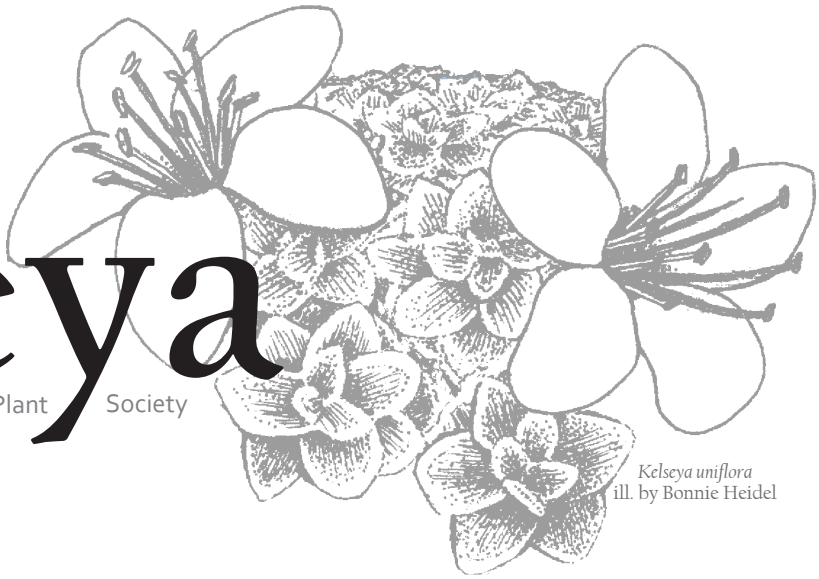
Kelseya
Newsletter of the Montana Native Plant Society



Kelseya uniflora
ill. by Bonnie Heidel

Mountain Pine Beetle & Whitebark Pine

MNPS Small Grant Report

by Edith Dooley, Master's candidate, University of Montana

The author would like to thank the Montana Native Plant Society for awarding a grant to support this field work for her Master of Science in Forestry (Department of Ecosystem and Conservation Sciences, University of Montana) .

Whitebark pine (*Pinus albicaulis*) is a five-needle pine that grows at high elevations throughout the West. This tree is deemed a keystone species because it enables community stability; it provides an important food source for more than 110 animal species, regulates hydrology and facilitates the establishment of other plants in harsh, high-elevation sites. Taxonomically, whitebark pine is notable as the only North American representative of the stone pines (of which there are only five species worldwide), meaning that it relies almost exclusively upon the Clark's nutcracker (*Nucifraga columbiana*) for seed dispersal. Unfortunately, many whitebark pine stands in Montana have been decimated by the native mountain pine beetle (MPB, *Dendroctonus ponderosae)* and the exotic fungal disease, white pine blister rust (hereafter known simply as blister rust), caused by *Cronartium ribicola*.

I studied the interaction of blister rust and MPB in whitebark pine to determine if the severity of blister rust infection impacts MPB productivity. It is known that MPB prefer to attack trees infected with blister rust, but no one has studied how the severity of infection might impact beetle productivity or size. Blister rust infections in pines are perennial, growing from the needles to form cankers in the branches, and eventually spreading into the phloem in the tree's bole. Cankers can girdle the tree, killing all tissues above the active infection site. In large trees, blister rust-caused death can take over a decade. The degree of disease severity is related to the time since infection; recently infected trees have one to several smaller dead branches, whereas trees with long-term infections often have dead tops or girdling of a significant portion of the crown.

MPB also make their living in the phloem of trees, where they mate and lay eggs that hatch into larvae. Larvae also girdle the tree while eating phloem. They pupate to brood adults, which emerge to attack a new tree the following summer. Because MPB and advanced blister rust infections both utilize the phloem of the tree, I questioned whether severity of blister rust infection would impact the MPB that share the same resource.

Photo by Susan McDougall @ USDA-NRCS PLANTS Database

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Chapter Events

Calypso Chapter

Saturday, 4/6, 10 am-2 pm. Sixth Annual Gardening with Natives Workshop. Presentations by Kathy Settevendemie, "Reclaiming a weed patch with natives;" David Schmetterling, "Insects and pollinators in the native garden;" and Ann Eagan, "Learning to prune native shrubs and trees." Held in Divide, MT. Free; bring lunch. Info and to register: Catherine Cain at 498-6198, nativeplants@montana.com.

May, date and time TBA. Ethnobotany of Scotland. Presented by Linda Lyon; held in Dillon. Info: Linda at 683-7075, l_lyon@umwestern.edu.

Wednesday, 6/19, 7:00 pm. Penstemons: Prepare for the July Lemhi Pass Bio-Blitz. Bob Wooley will teach how to identify the numerous penstemons in southwest Montana in preparation for the botany blitz next month. UM-Western, Block Hall, Rm. 311. Info: Bob at 683-6365, bbwool@bmi.net.

