



Bulletin

of the

Native Plant Society of Oregon

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

VOLUME 36, No. 8

AUG/SEPT 2003

Summer Intern Report

Decoding the Basic Biology of Golden Paintbrush: Toward Reintroducing An Endangered Plant to Oregon

by Emerin Hatfield

The following is the second in a series of articles in which NPSO/Institute for Applied Ecology interns discuss their activities during the 2002 field season. Interns participated in monitoring, restoration and other research projects conducted by IAE staff throughout Oregon during the summer of 2002. The projects were focused primarily on threatened and endangered plant species in eastern Oregon, the Siskiyou, coastal areas, the Cascades, and the Willamette Valley. In this article, Emerin Hatfield discusses research in support of reintroduction of golden paintbrush. Internships are jointly funded by NPSO, IAE, and federal agencies. For more information on this internship opportunity, please contact IAE at kayet@peak.org, 541-753-3099 or visit www.appliedeco.org. Thanks again to NPSO for contributing to botanical education and work experience.

Tom Kaye, Institute for Applied Ecology, Corvallis, Oregon

Through my internship with IAE, I have been given the opportunity to observe the actions being taken and the processes and research involved in preserving and recovering many rare plant populations throughout Oregon. I have also been able to expand my knowledge of native plants and the variety of habitats in which they are found. While working on an assortment of plant conservation projects, I was able to focus on a particular species no longer found in Oregon, *Castilleja levisecta* (golden paintbrush). I was interested to discover the current plans in progress for the reintroduction of this species in Oregon and Washington and the extensive preliminary research needed for the successful recovery of existing populations and for the establishment of new ones.

Populations of *Castilleja levisecta* have historically been reported from more than 30 sites in the Puget Trough of Washington and British Columbia and as far south as the Willamette Valley. In 1984, the US Fish and Wildlife Service funded the Washington Natural

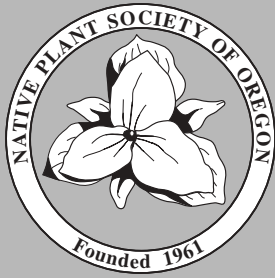
Heritage Program to assess the status of the species throughout its range. This survey concluded that more than 20 historic sites are no longer extant due to conversion of the natural habitat to agricultural, residential and commercial development. In particular, alteration of *Castilleja* habitat in the grasslands and prairies of the Willamette Valley has resulted in the extirpation of golden paintbrush from Oregon for more than 50 years.

Currently, there are 11 extant populations of *Castilleja levisecta*, nine of which are in Washington while two are in British Columbia on small islands near Victoria. Five of these populations are on public lands, and six are located on private property. The majority of the remaining populations in these areas are small with respect to the number of individuals and the total area occupied. Furthermore, there is low potential for expansion of populations due to constriction of habitat space. Although many of the remaining sites have been designated as preserves and

continued on page 93

In This Issue

New Membership Committee Sought	86
Beware of Skunk Cabbage ..	86
Chapter Calendar	87
Sidalcea Summer Preliminary Report	89
Photos of Annual Meeting in John Day.....	90
The 64th Annual OSU Biology Colloquium	92
NPSO Items for Sale.....	94
NPSO Contacts	95
Highlights of the NSPO State Board Meeting	96



Native Plant Society of Oregon

World Wide Web

<http://www.NPSOregion.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

General Business Address

P.O. Box 902
Eugene, OR 97440

or correspond directly with Officers and Committee Chairs listed on the inside of the back page.

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The submission date is the 10th of each month for the following month's issue except for the Aug./Sept. issue which is July 24. Send submissions by e-mail to bulletin@NPSOregion.org.

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.

Editor's Note

Submission Information for Next Issue

Next issue we're back to the normal schedule. Please send all your submissions and articles for the next issue by September 10. To help streamline the process please use the format and order you see in the current *Bulletin*. No need to put the year, but please include date, day, time and contact information with full area code. And please put which chapter the events are for and "NPSO" in the e-mail subject so it will not get lost among the hundreds of e-mails I receive each week. Thanks!

