



Bulletin

of the

Native Plant Society of Oregon

Dedicated to the enjoyment, conservation and study of Oregon's native plants and habitats

VOLUME 42, No. 7

JULY 2009

Why Are Pacific Northwest Mountain Meadows Disappearing—And Can They Be Brought Back?

Although mountain meadows in Oregon's western Cascades occupy but a fraction of the landscape, their beauty and stark contrast with the surrounding forest make them favorite destinations. They are truly precious patches of diversity and havens of distinction. They are, in less poetic language, biological hotspots.

Home to unique communities of plants that cannot survive under the forest canopy, mountain meadows are also lunch counters for deer and elk, who depend on them for forage.

Predatory birds, unimpeded by trees, use meadows as hunting grounds. And a diversity of butterflies, moths, and insects rely on meadow flowers for pollen and nectar. But all is not well in this precious ecosystem, especially for those meadows at elevations where snowpack is not deep or persistent. A phenomenon called "conifer encroachment" is threatening them, wherein meadows open throughout recent memory are now filling with conifers that either march in waves from the forest edge or form islands of trees that gradually coalesce.

Concerned professionals, including Charlie Halpern, a professor at the University of Washington, along with Fred Swanson, a researcher at the Pacific Northwest Research Station/USDA Forest Service, and several bright graduate students, top scientists and resource specialists, have been collaborating in a multi-pronged approach to study meadow ecology and find ways to conserve or restore the meadows that still remain.

Surprised to find that no one had documented how the ground vegetation changes as meadows are replaced by forest, Halpern worked with others to reconstruct the changes in vegetation that occur. A "chronosequence" approach was used at a research site called Bunchgrass Ridge, Willamette National Forest, near Mt. Jefferson and the Three Sisters. Samples of ground vegetation were taken in forest

patches of increasing age, whereby it was hoped to infer temporal changes in the abundance and diversity of species. Two broad periods of forest expansion were noted: the first between 1815 and 1905, and the second, a massive invasion, between 1925 and 1985. "During both periods," says Halpern, "lodgepole pine preceded grand fir, often facilitating its establishment. This process is clearly evident in the clumped distribution of grand fir (a species able to regenerate in shade) around individuals of pine (a species requiring full sun for regeneration)."

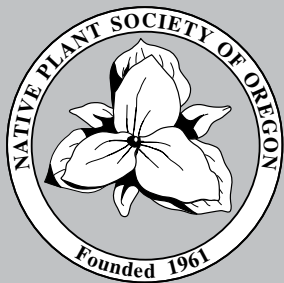
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Investigate the Cumulative Index for *Kalmiopsis*

A comprehensive, cumulative index for *Kalmiopsis*, volumes 1-15 has been available for a few months now. It covers all articles, authors, book reviews, subjects such as NPSO Fellows and Plants of the Year, and more, that have appeared in all the *Kalmiopsis* issues to date. It is in a PDF format file. A link for accessing it can be found in the Newest Site Updates section on the home page of the NPSO website: <http://npsoregon.org>.

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Native Plant Society of Oregon

World Wide Web

<http://www.NPSOregon.org>

E-mail Discussion List

To join, send a message to majordomo@tardigrade.net, with the following in the body of the message: subscribe npsos

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Opinions expressed in this publication are those of the authors of the articles. They do not represent the opinions of the Native Plant Society of Oregon, unless so stated.

Join Us on Facebook and Twitter!

by NPSO Board Members Judi Sanders and Billy Don Robinson

Did you know we have an NPSO group on Facebook? Thanks to David McClurg, Emerald chapter member in Eugene, we have a Facebook community that includes members from Oregon, Osceola County, Florida, Austin, Texas, and Canada. Social networks open a new window onto the good work we do as a botanical society. We all share a commitment to the enjoyment, conservation, and study of native plants and habitats here in Oregon and beyond. Exchanging good stories, field trip meet-ups, photos, and important conservation information with each other is one of the fundamental advantages of membership. Social networking expands this benefit enormously; it's a great way to "get the word out" about what you have seen, heard, felt, photographed, or care deeply about preserving.