Sunday, 6/23, 10 am. The Calypso Chapter is partnering with USFS-Dillon for a **daylong field extravaganza f**rom Quartz Hill through Vipond Park, down to the Charcoal Kilns on Canyon Creek and out to Melrose. This is one of the most beautiful high-altitude places in SW Montana accessible by regular passenger vehicles. We will probably want to carpool if there are many participants because turnouts are scarce. Meet at the Quartz Hill turnoff from Hwy 43. Bring a lunch and be prepared for inclement weather. Info and to register: Catherine at 498-6198, nativeplants@montana.com.

Saturday, 7/6. Landscaping with Natives: See What's Being Done in Butte! Info: Kriss at 782-9060, samjd@montana.com

Friday-Saturday, 7/19-20. Botany Blitz: Penstemons of Lemhi Pass. The Calypso Chapter and the USFS-Dillon are coordinating this fun two-day event. Meet at the USFS office in Dillon. Info: Jessie Salix, USFS, at 683-3900, jsalix@fs.fed.us.

Clark Fork Chapter

Thursday, 4/11, 7:30 pm. Montana's High Mountain Wildflowers. Refresh your wildflower ID memory and get pumped for summer. Review your favorite blooms and learn about some you don't know as Chapter photographers show their slides. Rm L09, Gallagher Business Bldg., UM.

Sunday, 4/21, 9:00 am. *Dicentra uniflora* Trek. Celebrate Earth Day by hiking up Spring Gulch into the Rattlesnake Wilderness in search of steer's head wildflowers. Last year's display was well worth the ~15 mile round trip and ~2,500 ft. elevation gain. This likely will be an all-day adventure as we look for signs of spring. Meet at the Rattlesnake Recreation Area trailhead. Info: Clare at 728-0189.

Thursday, 5/2, 6:30 pm. Mt. Sentinel Budburst. Botanist Michael Krebs shows us which flowers and leaves appear first on Mt. Sentinel. Following the Evans Street trail to the fire road, we'll see as many as 130 different species of plants. If there is interest, we'll hike a loop that goes up to the forest patch within 500 ft. of the summit. We'll document the progress of spring as part of a long-term study incorporated into Project Budburst (www.budburst.org). Meet on the south side of the UM campus, corner of Beckwith and Madeline Aves., at the picnic table east of the Forest Service research lab. Info: Clare at 728-0189.

Thursday 5/9, 6:30 pm. Spring Potluck. This year our annual spring potluck will be held at the home of Joe Elliott and Nancy Volle, 3918 Lincoln Road, Upper Rattlesnake. Bring your own plate, utensils and a dish to share. Joe and Nancy have a great garden—with even a few natives! Info: Joe at 542-5014.

Thursday, 5/16, 6:30 pm. Plant Labeling Party. Help prepare this year's plants for sale at the Missoula Farmers' Market. Bring your labeling fingers and a savory or sweet dish to share. Meet at Clare Beelman's house, 2 September Dr., Upper Rattlesnake. Info: Clare at 728-0189.

Saturday, 5/18, 8:00 am – noon. Montana Native Plant Society Annual Plant Sale at the Missoula Farmers' Market. Many species of Montana native plants will be for sale this one day only; come early for the best selection. North end of Higgins Ave.

Tuesday, 5/21, 6:30 pm. Dyer's Woad Pull I. Help control dyer's woad, a noxious weed in the mustard family, and help restore native grasslands. Twenty-one years ago the dyer's woad infestation on Mt. Sentinel was 7,000 plants; we now rarely find more than 100. Enjoy the view and the beautiful grasslands during this two-hour weed pull. Wear sturdy shoes and bring rain gear. Meet at the Mt. Sentinel trailhead. Info: Marilyn at 544-7189.

Dicentra uniflora. Photo by Peter Lesica.

Thursday, 6/4, 6:30 pm. Dyer's Woad Pull II. Control dyer's woad. Meet at the Mt. Sentinel trailhead. Info: Marilyn at 544-7189.

Sunday, 6/9, 1:00 pm. **Clarkia Weed Pull.** Come to Native Ideals Seed Farm (www.nativeideals.com) in the beautiful Jocko Valley for an afternoon of pulling weeds from the growing rows of *Clarkia pulchella*. There'll be good food and a tour of this native plant farm, located southeast of Arlee, 31046 Jocko Rd. Info: Bryce at 726-3010.

Saturday, 6/15, 10:00 am - 3:00 pm. Clark Fork Chapter Garden Tour. Find inspiration in the beauty of Missoula native plant gardens. Info: Clare at 728-0189.

Tuesday, 6/18, 6:30 pm. Dyer's Woad Pull III. This is the last dyer's woad pull of the season. Meet at the Mt. Sentinel trailhead. Info: Marilyn at 544-7189.

***Saturday or Sunday, 6/22 or 23. Butterflies and Their Plants**. Join Kristi DuBois, Montana FWP wildlife biologist, for an excursion to the Blackfoot-Clearwater area near Condon to view and discuss butterfly and plant associations. Date, time and other details will be determined as butterfly season progresses. Look for information in your e-mail inbox, at https://www.facebook.com/MNPSClarkForkChapter or at http://www.mtnativeplants.org/Clark_Fork_Chapter. Info: Clare at 728-0189.