Letter to the Editor

Beware of Skunk Cabbage

I enjoyed reading the article on *Lysichiton americanus* (skunk cabbage) in the last issue of the *Bulletin*, but I feel I should warn our readers that they should not consider this plant to be edible, even though Indians did eat it. The leaves contain crystals of calcium oxalate which supposedly are removed by boiling in several changes of water. However, I once tried this recommended method of preparation before eating the leaves and suffered a delayed reaction of a numb swollen tongue. Subsequent research revealed that some people have died from suffocation when their throat tissues swelled up after eating skunk cabbage.

Peggy Robinson
Emerald Chapter

New Membership Committee Sought

After a record-breaking run of twelve years, the membership committee has decided it's time to pass the torch to others.

One or two people are sought to take over the membership committee. The tasks require as much as 20 person-hours per month during the height of the renewal season (December and January) and as few as 4 person-hours per month in the summer and fall.

For a complete description of membership committee duties see the July issue of the *Bulletin*. For other questions or to volunteer please contact Jan or Dave Dobak (503-248-9242; Membership@NPSOregion.org), or Bruce Newhouse (541-343-2364; newhouse@efn.org).



TANYA HARVEY

Despite a few snow showers, one group of hardy NPSOers braved the unseasonably cold weather to see a wonderful array of wildflowers up on Baldy Mountain at this year's Annual Meeting in John Day. For more pictures see pp. 90-91.

State

September 21, Saturday, 10am

Board Meeting: The next meeting will take place in the Board Room of the Boyle Education Center at Central Oregon Community College in Bend. Directions will go out with the agenda.

Blue Mountain

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

Cheahmill

September 25, Thursday, 7:00pm

Meeting: Lewis & Clark meet Oregon's Forests—Lessons from Dynamic Nature presented by Gail Wells.

This Oregon Chautauqua program is made possible by the generous support of the Oregon Council for the Humanities and the National Endowment for the Humanities. OCH is a 501(c)3 nonprofit organization that supports and sponsors programs promoting the role of thought and ideas in our lives. Carnegie room, McMinnville Public Library, 225 N. Adams Street, McMinnville. For more info please contact Erin Rainey at 503-435-8589 or erin.rainey@baileynursery.com.

Corvallis

For information on the Corvallis Chapter, contact Esther McEvoy at 541-754-0893.

Emerald

August 14, Thursday, 9:30 am

Herbarium Work Party: Assist with mounting and organizing specimens in the Lane Community College Herbarium. Refreshments provided. No background necessary and all assistance is appreciated. Learn some valuable collection and preparation skills

and contribute to adding to our collection of over 2000 specimens. Meet in the Science Building, Rm 117 from 9:30 am to noon. Contact Gail Baker, Science, Lane Community College, 541-463-5085 or bakerg@lanecc.edu.

September 22, Monday, 7:30 pm

Meeting: Conserving the Future—Protecting Natural Areas. Ryland Moore, Managing Director of McKenzie River Trust, speaks on conservation and stewardship of natural areas in Lane and Douglas counties. Come see slides of these outstanding pieces of land, including newly-acquired Big Island and Green Islands on the McKen-

IMPORTANT NOTE TO FIELD TRIP PARTICIPANTS

Field trips take place rain or shine, so proper dress and footwear are essential. 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. Bring water and lunch. 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 many 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.

zie River. Room 115, Science Building, Lane Community College, (turn off of 30th Ave. onto Eldon Schafer Drive, drive up the hill, park above buildings and walk down. Science building is on southeast corner of campus.)

October 27, 7:30 pm

Meeting: Walking Amongst the Elders—Old Growth Forests in the Cascades. Join author and ecologist John Cissel for a talk on the value and variability of old growth forests in the Cascades of Oregon and Washington. 7:30 pm, Room 115, Science Building, Lane Community College.

High Desert

August 23, Saturday, 8:30 am

Field Trip: Broken Top Volcano. This is our annual trek to view the spectacular glaciated scenery and alpine wildflowers in the High Cascades west of Bend. This is a six-mile round trip, moderate-to-strenuous hike with a 1,700 foot elevation gain. We will do mostly off-trail hiking through the Three Sisters Wilderness, so hiker numbers are limited to 12. Meet at Pilot Butte Lot at 8:30 am. If we can't go to Broken Top we will hike Black Crater. Pre-registration is required! Contact trip leader Stu Garrett for sign-up: 541-389-6981 eves.