How can you join our Facebook group? Go to: <http://www.facebook.com>. It's free; you just need an e-mail address. If you are already a Facebook member, you can add the NPSO group by going to <http://www.facebook.com/>

[group.php?gid=6380707570](http://www.facebook.com/group.php?gid=6380707570) or you can search for Native Plant Society of Oregon. Once on the NPSO page, select "add group" under the NPSO logo.

Concerned about privacy in Facebook? Check out <http://www.allfacebook.com/2009/02/facebook-privacy/> for answers to many of your questions.

You can also follow us on Twitter. Billy Don Robinson, member of the Portland chapter, has agreed to be our lead Tweeter to periodically tweet us about native plant happenings. This allows us to join the Twitter universe with other native plant societies around the nation (Ohio, California, and Florida, to mention a few). You can follow Billy Don by searching for <http://twitter.com/ORLarkspur>. Not yet a member of Twitter? You can join at <http://www.twitter.com>. Like Facebook, it's free and you only need an e-mail address.

Facebook and Twitter won't replace our beautiful website (<http://www.npsoregon.org>) or our fabulous *Bulletin*, but both are new technologies that can help us spread our messages!



Western Yellow Wood Sorrel (Oxalis suksdorfii) is an attractive wildflower of low to mid-elevation in western Oregon. It might be confused with Creeping Wood Sorrel (Oxalis Corniculata) a nasty garden weed, but O. suksdorfii has much larger flowers and leaves and does not root at the nodes.

TANYA HARVEY

NPSO CALENDAR

Blue Mountain

For information on Blue Mountain Chapter call Jerry Baker, 541-566-2244.

Cheahmill

For more information visit the chapter website: <http://www.oregon-nativeplants.com>

Corvallis

To join the Corvallis e-mail list to receive notification of upcoming events, please e-mail matt@appliedeco.org

July 11, Saturday, 9 am-4 pm

Field Trip: Mary's Peak Wldflowers. Phil Hayes and Esther McEvoy will lead us up the east ridge trail. Lunch and wildflower viewing at the top. Meet 9am at parking lot across from Monroe Beanery on campus for carpooling. Bring lunch, water, raingear and hiking boots. Call Esther, 541-754-0893 to confirm and for more information.

Emerald

September 14, Monday, 7:30 pm

30th Birthday Bash. Founding member Charlene Simpson will present a slide show about Emerald chapter's activities, past and present, in celebration of the chapter's 30th anniversary. Everyone is invited with a special invitation extended to charter members and past officers. EWEB Training Rm. at 500 E. 4th Ave., Eugene. Call 541-746-9478 for more information.

October 12, Monday, 7:30 pm

Talk: Wildflowers of the Wasatch Mountains of Utah. Tanya Harvey will show slides of the fabulous wildflowers in these mountains just outside Salt Lake City. The Wasatch Mountains provide amazingly accessible views of beautiful alpine and subalpine flowers. The plants range from familiar natives to local endemics. EWEB Training Rm., 500 E. 4th Ave., Eugene. For more information call 541-746-9478.

High Desert

To be added to the e-mail list for upcoming events, please contact Maria Britton at mebritton@bendbroadband.com. For questions or more information, please contact Eileen Obermiller at hd_president@NPSOregon.org.

Klamath Basin

For information on the Klamath Basin Chapter, contact Sarah Malaby, 541-884-5703, smalaby@cs.com.

Mid-Columbia

No meetings are scheduled for July or August, 2009. To learn details of September's meeting, contact Hanna Metzger at hannam@gorge.net.

IMPORTANT NOTE TO FIELD TRIP PARTICIPANTS

Field trips take place rain or shine, so proper dress and footwear are essential. **BRING WATER AND LUNCH.** Trips may be strenuous and/or hazardous. Participation is at your own risk. Be prepared to sign a release form indicating this. For a sample copy check out the NPSO website. Please contact the trip leader or chapter representative about difficulty, distance, and terrain to be expected on field trips. Dogs are not allowed. All NPSO field trips are open to the public at no charge (other than contribution to carpool driver) and newcomers and visitors are always welcome. National Forests require a Northwest Forest Pass for some field trip locations. Permits can be acquired at forest headquarters and ranger districts.