Monday, 6/24, 6:30 pm. John Toole Park Weed Pull. Help John Pierce and other volunteers restore Missoula Valley's native grasslands. Bring a friend, a weeding tool, and enjoy an evening near the Clark Fork River doing good for the community and the environment. Meet northeast of the Waterwise Garden, east of the Missoulian, near the Kim Williams Trail. Info: John at 542-2640.

***Saturday, 6/29, 7:00 am. St. Mary Peak**. Hike to one of the most picturesque peaks in the Bitterroot mountains along a trail that winds through forest to alpine talus. We'll hope to catch cushion plants blooming on the peak (notably, the bright blue and fuzzy alpine forget-me-not, *Eritrichium nanum*). This hike will take much of the day and is 9 miles round-trip with ~2,500 ft. elevation gain. Because this is a popular hike and parking at the trailhead is limited, please try to carpool. Missoulians meet at the SW corner of the old Walmart off Hwy 93 South at 7:00 am. Bitterrooters meet at the intersection of Indian Prairie Loop and Hwy 93 at 7:15 am. We will all meet at the intersection of Indian Prairie Loop and 93 and drive to the trailhead. Info: Clare at 728-0189.

** Camera Geek trips are designed with ample time for photography and exchanging camera tips and techniques.*

Flathead Chapter

Tuesdays, May-June, 10:00 am - noon. Bigfork Wild Mile Corridor Wildflower Walks. Join Anne Morley and Neal Brown on these gentle spring birding and wildflower ID strolls. The route is an easy 2 miles along the Old Swan River Road. Meet in front of Showthyme on Electric Ave. Info: Anne at 886-2242 or Neal at 837-5018.

Wednesday, 6/5, 7:00 pm. Native Plant Garden Tour. Join native plant gardener Bill McClaren for a tour of the FVCC and Central School Museum Native Plant Gardens. Meet at FVCC, behind Blake Hall. If raining, meet inside; tour is wheelchair accessible. Info: Bill at 257-2540, mccl@bresnan.net.

Thursday, 6/6, 10:00 am. Sprunger-Whitney Nature Trail. Learn about plants, birds and wildlife habitats along this gentle, 2-mile trail located in the Swan Valley, with botanist/naturalist Anne Morley. The trail meanders through low-elevation old growth forest. Meet at Point Pleasant campground south of Swan Lake. The campground is 0.5 mile south of mile marker 64 on Hwy 83. Bring water, lunch and appropriate clothing for unpredictable spring weather. Info: Anne at 886-2242.

Saturday, 6/8, 10:00 am. Johnson Mountain Terraces. Enjoy a 1- to 2-mile easy hike along a series of moist, mossy rock terraces with a variety of montane, grassland and diminutive plants. Meet at the rest area by the soccer fields across from Grouse Mountain Lodge in Whitefish. Bring lunch, water and your favorite plant ID book. Dress for changeable spring weather. Info: Betty at 892-0129.

Tuesday, 6/18, 6:00 pm. Moist Forest Habitat of West Glacier. Tara Carolin, a Glacier National Park biologist, will lead an easy 1- to 2-mile walk through moist forest habitat of West Glacier. Learn about a variety of native plants and see mountain ladyslippers and other orchids in cedar/hemlock and riparian habitats. Meet at the West Glacier Post Office. Info: Tara at 888-7863.

Kelsey Chapter

Wednesday, 5/15, 7:00 p.m. Mount Helena Wildflowers. Join a hike to view spring wildflowers. Info: Amy, ExplorationWorks, at 457-1800 x3, amys@explorationworks.org.

Tuesday, 5/21, 5:15 p.m. Mount Helena Wildflower Prep. Hike on Mount Helena in preparation for the Wildflower Week event on 5/22. Join Chapter members and Helena National Forest staff for a brush-up on spring wildflowers. Info: Liz Burke at 495-3713, lizburke@fs.fed.us or Bob Person, thepersons@mcn.net.

Wednesday, 5/22. Wildflower Hike Leaders Wanted! For Wildflower Week on Mount Helena, Helena National Forest and Kelsey Chapter members present a half-day hike and two activity stations for 4th grade students. Info: Liz at 495-3713, lizburke@fs.fed.us.

Thursday, 5/23, 7:00 p.m. More Mount Helena Wildflowers. Join the Prickly Pear Land Trust for a spring wildflower walk on Mount Helena. Meet at the parking lot and trailheads. Info: Bob, thepersons@mcn.net.

Thursday, 5/30. Mount Helena Survey. Help out students from C.R. Anderson School who are doing a forestry-oriented Mount Helena vegetation survey. This time, the outing will cover a mostly treeless area and look at forbs and grasses. Info: Liz at 495-3713, lizburke@fs.fed.us.