Klamath Basin

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

Mid-Columbia

September 3, Wednesday, 7:30 pm

Meeting: Trees to Know in Oregon. A workshop in tree and shrub identification, working with fresh specimens. Members from other chapters are invited to share in our study. Also Mike will keep us current on seed collection.

North Coast

For information on the North Coast Chapter, contact Janet Stahl at 503-842-8708 or jjs@oregoncoast.com.

Portland

September 6, Saturday, 8:30 am

Field Trip: Dalton Point, Columbia Shore. Russ Jolley, author of *Wildflowers of the Columbia Gorge*, will lead us on a short (about a mile) walk on the shore of the Columbia River west of Multnomah Falls. We should see some of the interesting flowers that only grow on river shores and bottomlands, such as *Lindernia dubia*, *Gratiola neglecta*, *Impatiens capensis*, and many other species as well. Leave at 8:30 am from Gateway/NE 99th Ave. Park and Ride, southeast corner of parking lot. Second meeting place, for those coming from the east, Dalton Point exit off I-84 at 9:00 am. Call Barbara Robinson at 541-296-5334 for more information.

Friends of the Oregon Flora Project



www.oregonflora.org

As the *Bulletin* goes to press, the Oregon Flora Project's online mapping program is in its final stages of testing before being publicized. Clay Gautier has made significant improvements to the program and OFP staff are preparing over 250,000 plant records from specimens and species lists for mapping. We anticipate that the Atlas will be made available to the public by the end of August. It will be announced in the OFP website, www.oregonflora.org, the *Oregon Flora Newsletter*, and in the NPSO email discussion list.

Send your contributions to:

Friends of the Oregon Flora Project, P.O. Box 402, Corvallis, OR 97339-0402

Please make checks payable to NPSO, attn: Oregon Flora Project

September 9, Tuesday, 7:00 pm

Meeting: Russ Jolley will be presenting. At press time, the subject had not been decided, but you gotta know it

will be good! First United Methodist Church, Fireside Room (#355), 1838 SW Jefferson St. in Portland. For more information please contact Dee White at 503-775-2909.



TANYA HARVEY

A monarch drinks from Showy Milkweed (Asclepias speciosa), a favorite nectar plant of adult butterflies and also its caterpillar host plant. Photographed at the John Day Fossil Beds National Monument Sheep Rock Visitor Center.

Siskiyou

For information on the Siskiyou Chapter call Chris Van Schaack at 541-488-9174.

Umpqua Valley

For information on the Umpqua Valley Chapter call Ted Schattenkerk at 541-679-6953.

Willamette Valley

For information on the Willamette Valley chapter, please call Bob and Judy Oliver at 503-371-8709, or Wilbur Bluhm at 503-393-2934.

William Cusick

For information on the William Cusick Chapter call Frazier Nichol at 541-963-7870.

Sidalcea Summer Preliminary Report: I Came, I Saw, I Counted

by Rhoda Love, Emerald Chapter

As I write this, many volunteers are in the field along the Oregon coast looking for the very rare checkermallow, *Sidalcea hendersonii*—from Clatsop County in the north to Douglas County (and maybe beyond) in the south. We must wait for their reports at the end of summer before we can begin to understand how rare this species is in Oregon; however, I wanted to write briefly here about my own June survey in the Siuslaw estuary of coastal Lane County. A population of *S. hendersonii* on an island about 7 miles up the river has been known for a number of years and that is where I saw Henderson's checkermallow in the field for the first time in my life, thanks to Nature Conservancy field biologist Neal Hadley.

Neal checked the tides, kindly arranged for a motorboat, and picked up Jack and Catherine Hausotter and me on the morning of June 25 for our trip to the island. Neal had visited the area in advance and marked trails through the rough sea grasses to various numbered checkermallow stands. I was thrilled to finally see the mallow named for my hero Louis F. Henderson and to find it more beautiful in the wild that I had ever imagined. The deep pink color is intense and the plants, which grow in clumps, stand between three and four feet tall with many stems that are densely covered with multiple blooms (see photo).