NOTICE TO FIELD TRIP CHAIRS AND LEADERS

The Forest Service and other agencies have set policies limiting group size in many wilderness areas to 12. The reason is to limit human impacts on these fragile areas. Groups using wilderness areas should be no larger than 12.

North Coast

For information on the North Coast Chapter call Vivian Starbuck at 503-377-4141.

Portland

If you would like to receive the chapter's semi-official e-mail newsletter, The Calochortus, e-mail Don Jacobson at donjphoto@gmail.com.

July 12, Sunday, Time TBA

Hike: Umbrella Falls Loop. This hike starts in the forest and climbs into sloped and gently rolling meadows, stopping at Umbrella Falls for lunch. Distance is 5+ miles roundtrip with 800-ft. elevation gain. We'll end at the real Hood River Meadows (not the ski area) to see some orchids. Group size limited. Contact Don to sign up: 503-235-6234 or donjphoto@gmail.com.

August 2, Sunday, Time TBA

Hike: Bird Creek Meadows. Located on the southeast slopes of Mt. Adams, Bird Creek Meadows is one of the premier Cascade wildflower locations. We'll enter the Meadows from the west via the South Climb Trail and Trail #9. Expect to see Glaucous Penstemon, Suksdorf's and Thompson's Paintbrush, and many others. 10 miles roundtrip, with elevation gain of 1,000 feet. Driving distance is 200 miles roundtrip with a dinner stop on our return. Group size limited. Contact Paul Slichter at pslichter@verizon.net or 503-661-3292.

Siskiyou

July 4, Saturday, 10 am- 4 pm

Wildflower Show, Ashland. Siskiyou chapter is hosting the annual Irene Holtenbeck Memorial Wildflower Show at the Ashland Community Center, 59 Winburn Way (across from Lithia Park in Ashland) which features over 300 species of flowers from the Cascades, Siskiyou, and valleys in between. Free admission. For more information call Jim Duncan, 541-482-7629.

July 11, Saturday, 9 am

Field Trip: Mt. Ashland and Rabbit Ears. At Rabbit Ears, we'll see Mt. Ashland Lupine, Henderson's Horkelia, and others; then observe many plants at the roadside seep below Rabbit Ears and along the Pacific Crest Trail in Grouse Meadows. Easy 1-2 mile walk. Meet at 9 am behind Oil Stop on Ashland St., next to the Ashland Bi-Mart/Shop 'n' Kart parking lot (1/4 mile west of I5, Exit 14). Leader: Alex Maksymowicz, 541-482-1964.

July 18, Saturday, 9 am

Field Trip: Lemmingsworth Gulch Research Natural Area Serpentine. Meet 9 am at the Fred Meyer parking lot in Brookings (Hwy. 101) toward the back near the gas station. The drive to the Packsaddle Mountain trailhead takes 1 hour; the trail is fairly flat. Then we leave it to see some *Darlingtonia* bogs/fens, where rare plants like *Streptanthus howellii*, *Arctostaphylos hispidula*, *Viola primulifolia* var. *occidentalis*, and possibly *Gentiana setigera* grow. A 2-mile extension involving river fording may occur; wear appropriate clothing. Leader: Clint Emerson, 541-247-3656.

July 19, Sunday, 9:00 am (Not 9:30 am as in June's Bulletin)

Hike: Bear Camp. On the the crest between Galice and Gold Beach, this area at the meeting of the Klamath, Coast Range, and Cascade regions is geographically and botanically influenced by all three. See a mix of plant species, some far out of their normal range. If coming from points east: meet 9 am, Grants Pass Fred Meyer parking lot, near the gas station (two blocks down Grants Pass Parkway/Redwood Hwy. from I5, Exit 55). Alex Maksymowicz will lead. If coming from coastal areas: meet 9 am at the Gold Beach Forest Service Ranger Station, 29279 Ellensburg Ave. (aka Hwy 101). Norm Jensen will lead. The groups join at Bear Creek overlook about 10:30 am. Bring lunch, water, sunscreen, camera; prepare for unlikely bad weather. Questions? Contact Norm at normjensen@gmail.com.