Thursday, 6/ 27, 6:00 p.m. Prickly Pear Land Trust Weed Pull. Help clean up the old shooting range on Davis Gulch. Info: PPLT at 442-0490.

June, date and time TBA. Lewis & Clark Pass Hike. The Discovery Foundation will host a hike to L&C Pass, featuring incredible displays of wildflowers and great views. Registration required. Info: Sam Chapman at samsarachapman@fs.fed.us.

Friday-Sunday, 7/5-7. Kelsey Chapter hosts the **MNPS Annual Meeting at Camp Rotary** in the Little Belt Mountains. For complete details, go to www.mtnativeplants.org.

Maka Flora Chapter

For information about upcoming Chapter events and programs, contact Libby Knotts, 774-3778 or rek@midrivers.net.

Chapter members met in March to plan summer field trips. They hope to identify areas to search for species of concern and/or document other species that have not been verified in their counties. For more information, contact Libby.

Valley of Flowers Chapter

Tuesday, 4/9, 7:00 pm. Whitebark Pine Restoration. MSU faculty member Cathy Cripps will speak on whitebark pine restoration efforts. Room 108, Plant Biosciences Bldg., MSU.

Saturday, 4/20, 9:00 am. Clean Up Bozeman Day. We will continue our battle against spotted knapweed and other invasives on the Kagy Blvd. roadcut. Following that, we will do more spring cleanup at the Pollinator Garden in Langohr Park. Info: Joanne at 586-9585.

Late May or early June, date and time TBA. Wildflower Walk.

Photo by Ken Stolz.

Supalpine Garden Honors Peter Lesica

By Clare Beelman and Kelly Chadwick

Last spring, a new garden habitat was planted adjacent to the Montana Native Plant Garden on the University of Montana campus in Missoula to recognize Peter Lesica's exceptional contributions to the Montana Native Plant Society. MNPS also acknowledged his dedication with a Special Service Award at the organization's 25th Annual Meeting last year.

Peter's efforts have helped many people observe Montana's flora carefully, mindfully and scientifically. He has introduced us to communities of intriguing plants and nurtured a community of informed, involved individuals. As one of the founders of MNPS, he is active at the state level and with the Clark Fork Chapter. In 2012, Lesica's (current) magnum opus, the "Manual of Montana Vascular Plants," was published and unveiled at the Society's Silver Anniversary.

Now, a garden representing a subalpine parkland has been designed and planted in his honor, featuring *Tsuga mertensiana, Abies lasiocarpa* and *Pinus albicaulus*. Other Montana subalpine species, such as *Pinus flexilis* and *Picea engelmanii,* will be added this year. Future plans for the garden may include expansion to become contiguous with the other native plant gardens on campus, and will likely include *Pinus contorta* and other characteristic subalpine species. A plaque is to be installed near the garden with the inscription:

> Honoring Montana botanists, past, present and future
> Montana Native Plant Society, 2012

The new garden was a joint effort of MNPS, the State of Montana Arboretum and the University of Montana Facilities Services. It will be a valuable addition to the MNPS gardens and the State of Montana Arboretum. Clare Beelman and Kelly Chadwick designed and installed the plantings; Ingrid Ernestl, Tara McDonald of Terra Landscaping, Tarn Ream and Ken Stolz donated significant time and labor; trees were acquired from Grouse Springs Nursery.

A Botanist's Testimony: "*Manual of Montana Vascular Plants*" a Keeper

by Mel Waggy, Botanist, MPG Ranch

It's the first week in March and I'm already scanning the hillsides for buttercups and emerging bitterroot. It's the time when a botanist's fancy turns to wildflowers. For me, spring not only represents the beginning of wildflower season, but it is also the start of my field season. Soon I'll be loading up my daypack with GPS, compass, maps, camera, clipboard and my favorite Montana floras. This year, along with Lackschewitz and Dorn I'll be bringing along a new friend, the recently published "Manual of Montana Vascular Plants" by Peter Lesica.

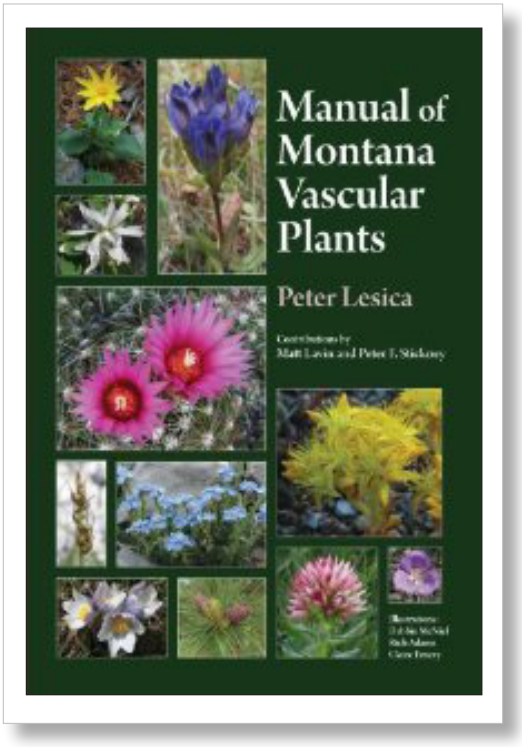
Like the previously published and highly respected "Vascular Plants of Montana" by Robert Dorn, the "Manual of Montana Vascular Plants" is a technical guide to all vascular plants throughout the state. While Montana botanists have used Dorn's publication extensively, its compact nature—less than a pound and small enough to fit in a back pocket—limits its content. Weighing in at nearly three pounds (yes, I actually weighed these books), Lesica's Manual provides up-to-date information on Montana's flora and gives more detailed descriptions about the distribution, morphology and habitat for individual species.