Jack and I got to work in the summer sun photographing stands and individual stems, determining whether plants were perfect-flowered or female, looking for the little black weevils which apparently feast on the pollen at this time of year, and, with Neal's help, measuring the sizes of stands, estimating numbers of plants, and assessing the general health of the species in this location.

Most of the details of our findings must wait until the end of the season, but a few observations follow. All stands studied on June 25 were composed of both perfect-flowered and female-only individuals. Weevils were

found in flowers in most stands. Some stands seem to be doing well, while others are perhaps being crowded or overtopped by tall and robust European grasses, weeds, and native perennials such as cow parsnip and

Baccharis. We have recently received hints that other populations may be found on nearby Siuslaw islands and on the mainland in this area as well. Watch for a lengthier report in the fall.



Rhoda with Henderson's checkermallow on an island in the Siuslaw River estuary, Lane County, June 25, 2003.

JACK HAUSOTTER

Mount Pisgah Arboretum Events

Seavey Loop Rd., Eugene, call 541-747-1504 for information or to register.

Art in the Outdoors Workshop Saturdays, August 23 & 30, 10am-3pm

Basic drawing and painting techniques will be presented in a step-by-step format by local instructor and painter Ellen Gabehart. Fee: \$50 adults, kids under 16 are 1/2 price. Pre-registration required.

The Art of Nature Photography Workshop Sunday, September 14, 1-4pm & Thursday, September 18, 7-9pm

David Stone, local photographer and LCC instructor, teaches this class for

beginning to intermediate nature photographers. Sunday's session focuses on instruction in composition and field photography, and Thursday's session allows for discussion and feedback of your work. Film and digital cameras welcome. Fee: \$25. Pre-registration required.

Outdoor Field Sketching Workshop Saturday, September 27, 1-4pm

Bring your choice of art materials for some intermediate to advanced instruction led by popular art teacher and natural science illustrator, Kris Kirkeby. Fee: \$20. Pre-registration required.



A panorama of the beautiful countryside along the John Day River

Did You Miss This Year's Annual Meeting in John Day?

by Mandy Tu, Portland Chapter

A fun-filled weekend of frolicking and botanizing was had by all at the recent NPSO annual gathering in John Day. Many of us saw species and even some genera that were completely new! Some especially showy flowers that were viewed included several *Penstemon* spp., gorgeous *Clarkia pulchella* and *Calypso bulbosa*, hundreds of *Cypripedium montanum* flowers, and some folks even saw a rare plant or two, including the rare endemic *Luina serpentina*!! Special kudos go to all organizers and helpers, especially Skip Haak, Jan Dobak, Dave Dobak, Dee White, Melanie Bjorge, Greg Stone, Mike McKeag, Paul Slichter, Sue Allen, and of course, the inestimable Jennifer Barker.

If you couldn't make it to John Day here are some photos of some of the wonderful plants and scenery seen over the weekend. Don't miss next year's meeting in Northeastern Oregon!



A close up view of Frasera albicaulis shows the fascinating structure of the pale blue flowers. It is a member of the Gentian family. Photo taken at Baldy Mountain near John Day.



Dodecatheon pulchellum, like most Shooting Stars, grows in wet seeps and other moist areas.

ALL PHOTOS BY TANYA HARVEY



Linanthus nuttallii is a beautiful member of the Phlox family.



Mountain Lady's Slipper, Cypripedium montanum, was a real treat for all those who got to see it on their field trips.



The striking Elkhorns Clarkia, Clarkia pulchella, is even more beautiful when you see masses of it turning some of the roadsides bright pink as it did just south of John Day. Clarkias are annual members of the Evening Primrose family, Onagraceae.

The 64th Annual OSU Biology Colloquium “Under the Tangled Bank: Biology and Literature”

April 10-11 2003, Oregon State University. Sponsored by: OSU Research Office; Spring Creek Project for Ideas, Nature, and the Written Word; College of Science; College of Agriculture; College of Liberal Arts; Department of Philosophy.