July 25, Saturday, 9 am

Field Trip: Dutchman Peak and Cow

Creek Glade. See the mid-summer bloom of native plants at Jackson Gap, on the lower slopes of Dutchman Peak and in the lush meadows of the headwaters of Cow Creek. Meet behind Oil Stop, just west of the Ashland Bi Mart/Shop 'n Kart paved parking lot at Ashland St. and Tolman Creek Rd. in Ashland. Persons coming from the west via Forest Rd. 20 from the Applegate Valley can meet us at Jackson Gap at 10:15 am. For more information contact trip leader Jim Duncan at 541-482-7629.

July 26, Sunday, Time TBA

Lee Web's Traditional Evening Mt. Elijah and Bigelow Lakes Hike. Lee will show us ideal places for botanizing and long-eared owl and bat watching. Bring dinner, warm clothes, flashlight and sturdy hiking boots. Meet 4 pm at the Illinois Valley Visitor Center, Cave Junction (1/2 block from Hwy. 199 on Hwy. 46); return by midnight. Questions: call Lee, 541-479-6859.

August 1, Saturday, 10:30 am

Field Trip: Bigelow Lake. Meet at the Oregon Caves National Monument parking lot at 10:30 am. Carpools leave Grants Pass Wal Mart/Taco Bell parking lot at 9 am or Ashland Oil Stop/Shop 'n Kart parking lot at 8 am. Oregon Treasures legislative bills seek to expand the Cascades Siskiyou National Monument to include Bigelow Lake, an easy-access, nearly pristine cirque lake in the Klamath-Siskiyou. For more information contact Sasha Joachims, 541-661-3492 or Sasharain@clearwire.net. Leader: John Roth.

August 8, Saturday, 9 am

Hikes: Alex Hole, Siskiyou Crest. This trip will involve a long drive and short hikes. Anticipated highlights are late season Siskiyou Crest flora, beautiful vistas, Quaking Aspen, and for those willing to scramble, a glimpse of *Sedum divergens*. Meet at Star Ranger Station (7 miles south of Ruch on Upper Applegate Rd.) at 9 am. Carpools leave Grants Pass Wal Mart/Taco Bell parking lot and Ashland Oil Stop/Shop 'n Kart parking lot at 8 am. Questions? Contact leader Barbara Mumblo, 541-899-3855

August 15, Saturday

Field Trip: Squaw Meadow, Mt Shasta. Leader: Alex Maksymowicz.

August 29, Saturday - Mt. Elijah and Bigelow Lakes field trip is cancelled.

Umpqua Valley

Visit <http://www.umpquavalley.npsoregon.org> for more information on chapter activities.

July 9, Thursday, 7 pm

Talk: Spotted Knapweed: Noxious Weed in the U.S., Rare Native in Romania. Andrea Thorpe, Director of the Conservation Research Program at the Institute for Applied Ecology, will discuss the whys and wherefores of Spotted Knapweed's (*Centaurea maculosa*) different distribution patterns. Her rich academic background and challenging present work make Andrea's presentations well worth attending.

July 11, Saturday

Field Trip: Fish Meadows. For details, contact the chapter website or call Donna Rawson, 541-459-2821.

August Potluck: Details will be available later in July. Check the chapter website or contact Donna Rawson, 541-459-7952.

Willamette Valley

July 12, Sunday, 7 am- 5:30 pm

Field Trip: Iron Mountain. Iron Mountain has more than 300 different species of flower plants amid stands of trees and meadows. John Savage will lead this all-day hike (7-mile loop with elevation gain). Bring food and water. Call 503-399-8615 after 7 pm to register. Free and open to all.

William Cusick

Visit our website at <http://williamcusick.npsoregon.org> for updates and general information.

We'll be holding some early summer field trips, including some to Hell's Canyon and the End Creek restoration area. Check website for further details.

OTHER EVENTS

NABA

Special Event: Briggs Restoration Site Picnic

July 8, Wednesday, 1:30 pm

The Nature Conservancy has invited us to see the Briggs Farm's flowering meadow and the butterflies likely attracted to it. For more information and to register, contact Ellie, 541-684-8973 or woodnymph3000@gmail.com.