"Manual of Montana Vascular Plants" provides keys and descriptions for the 2,512 species known to occur in Montana, including 2,082 native and 431 introduced species. The introduction provides interesting background on the geological, ecological and climate conditions that help shape Montana's flora. Lesica also outlines a brief history of botanical exploration in the state. A complete index and, of course, the ever popular paper ruler complete its pages.

The manual is organized phlogenetically by family rather than alphabetically. Those not familiar with this treatment might find this type of organization confusing; however, the index at the end of the book provides an easy way to find the family you are looking for. The author provides a discussion on his taxonomic philosophy, which may not coincide with any one system, but most species descriptions include at least one synonym. To communicate with individuals outside of Montana it may be necessary to reference binomial names from the "Flora of North America" or other publications that are more comprehensive. For those individuals who prefer to use common names, you will find this information only for select species.

Like his previous publication, "Flora of Glacier National Park," Lesica's dichotomous key and glossary are well thought out. They provide the reader with clear descriptions and distinctive traits that help guide the user to the correct species identification. Individual species narratives provide substantial information about the plants' morphology, habitat and distribution, and are sure to help the reader in making a final species determination. Unfortunately, information on phenology is generally lacking for most species.

Although this is a technical guide, there is plenty here for the amateur or aspiring botanist. Detailed illustrations for approximately one-third of the species are interspersed within the text. Maps indicating statewide distributions have been included for most species, though maps are based on herbarium collections and may not indicate the complete distribution for that species. Finally, anyone wishing to learn more about plant family characteristics will benefit from the 128 plant family descriptions provided in this publication.



Because I haven't spent much time in the field with the Manual yet, I can't speak to its hardiness under field conditions. For all you technologically astute botanists out there, maybe we can look forward to the day when this manual is available electronically and we can carry it on our light weight Kindle, ipad, or whatever the latest and greatest gadget is. For now the extra weight is welcome and I am looking forward to spending more time this summer with my new friend. Thank you Peter Lescia for all your hard work and dedication to this worthwhile project, and for making my work more enjoyable!

News & Notes

Welcome New Members!

The Montana Native Plant Society welcomes the following new members:

Clark Fork Chapter:
Annalisa Ingegno, Carol Goffe, David Fulton-Beale, Alexia Cochrane, Katrina Farnum and Rochelle Krahn.
Special thanks to Bill Caras for a lifetime membership.

Flathead Chapter:
Sandra Seiser, Barbara Macy and Leo Libby

Valley of Flowers Chapter:
Mary Swanson and Sally Bartindale.
Special thanks to Kevin and Kaye Suzuki for a lifetime membership.

State-Eastern-At-Large:
Meg Pampush, Donna Arvidson and Ryan Folk.
Special thanks to Linda McCullen for a lifetime membership.

Phenology Project Underway in Native Plant Garden

Ron Pagel, a volunteer at UM's Montana Native Plant Garden, has assumed the enormous task of verifying the species list for twelve garden communities and recording the date of flower and leaf emergence in the MNPS Garden. Ron plans to continue recording this data for general garden information and for valuable scientific data. Garden volunteers hope to make these phenology data available on the MNPS website. Thank you Ron for taking on this vast and valuable project!

Under the guidance of experienced mentors, more reliable volunteers are needed to help with additional projects at UM's Native Plant Garden, such as general gardening, seed collecting, helping as garden tour leaders, and using skills in computer graphics, design, photography, writing and editing to create brochures and posters, and to promote the garden and garden activities.

If you are interested, please contact the garden volunteer coordinator, Alice Okon, at 721-7644 or aliceokon@montana.com.

2013 MNPS Annual Meeting

The 2013 Annual Meeting of the Montana Native Plant Society is coming up July 5-7 at Camp Rotary in the Little Belt Mountains. Camp Rotary is on Belt Creek between Monarch and Neihart. See the registration form insert and be sure to thank Kelsey members for all their hard work!

President's Platform

By the time you read this Spring will be in full swing, punctuated by reminders of winter and glimpses of summer. It's good that spring arrives to remind us it's time to begin anew. Now is a good time to check out what is going on with MNPS and make plans for upcoming field trips and the Annual Meeting at Camp Rotary in the Little Belts, July 5-7. The Kelsey Chapter has been hard at work putting together a great meeting, so don't miss it. It really takes a huge effort from Chapter members to make our annual meetings happen. Please be sure to show your appreciation and lend a hand where you can!

