from Missoula. Pack a lunch.

Sunday, July 6, 9:00 a.m.

"Lewis and Clark Botany Hike". Join Wayne Phillips, botanist and Lewis and Clark plant historian, for a five mile hike from Lee Creek to Packer Meadows Campground. Trace the route Lewis and Clark traveled and observe the same plants they saw on their journey. Meet at the southwest corner of the Wal-Mart parking lot on Hwy 93 south. Bring a lunch and water. For more information call Kelly at 258-5439

Sunday, July 20, 1:00-3:00 p.m.

"Why Native Plants are Important to Birds". Larry Weeks and Janet Hardin of Audubon, along with Marilyn Marler, the U. of M. and city noxious weed coordinator, will lead a bird/plant trip on Mount Sentinel above the golf course. Meet at the M-Trail in Missoula. For more information call Larry at 549-5632.

Monday, July 21, 1:00-3:00 p.m.

"Foothill Butterflies and their Ties to Native Plants" will be led by Will Kerling, butterfly specialist. Meet at the Mount Jumbo Saddle Trailhead in Missoula. Call Marijka at 829-4219 for information.

Tuesday, July 22, 7:00 p.m.

Marilyn Marler, U. of M. and city noxious weed coordinator will lead a "Weeds to Wildflowers Walk on Mt. Jumbo", an interpretive walk through the native grasslands of Mount Jumbo in Missoula. Learn names of local wildflowers and grasses and see the changes in the plant community from May to July. Meet at the Lincoln Hills Trailhead. Contact Marilyn Marler at 243-6642 for details.

Thursday, July 24

Jim Romo, grassland ecologist and photographer from Saskatchewan will talk about "Native Plants of the Northern Great Plains". The time and location in Missoula will be announced later. Check our website, www.umt.edu/mnps, for updates.

Saturday, July 26

"Native Plant Garden Tour". Enjoy seeing six very different native plant gardens in Missoula. Meet at the Montana Native Plant Garden on the University of Montana campus in Missoula between 11:00-1:30. The garden surrounds the Natural Sciences Building (old botany building), just west of the University Center and north of Main Hall. After we tour the Native Plant Garden, participants will receive directions to the other gardens which will be open until 4:00 p.m. Each garden reveals different ways to conserve water, and provide habitat for insects, birds, reptiles, and mammals. These gardens will inspire you to create your own native plant garden.

Saturday, August 30, 11:00 a.m.

"Whitebark Pine Ecology and Restoration". Bob Keane, fire ecologist, will take us on a tour of the Snow Bowl Whitebark Pine Restoration Project. There is a significant relationship between Whitebark Pine, the non-native blister rust fungus, wild-fire, Clark's Nutcracker, and human restoration treatments. Meet at the Missoula Fire Science Lab, ¼ mile

west of the airport. Bring water and a lunch. For more information call Bob at 329-4846.

Thursday, October 9, 7:30 p.m.

Susan Winslow a biologist with the Natural Resources Conservation Service's Plant Materials Center was instrumental in developing the NRCS booklet on landscaping with native plants. Come and listen as Susan tells us how to make "The Big Switch: Going Native in a Tame Landscape". Rm L09 Gallagher Business Bldg., UM Campus.

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

Everyone is fascinated by orchids, but no one more than MNPS past president Wayne Phillips. Wayne has slides of all of Montana's wild orchids and stories to go with them. His talk on "The Orchids of Montana" has been a favorite with other chapters, now it's our turn. Rm L09 Gallagher Business Bldg., UM Campus.

EASTERN MONTANA

Jennifer Walker 538-9054

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 at 892-2446 for more information.

Every Tuesday, 9:00-4:00

Joyce Lapp, Restoration Ecologist at Glacier National Park, is hosting a volunteer day in the Glacier National Park nursery. Spring activities will include seeding, transplanting, weeding and cleaning, etc. If anyone has computer skills and wants to assist with data management, or wants to work on a particular project, we can facilitate that sort of activity as well. There may be herbarium work to do and there is always lots of discussion and opportunity to learn. Work is not strenuous, but requires standing for a few hours, bending and some lifting. Volunteers can work however long they choose. Bring work gloves and lunch. Contact Joyce Lapp at

(Continued on page 10)

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

888-7817 for more information.

Saturday, August 9

"Purple Loosestrife Pull at Ninepipe". Come join Flathead Chapter and Mission Mountain Audubon in our 11th annual joyous effort to control the wetland invasive weed, Purple Loosestrife. This field trip requires shoes that can get wet, gloves, lunch, and water. Times: 8:00 a.m. for a birding tour of the Ninepipe wetland complex, 10:00 a.m. for the Purple Loosestrife pull, noon for gourmet desserts! Meet at Ninepipes Lodge (six miles south of Ronan on U.S. Highway 93). Contact Neal or Pattie Brown for information at 837-5018 or nealpatt@cyberport.net

Saturday, August 9, 9:00 a.m.