Fairview Peak Trip

July 11, Saturday, 9 am

This mountain is a hot spot of butterfly diversity. Meet at Campbell Senior Center, 155 High St., Eugene, 9 am. Space limited to 18. Preregistration required. Call Ellie Ryan, 541-684-8973 or e-mail at woodnymph3000@gmail.com.

Nearby Nature

Waterwise Garden

August 22, 10 am-12 pm

View and experience this garden, which emphasizes prudent use of water and includes many native plants. Meet at the Alton Baker Park Host Residence (between dog run and community gardens). \$2/person or \$5/family. Preregister at 541-687-9699.

North Mountain Park Nature Center

620 N. Mountain Ave, Ashland, <http://www.northmountainpark.org>. To register visit <http://ashlandparks.recware.com> or call the Nature Center at 541-488-6606. Registration required unless otherwise noted.

Lithia Park Nature Walk

May 1 – September 30

Sundays – Wednesdays – Fridays

10 am – 11:30 am

1.5 hour walk through Lithia Park. No registration required. Free. Meet at entrance to Lithia Park.

Invasive Plant Removal in Public Lands and Ashland Parks

Answer the call to service, meet new people, and learn about invasive plants while helping to manage them.

July 7, Tuesday, 7 pm-8:30 pm, Lithia Park Reservoir

August 5, Wednesday, 7 pm-8:30 pm, Wrightman St. and RR tracks

August 15, Saturday, 9 am-11:30 am, Glenwood Park

Register by phone (541-488-6606) or online at <http://ashlandparks.recware.com>. Tools, gloves, and snacks provided.

Demonstration Garden Tours

July 8 and 25, Wednesday and Saturday, 9:30 am-10:30 am

August 12 and 22, Wednesday and Saturday, 9:30 am-10:30 am

Register online at <http://ashlandparks.recware.com>.

Beginning Nature and Landscape Drawing

July 11 and 12, Saturday and Sunday, 9 am-2:30 pm

Bring lunch; everything else is provided. For more information visit <http://www.NatureWorksPress.com>. Held at The Grove, Otte/Peterson Room. \$80. Register: <http://ashlandparks.recware.com>.

Siskiyou Field Institute

Family Field Course: Rivers to Peaks

July 25, Saturday

Kids 6-12 and adults are invited to a day of fun-filled science. Explore the creek, search for reptiles and insects in the oak savannahs, and see a fen where carnivorous plants dwell. Learn nature journaling and participate in fun games. Bring sack lunch. \$10/child or \$25/family of up to 3 persons. Deer Creek Center, Selma (gateway to the beautiful Illinois River). Contact CeCe Bowerman, Youth Coordinator, 541-597-8530 or cece@thesfi.org.

Siskiyou Project

Learn more about the Siskiyou Project, the Siskiyou Wild Rivers Area, and how to help win the important current campaign to have it designated as permanent wilderness under the Wilderness Act at <http://www.siskiyou.org>.

Hike: Rogue River Trail

July 25, September 19; Saturday, 10 am

Carpools leave the Gooseberries Natural Foods parking lot, 1533 NE "F" St., Grants Pass at 10 am and meet at Graves Creek Boat Ramp at 11 am. Moderate hike of 5-7 miles. Bring food, water, hiking shoes, layered clothing. For information, call Shane Jimerfield, 541-476-6648 (office) or 541-499-2064 (cell/txt).

WREN

Wetland Wander, West End of Royal Avenue

July 14, Tuesday, 9 am-10 am

Great opportunities to view wildlife at summer's height at Fern Ridge Reservoir. Join us for an easy-paced guided nature walk. Binoculars provided. Call Holly McRae, 541-683-6494 for more information.

Wetland Wander, Stewart Pond Natural Area

August 11, Tuesday, 9 am-10 am

Meet at the Stewart Pond overlook off Stewart Rd. Binoculars provided. Holly McRae, 541-683-6494 for more information.

Family Exploration Day, Golden Gardens Park

August 15, Saturday, 9 am-2 pm

Use bug nets, field guides, and binoculars (all provided by WREN) to explore this 146-acre park in Eugene's Bethel neighborhood (intersection of Golden Gardens St. and Jessea Dr., north of Barger Dr.) Holly McRae, 541-683-6494 or hmcrae@wewetlands.org.