Looking back over the years, it's pretty amazing all that MNPS has accomplished, including all the great events and field trips we've had, thanks solely to the volunteer efforts of our members. So many of you have dedicated tremendous effort to MNPS and our mission, and have made MNPS what it is. We are blessed to have people who care and give so much, and we are all richer for their efforts! Thanks everyone!

~ Dave Hanna

A Changing of the Guard: MNPS Announces New Nominees for Leadership

by Patrick Plantenberg

The MNPS Nominating Committee is proud to announce that Kathy Settevendemie of the Clark Fork Chapter has agreed to run for President. If elected, Kathy will replace Dave Hanna who has effectively managed the President's job for several years. Thank you Dave!

Kathy has experience as chair and member of several boards, and has the skills and dedication to keep MNPS running smoothly. As owner of Blackfoot Native Plants Nursery near Bonner, promoting the conservation and preservation of Montana's native plants is a personal commitment. As chair of MNPS' Landscape/Publications Committee for the past few years, Kathy has shown enthusiasm, dedication and the ability to promote the mission of MNPS. She would consider it a privilege to serve as MNPS President.

Incumbent Treasurer, Jenny Tollefson of the Clark Fork Chapter, has agreed to run again. Jenny was active in the Flathead Chapter in the 1990s and now lives in Missoula, where she works as an ecologist and is the mother of two children. She would be happy to continue to serve as MNPS Treasurer, helping to keep the organization in the black.

Jon Reny of Libby is running for Western-at-Large Representative. Alhtough Jon claims his main qualification for the job is that he said "yes," he has a degree from Auburn in Forestry Management and worked for the U.S. Forest Service for many years, including 12 years as Sensitive Plant Botanist at the Kootenai National Forest, Canoe Gulch Ranger District. Since 2007, he has worked for St. John's Lutheran Hospital in Libby as a Computer Analyst. He has "three lovely children and an even lovelier wife." Thank you, Jon, for stepping up to serve MNPS.

MNPS members can submit ballots to the MNPS Electoral College via e-mail or snail mail. Please logon to the MNPS website at www.mtnativeplants.org and look for the link to 2013 Elections. Fill out the ballot and e-mail it to m2andp2@mt.net. If you prefer snail mail, fill out and mail the enclosed official ballot today. Election results will be announced at the MNPS Annual Meeting. Thank you for your vote!

P.S. The MNPS Electoral College respectfully requests you to take the time to fill out the survey question on the ballot so that we may continue to improve the MNPS election process.

Agrostology Workshop at Camp Rotary

By Patrick Plantenberg

Need to brush up on your grass identification skills? At this year's Annual Meeting, the Kelsey Chapter has planned a special agrostology workshop for July 5, from 1:00-5:00 pm. Matt Lavin, MSU Herbarium curator, plant sciences professor, agrostology instructor and MNPS member, has graciously agreed to teach the workshop. Steve Cooper, another famous Montana vegetation ecologist and MNPS member, has volunteered to assist.

The plan is to leave Camp Rotary at 1:00 p.m. and drive to a nearby mountain meadow to identify several grass species. Matt will bring grass collections from other parts of the state to help workshop attendees identify other tribes in *Poaceae*, *Graminae*, or whatever you are personally calling the grass family today. Bring your favorite flora and at least a 10x hand lens.

MNPS is hoping to secure Professional Development Hour (PDH) and other credits for the course to encourage agency personnel to attend. All participants will receive a certificate of course completion. There is no charge for the workshop, but attendance will be limited, so please register early for the Annual Meeting and indicate if you will be attending the workshop (see insert).

We heard that you wanted more than field trips and social networking at our Annual Meetings, something more formally educational—so here you go! And Kelsey members are actively pursuing other ideas for more such programming. We hope to see you there!

Silent Auction Items Needed

If you have something you'd like to donate for our silent auction at the Annual Meeting in July, please let one of the committee members know. This is the only fundraising activity MNPS does as a whole, and the proceeds are used to fund the Small Grant program as well as other projects. Thank you for your generosity! Please contact: Delight Sullivan (dsullivan01@bresnan.net), Jane Horton (hollhort@gmail.com), Sara Toubman (stoubman@gmail.com) or Mary Johnson (mjirish@gmail.com).

Have you Started your Plant Life List?

By Walter Fertig

[*Adapted from the January, 2013* Sego Lily, *the newsletter of the Utah Native Plant Society. Used with permission.*]

Truth be told, I started out to be an ornithologist. For my tenth birthday I got a pair of clunky, 7x Sears binoculars and a Peterson field guide. I was quickly hooked on birds and started dutifully checking off new species in the little squares next to their names in the index.