"Exploring Underwater Plants". Imagine a plant that can grow entirely underwater. Although aquatic plants can be harder to identify than terrestrial plants, the rewards are worth the extra effort. These plants have evolved interesting adaptations that allow them to survive in environments where most plants would perish. Come join us to learn about what species of aquatic plants inhabit our local waterways, how they are classified, and what specialized adaptations they have developed. We will also discuss how aquatic plants interact with other components of aquatic ecosystems. The trip will meet at 9:00 a.m. at Riverside Park in Whitefish. Please bring rubber boots or waders if you have them. We will be finished around 12:30 p.m. Contact Mel Waggy, 257-9051, for details.

Saturday, August 16

All day trip to "Lost Trail National Wildlife Refuge" searching for the threatened Spalding's Catchfly. Spalding's Catchfly has been found at Lost Trail NWR and the staff needs people to walk areas of the Refuge, looking for other populations of *Silene spaldingii*. Whether flowering or in seed, it is tall and easy to spot. No inventory skills are necessary. U.S. Fish and Wildlife Service personnel will be there to direct and assist us. Kids are excellent at finding things; bring the whole family. We will scout half the day

and have a picnic and maybe a short hike. Lost Trail Refuge is an isolated valley with lovely vistas, wetlands, ponderosa pine forest, and abundant fauna and flora. We need at least 10 people to be effective. We will carpool from FWP in Kalispell. The Refuge is about an hour west. Mark your calendar now, and call Pattie Brown at 837-5018 later for details.

Saturday, September 27

An all day hike with plant ecologist Maria Mantas. Destination to be determined, but somewhere in the beautiful mountains of the Flathead. Call Maria for more details at 862-3044.

Wednesday, October 15, 5:30 p.m.

Get involved with the Flathead Chapter of the MNPS. Join us for a season-starting "potluck social" and help plan projects and educational programs for the year. Learn about native plants as you are helping to protect them. Bring your friends. Montana Logging Association, HWY 35, Kalispell.

KELSEY CHAPTER

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

Thursday, September 25, 6:00 p.m.

The Kelsey Chapter will kick off the season with a "potluck and planning session" at Drake and Kathy's house. Call 449-6586 for directions and info.

MAKA FLORA CHAPTER

Sunday, July 20, 12:00 noon

"Medicine Lake Sandhills Hike". Meet at Doug Smith's house at 12 noon. We will have a potluck dinner at Doug's after the walk, so bring a dish. Doug's house is located at 288 Sandhills Road. From the town of Medicine Lake, go 10 miles east on East Lake Highway, then 2 miles south, and 2 1/2 miles east to Smith Farms. Contact Doug Smith at 765-3411 for details.

Sunday, August 3

Becky Kallevig will be coordinating a "Yellowstone River Canoe Trip". Contact her at 488-5455 if you want to be included in the plans.

Saturday, August 9, 8:00 a.m.

"Missouri River Canoe Trip". Canoe the mellow, 16-18 mile stretch from

Matlin's (near Brockton) to Fish Camp. A very leisurely day's float. Contact Doug Smith at 765-3411 if you have a canoe to loan, need a canoe, or need a paddling partner. Meet at 8 a.m. at the Culbertson city park where shuttles will be arranged. As the road to Fish Camp is impassable when wet, the rain date will be Saturday, August 16.

VALLEY OF FLOWERS

Valley of Flowers Chapter meets the third 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 info call Joanne Jennings at 586-9585.

Saturday, June 28

"Fox Creek Meadow Hike" in the Bozeman area. Cosponsored by Montana Wilderness Association. Reservations required. For details and reservations call Cathy Weeden at 582-1014.

Saturday, July 12

"Windy Pass Hike" in the Bozeman area. For reservations call Anne Banks at 587-7629.

Saturday, August 16, 9:00 a.m.

"A trip to the Highlights" in the Bozeman area. Meet in the Agbioscience Building parking lot at 9 a.m. Bring a lunch and be ready to enjoy flowers with a local expert. For information call Joanne Jennings at 586-9585.

WESTERN MONTANA

Dennis Nicholls

Saturday, June 28

"Ross Creek Cedars" with Pete Lescica. Join in on the easy hike along the nature trail and then stay on for a slightly more difficult excursion to the magnificent South Fork Ross Creek Falls. Meet in Noxon at Uncle Mike's Diner (formerly the Noxon Cafe) at 9:00 or at the Ross Creek Cedars parking area at 10:00.

Saturday, July 20

"Wildflower Wanderings" sponsored by the Glacier Institute and taught by Janet Paul Bones. Call 755-1211 to register.

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:

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

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Your yearly membership fee includes a subscription to *Kelseya*, 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 *Kelseya* 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 to: drakekath64@msn.com

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: Fall— September 10;
Winter— December 10; Spring— March 10; Summer— June 10.

If you want extra copies of *Kelseya* for friends or family, call the Newsletter Editors, write to the above address or e-mail: drakekath64@msn.com

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