Armed with this knowledge, researchers then traced the progressive loss of meadow species and their gradual replacement with forest herbs. They found that most meadow species were highly sensitive to tree establishment, and didn't grow well or at all in the resulting lowered light availability. Things did not flourish well underground, either. A study of the seed composition in the soil of the compromised meadows showed that nearly three-fourths of the meadow flora species were absent; most seeds of meadow germinants were of only one single species; and most plant species that germinated were not meadow plants at all, but weedy species. Sadly, then, the seed bank cannot be looked to for a source of meadow restoration. Other possible alternatives says Halpern, include "complete tree removal with the resulting slash piled and burned, leaving much of the ground surface unburned; tree removal followed by broadcast burning; and control sites where no action is taken."

In the fall of 2006, experimental tree units at Bunchgrass Ridge were broadcast burned in late September, and the slash piles ignited on November 2nd. First-year trends point to some striking differences in response among the different treatments and how they are conditioned by pre-treatment forest structure. Some findings:

Broadcast burning results in significant soil disturbance and increased nutrient availability—likely to be short-lived, however.

Despite limits and challenges to operating on snow and differing amounts of snowfall at different locations, harvest over snow resulted in minimal soil disturbance in the absence of fire.

Broadcast burning may promote greater establishment of ruderals, though despite their prominence in the seed bank they have contributed only minimally to the vegetation in both burned and unburned treatments.

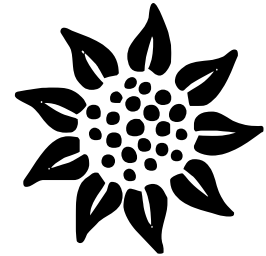
Tree removal, with or without burning,

and burning benefit meadow species at the expense of forest herbs (which suffered significant declines), though changes in diversity and abundance of meadow taxa were no greater following tree removal and burning than in the control areas.

Meadow species show potential for recovery across a wide range of forest structures and ages, shown by their persistence through disturbance, by dramatic reductions in abundance of forest herbs, and by limited recruitment of ruderal species.

Long-term recovery of taxa lost from meadow systems will require reintroduction through seed dispersal or vegetative expansion from adjacent

edges. Clearly, long-term observations of recovery are required to even begin to answer the many questions that continue to haunt the men and women seeking to bring back the mountain meadows of the Pacific Northwest. Keep track of their work at <http://depts.washington.edu/bgridge>.



NPSO Items for Sale

Native Notecards. Beautiful, high-quality notecards with art by Terry Peasley, Cheahmill chapter member, are available. See the cards at <http://www.terrypeasleyart.com/pages/cards>. Eight cards are offered through NPSO's Cheahmill chapter: trillium horizontal, trillium vertical, fawn lily, red columbine with hummingbirds, varied thrush on oak, kingfisher on red osier dogwood, Bewick's wren on Douglas spirea, and western tanagers on oak. The cost is \$3 each including envelopes, or 4 for \$10. Contact Marna Porath at P.O. Box 726, Amity, OR 97101, marna@onlinemac.com or 503-835-1042.

Booklets on Gardening with Native Plants. Emerald Chapter's three booklets about native plants of the southern Willamette Valley are "Native Herbaceous Plants in Our Gardens," "Native Shrubs in Our Gardens," and "Native Trees in Our Gardens." \$8.00/set of three, mail order. Individual booklets sold from the NGAP booth at Down-To-Earth, or by check made out to "Emerald Chapter NPSO" with "NGAP Gardening Guides" in the memo line to P.O. Box 902, Eugene OR 97440-0902. Also see online in PDF format at <http://www.emeraldnpso.org> Click on "Gardening with Native Plants."

Field Guide to Shrubs of Southwest Oregon. An 80-page, pocket-sized field guide identifies 56 of the most frequently-encountered shrubs in SW Oregon, and describes each species in detail with words and photos, including habitat, leaves, twigs, fruit, and flowers. Dichotomous keys, illustrations of common plant parts and glossary included. Janet Walker, NPSO Siskiyou chapter member, and Max Bennet, Forestry Agent with Jackson/Josephine Counties. \$7/copy; checks payable to "OSU Extension Service." Mail to Shrub Guide, Jackson County Extension, 569 Hanley Rd., Central Point, OR 97502.