I'm not alone in my affection for birds. A government study in 2001 found that 46 million Americans either fed birds or traveled at least one mile to observe birds. That year birders spent $32 billion on bird seed, field guides, binoculars and spotting scopes, outdoor apparel, gas and lodging in pursuit of their hobby. Economists estimate that birding infused a total of $85 billion into the economy when taxes and wages associated with retail sales and bird-related travel were included.

Of course bird watching offers other rewards beside economic activity. Spending time outdoors and in the educational pursuit of bird identification can make birders more knowledgeable and appreciative of nature. This often translates into greater concern for the conservation of species and their habitats.

About 2.3 million birders confess to keeping a "life list" or tally of all the bird species they have observed during their life. Birders may also keep track of the number of species they have seen in their yard, town, county or state. In extreme cases, birders may travel the country to identify as many bird species as possible in one year.

So if birders can channel their listing impulses into socially-acceptable, healthy outdoor activity that promotes conservation and the economy, why shouldn't plant enthusiasts do the same? Isn't it time for "plant watching" to be recognized as a legitimate pastime?

For starters, there are way more plant species to count. Birders travel to remote islands in the Aleutians to add a few Asian stragglers to their list. A plant-watcher could spend the entire year in Zion National Park and not see all 1,074 plant species and varieties in the local flora. There are nearly 16,000 species of flowering plants and ferns in the United States (and approximately 250,000 worldwide) to keep plant-watchers busy.

Being sessile organisms, plants are quite easy to "watch"—all you need to do is get to them. Of course, not all plants are identifiable year-round, and annuals may not appear at all some years. But overall, plant watching is much simpler than stalking birds. Plants don't fly off into dense cover or the next county while you are fumbling with binoculars or thumbing through Sibley. Also, a plant watcher does not have to get up in the cold, early hours of the morning to glimpse birds at first light when they tend to be most active. The plant watcher can sleep in, like other civilized folk.

Plant watching tends to be less gear-intensive than birding. A good 10x hand lens is a must, of course, as are sensible outdoor clothing and sturdy shoes. A camera is a useful accessory to document a find or confirm its identity later. And a good plant guide or flora is required. Fortunately, there are as many wildflower, tree and fern guides as there are bird books and nearly every region has a modern technical key or manual for the more advanced plant watchers.

Like birding, the basic premise of plant watching is quite simple: get outside, find some plants, observe their floral or vegetative characteristics, determine their identity, record the names, repeat. Budding plant watchers may want to start slow—perhaps in their own backyard or a neighborhood park—to get practice. Trips further afield will yield more species, as will planning to visit a mix of different habitats. As with learning any new skill, the more you practice at plant identification, the better you become.

One of the charms of birding is that participants are on the honor system in reporting their finds. The same code should apply to the plant watcher. Strange reports, such as *Welwitschia mirabilis* from your neighbor's backyard, will not be taken seriously unless supported by compelling evidence (or unless your neighbor's yard is in the Namib Desert of southwest Africa). Unusual finds, such as populations of rare species or noxious weeds or new distribution records, should be reported to the local native plant society, state natural heritage program, weed and pest district or university herbarium. To be considered credible, such records need to be accompanied by suitable documentation—preferably a clear photograph and coordinates of the location — so a knowledgeable person can relocate the plant if necessary. Reports can be corroborated by physical specimens, but this should only be done in special cases by bona fide researchers (and deposited in a public herbarium), so as not to threaten populations or diminish the enjoyment of plants by others.

There are many ways in which a plant watcher's observations can benefit science and society. Surprisingly few parks or other protected areas have plant species lists, or those that exist may be incomplete. Managers or naturalists associated with these areas would be interested in unusual finds, especially those accompanied by photos and location data. For example, in the past several years dedicated amateurs and park visitors have added nearly a dozen new species to the known flora of Zion National Park, many of which are rare species. Several states have launched programs to encourage people to report new locations of aggressive weed species. Other "citizen science" programs include Project Budburst, which seeks volunteers to record the earliest dates of flowering for selected plant species in order to study the effects of climate change on phenology (www.budburst.org).

So why should birders have all the fun? It seems like high time to promote the sport of plant watching. Gardening consistently ranks as one of the five most popular hobbies in the country. In 2006, US consumers spent $16.4 billion on non-edible flowers, trees and shrubs for home landscaping. At least 43 million American households have a vegetable garden. There certainly is a large potential market for plant watching.

Native plant societies could play an important role in promoting plant watching. Field trips are a great way to explore nature with fellow plant lovers, especially if led by an accomplished guide. In the off-season, meetings can be used to share photos and identification tips, study herbarium specimens or plan for future expeditions. The important thing is to get started on a lifetime of botanical discovery!

Fritillaria pudica (Pursh) Spreng. Photo by Sheri Hagwood @ USDA-NRCS PLANTS Database

2013 MNPS Small Grant Awards Focus on Botanical Research

by Linda Lyon, Chair, Small Grant Committee

Congratulations to Kathy Hefferan and Mandy Slate on being selected to receive MNPS' 2013 Small Grant awards of $1,000 each. Both projects are set to begin this spring. We look forward to learning more about these completed projects in upcoming editions of *Kelseya*.