Poseidon's Necklace. Don Begnoche, Siskiyou chapter, has issued an Oregon field guide covering the coastal section, mile by mile, from Astoria to Brookings. Genesis of the coastal landscape and flora found on dunes, headlands and montane slopes; over 500 landscape and floral photographs as well as geologic maps and illustrations. PDF format on a CD. \$19.95 + \$2.50 s/h. Mail checks to Don Begnoche, 439 Herbert St., Ashland, OR 97520

Table Rocks' Three Distinct Microhabitats Make All The Difference

by Brett Ivey, Denise Giles, Lisa Maas, and Tara Stark

This is the final article written by the 2008 NPSO/Institute for Applied Ecology (IAE) interns. Interns participated in rare plant monitoring, restoration, floristic surveys, seed collection, and other research projects conducted by IAE staff throughout Oregon and Washington. This year was our largest group of interns yet (nine!), so instead of individually writing articles, the interns collaborated to write group articles for the Bulletin. In this article, interns with the Conservation Research Program (Brett Ivey, 2007 graduate from Evergreen State University; Denise Giles, a Master's student at Oregon State University; Lisa Maas, 2008 graduate of Dickenson College; and Tara Stark, 2007 graduate of the University of Oregon), describe the microhabitats they observed on the Table Rocks outside Medford, Oregon. For more information on internship opportunities, please contact IAE at andrea@appliedeco.org, 541-753-3099 ext. 401 or visit www.appliedeco.org. Thanks again to NPSO for contributing to botanical education and work experience.

-Andrea S. Thorpe Ph.D., Institute for Applied Ecology, Corvallis, Oregon

As Institute for Applied Ecology interns, we journeyed to many beautiful and interesting places throughout Oregon studying rare species and their habitats. We traveled to Cave Junction to study *Lomatium cookii*, the Tygh Valley to monitor *Astragalus tyghensis*, Vale to study *Astragalus mulfordiae*, and many areas in between. While each area was quite different from the next, we noticed that a common theme for each of the species was the importance of small-scale variation in microhabitats. The importance of microhabitat variation was particularly striking on Upper and Lower Table Rocks, near Medford.

The Bureau of Land Management (BLM) has designated Table Rocks an Area of Critical Environmental Concern (ACEC) to protect the unique habitat including all of its geology, botany, history, and wildlife. The Nature Conservancy also manages part of the Table Rocks. The variation in soil types and subsequent plant types, as well as the isolation of the endemic plants, is due to the geologic history of the area. Both Upper and Lower Table Rocks are formed by basalt lava that erupted from a nearby vent approximately seven million years ago. Lava filled the Rogue River Valley with a layer of fiery lava. The basaltic andesite lava created a cap which is more resistant to erosion than the underlying layers. Over time the river and streams have cut through the lava and into underlying layers eroding away the soft rocks underneath, and carrying away



ANDREA S. THORPE

Mounded prairie habitat at Lower Table Rock, May 2008.

approximately 90% of the lava. Currently all that remains are a few solitary large rock masses and two horseshoe-shaped lava capped mesas we know as Table Rocks.

The Table Rocks host a number of endemic species in their remnant mounded prairie habitat, which is isolated on the tops. The mounded prairie habitat is comprised of three distinct microhabitats: mounds, flats, and vernal pools. In the case of Table Rocks, these microhabitats are discernible by undulating topography and characterized by plants that are (semi-)

specific to each microhabitat. These vegetative differences are partly due to varying moisture conditions. Spring rains seasonally create networks of pools in the depressions between the mounds. Thereby, vernal pool vegetation is completely submersed for part of the year while plants growing on mounds and flats experience drier conditions.

Vernal is derived from the Latin word for spring. A vernal pool is a seasonal pool that is present in the spring

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ANDREA S. THORPE

Monitoring dwarf woolly meadowfoam plots on Lower Table Rock, May 2008.

and dries up in late spring or summer. Only specially-adapted plants and animals can survive the long period of inundation and longer period of dryness and heat. The life cycles of plants begins first at the edges of the pool and as it recedes it creates concentric rings of flowers that bloom successively. Two factors required to form a vernal pool that can support these specially-adapted plants and animals are 1) a depression that can collect water, and 2) something to restrict drainage so that the water can remain on the surface for a period of weeks to months.

The vernal pools on Table Rocks contain the federally threatened fairy shrimp, *Branchinecta lynchi*. These shrimp complete their life cycle during the brief spring inundation and remain dormant as cysts (in the soil) for the

rest of the year. Pacific treefrogs, *Pseudacris regilla*, also utilize the vernal pools to breed and lay their eggs.

The mounded areas are the rockiest of the microhabitats. Soils on the mounds tend to be shallow and we noted the most extensive burrowing by rodents along the mounds and flats. Rusty popcorn flower (*Plagiobothrys nothofulvus*), two-color lupine (*Lupinus bicolor*), and seablush (*Plectritus congesta*) grow primarily on mounds. When we visited, the mounds appeared like multicolored islands in a sea of grass. The invasive Medusahead grass (*Taeniatherum caput-medusae*) is also found mostly on mounds. On Upper Table Rock the Medusahead grass was more pervasive than on Lower Table Rock.

In the flats the soils are clayey and are generally less rocky than the

surrounding mounds because soils which develop on the mounds are transported to the nearby low areas. The soils in pools are generally enriched in manganese because it has been preferentially transported downslope into the pools. Wild onions (*Alliums* spp.), dwarf woolly meadowfoam (*Limnanthes floccosa* spp. *pumila*), and Wallace clubmoss (*Selaginella wallacei*) are examples of plants found principally in the flats. The invasive grass, bulbous bluegrass (*Poa bulbosa*), also grows primarily in flat areas.

We observed similar microhabitats 800 feet below in the Agate Desert in the valley below the Table Rocks. The mounded prairie habitat here once covered an area of 8300 hectares but now due to development only 15% remains intact today and much of this area is owned by The Nature Conservancy. The vernal pools, much like those on Table Rocks, provide habitat for fairy shrimp and the endangered plant, Cook's desert parsley (*Lomatium cookii*).

As Institute for Applied Ecology interns we had many opportunities to learn about threatened and endangered species and their habitats. The recognition of the microhabitats at our field sites led us to a deeper appreciation for the native plants and habitats we were investigating.

Editor Position Available At Year's End

The NPSO *Bulletin* is seeking someone who would enjoy being the Editor beginning in January, 2010, a position which involves editing and proofing copy, gathering articles, and coordinating submissions. The layout responsibilities rest with another individual. Celia, the Editor, is taking up where she left off with helping her husband Mike restore their twenty acres and wishes to thank everyone involved in getting the *Bulletin* published and in the hands of our members. If interested, please e-mail the Editor at bulletin@NPSOregon.org.

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Membership in the Native Plant Society of Oregon is open to all.

Membership applications, renewals and changes of address (include old address) should be sent to the Membership Chair. Changes of address may also be e-mailed to Membership@NPSOregon.org.

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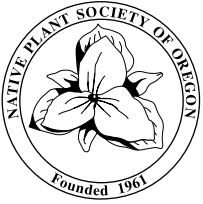
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The Photo Gallery Is Now Available!

We are pleased to announce that the Oregon Flora Project Photo Gallery is online at <http://oregonflora.org/gallery.php>. There are 18,125 field photos and 3,061 herbarium specimen images that represent 64% and 58% (respectively) of the plants found in Oregon. At this site, you can select images of plants to view from lists of scientific or common names, or by typing in a name. You can also limit the results by photographer, county, rock garden taxa, or field photo /specimen

only. Clicking on a thumbnail image will open a large-sized photo with its associated information included on a label.

The Photo Gallery represents years of work from our staff, student workers, and volunteers. Many people have made their photos available for use in the Gallery. The next Oregon Flora Newsletter will feature articles about the Photo Gallery, how it was developed, and tips on using the site as well as a few example photos from our amazing collection.

Enjoy browsing the site, and let us know what you think about the Oregon Flora Project's newest feature!