Kathy Hefferran, a science/special education teacher at Sentinel High School in Missoula, is leading a project on weed control and native plant recovery on Waterworks Hill public open space. She writes that Sentinel's "alternative" biology students will research knapweed and leafy spurge control methods in collaboration with conservation easement managers. Students will identify native plants and exotic invaders, and will monitor the relationship between weed control and plant populations. Using their own research and local experts, students will choose to treat study plots with pulling, cutting, biocontrols, seeding with native plants, and other non-chemical controls. Students will share findings with the general public by writing short articles.

University of Montana Ph.D. candidate Mandy Slate will use her award to help carry out a new bryophyte study. She says that understanding how primary producers form communities and affect ecosystem function is overwhelmingly based on studies of vascular plants. However, bryophytes (mosses) form a large component of primary producers in many ecological systems, and the physiology of these non-vascular plants indicates that their effects on ecosystems may be quite unique. During rehydration, bryophyte cell walls break and solutes rich in carbon and nitrogen leak out. Slate's research will quantify the effect of bryophyte leakiness on resource pulses and how these pulses affect interactions among other organisms. Her research aims to "improve our understanding of the intricacies of interspecific interactions within ecosystems mediated by bryophytes, thereby furthering an awareness of the significance of this often overlooked group of native plants."

To study the interaction of these two mortality agents, I measured both productivity and size of MPB that infested whitebark pine trees with various blister rust infection severities. Both beetle size and productivity are positively related to MPB population size, and thus to the speed of outbreak progression. To ensure that MPB attacked trees displaying the full range of blister rust infection severities, I used MPB attractant pheromone baits on a total of 30 whitebark pines. The baited whitebark pines represented five, progressively severe, blister-rust infection ratings, ranging from healthy trees with no sign of disease to the most severely blister rust-infected whitebark pines that typically had dead tops and reduced crowns. I counted MPB entrance holes in sampling areas on both the north and south sides of each tree. I also caged the sampling area by stapling screen onto the bole of the tree to collect all emerging beetles (photo).

I collected a total of 1,234 MPB, and was able to measure the width of 1,054 of these beetles. I found that MPB attack density was significantly lower in the most severely blister rust-infected trees than in the four lower infection-level categories. Interestingly, two out of the six trees in the highest infection category were not attacked by MPB, even though they were baited for attack. In contrast to low attack rates in highly infected trees, I found that more beetles emerged from these trees. Additionally, the beetles emerging from these highly blister rust-infected trees were the largest.

The decreased MPB attack rate and increased emergence rate and body size were only observed in the unhealthiest, most severely blister rust-infected whitebark pines. The lower attack rate in the highly infected trees demonstrates that diseased trees with weak vigor have lower defenses, and thus may be killed by fewer beetles than a healthy tree. Correspondingly, the high emergence rates of MPB from trees in the most severe infection category may have resulted from the low attack rate, which decreased competition from other MPB. Likewise, decreased competition may have resulted in increased beetle size.

It is unclear whether the increased emergence rate and beetle size from the highly blister rust-infected trees is ecologically relevant. MPB were reluctant to attack two of the most severely diseased trees, so perhaps they would not naturally attack these very sick trees. However, if MPB are more likely to attack the severely blister rust-infected trees (as has been found in other studies), then my results imply that severely blister rust-infected trees are a more productive food source for the beetles infesting them. This then suggests a possible synergism between blister rust and MPB that could exacerbate the decline of whitebark pine in areas where both mortality agents are active.

Whitebark pine mortality from MPB and blister rust (among other factors), caused whitebark pine to be found "warranted but precluded" for inclusion on the endangered species list. While my findings may make whitebark pine's future appear even more jeopardized, whitebark pine conservation and restoration efforts are increasing. For example, last summer I worked on the Flathead National Forest helping with whitebark pine forest health exams, a whitebark pine mapping project, and cone caging and collection efforts to provide seeds for nursery rearing and out planting. While MPB are currently a high profile threat to whitebark pine, blister rust always is slowly killing trees and can exacerbate MPB-caused mortality. Therefore, out-planting blister rust-resistant whitebark seedlings will increase the proportion of whitebark pine that are healthy, and thus better defended against MPB than the blister rust-sickened trees.

Checking a screen trap. Photo by Edith Dooley.

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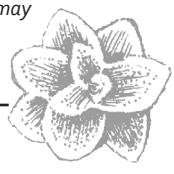

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The Montana Native Plant Society (MNPS) is a 501(c)(3) not-for-profit corporation chartered for the purpose of preserving, conserving, and studying the native plants and plant communites of Montana, and educating the public about the value of our native 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 review, 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), and sent electronically to: carokurtz@gmail.com or mailed to Kelseya Editor, 645 Beverly Avenue, Missoula, MT, 59801.

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