Review by Lila Bichel, Katie Neall, Stephanie McKnight, Gail Baker. Science Division, Lane Community College.

The Colloquium brought together prominent Pacific Northwest biologists and writers who recognize the importance of integrating literature and science and practice this art. The goal was to unite these individuals, create and increase collaboration and inspire others to “work together to tell the stories of science”. Collaboration for accurate, informative and inspiring scientific communication to the general public is particularly crucial now, as ecosystems are rapidly degraded and more and more people grow so removed from nature that they cannot see how dependent they are upon it. The theme that both biology and literature can lead one to a common and better understanding of the world around us—a stronger connection, a stronger sense of place—was emphasized throughout the Colloquium.

Among the exceptional cast of presenters were Robert Michael Pyle, David Quammen, Jane Lubchenco, Glen Love, Jim Lichatowich, Elizabeth Grossman, Esther Stutzman, Jack Forbes and Charles Goodrich. Presentations ranged from a moving opening invocation by Esther Stutzman followed by Robert Michael Pyle’s literate keynote address, “Under the Tangled Bank: Biology & Literature” to the closing plenary session also by Pyle with discussion sessions, workshops and field excursions in between.

The diversity of presenter backgrounds and perspectives combined with the variety of venues for learning about how different people do and write about science offered all attendees opportunities to see how the combination of literature and science could be a powerful tool to excite and inspire people to reconnect with and elevate the importance of nature to their lives. Biology—as the study of life—and literature—as a way to express those

observations—can both be used to help discover and hold onto a sense of place, a connection with the earth.

Author and naturalist Robert Michael Pyle’s keynote address presented an example of breaking boundaries between literature and biology in his new field guide *The Butterflies of Cascadia*. The descriptions of each butterfly include a “scientific” and “literary” perspective. He explained literature is seen as emotional, and science seen as intellectual; but both aspects are necessary to respond to the current ecological crises. Pyle suggested that now is the time for all people to unify all their skills.

This concept was reaffirmed by Jack Forbes when he suggested that a person could use the ideas of oneness to break out of pre-established borders and definitions—to view life more holistically and increase their understanding of their dependency on the environment.

Science writer David Quammen joined marine ecologist Jane Lubchenco for a discussion titled “Science, Literature, and Social Change” where they discussed the difference between accuracy and precision in communicating descriptions of the natural world. Lubchenco pointed out how “scientists are obligated to share their knowledge with the public”. It remains the responsibility of the science writer to gather and verify all the facts with the added challenge of compiling that knowledge and writing about it in a manner that will easily appeal to a broader audience without decreasing accuracy in the process. To keep the public interested in scientific information, writers popularize it in novels, magazines, journals, newspapers and even poetry. These popularizations may reduce the precision scientists are so reluctant to give up, but Quammen emphasized the necessity that they never lose accuracy.

“Seeing Clearly, Telling It Straight” with poet Charles Goodrich was an interactive workshop exploring the relationship of artist and subject and between humans and other living things. Goodrich encouraged the attendees to first observe, and then inform so as to get closer to understanding the observation—and then write. He also encouraged recognition of personal values and biases to become aware of where we think we are as observers of plants and animals.

The art of integrating science and literature is not new but is expanding. It is inspiring to return to works like Darwin’s *The Origin of Species by Means of Natural Selection* that ends with a paragraph that is a wonderful example of the integration of literature and science describing the connection among all living things which remains the underlying theme of modern biology. The paragraph begins with the following sentence:

“It is interesting to contemplate an entangled bank, clothed with many plants of many kinds, with birds singing on the bushes, with various insects flitting about, and with worms crawling through the damp earth, and to reflect that these elaborately constructed forms, so different from each other, and dependent on each other in so complex a manner, have all been produced by laws acting around us.”

To find complete information about the Colloquium’s presentations and presenters go to:

<http://oregonstate.edu/biologycolloquium/program.html>

<http://springcreek.oregonstate.edu>

The Spring Creek Project,
Dept. of Philosophy, OSU
Corvallis, OR 97331
541-737-6198

Decoding the Basic Biology of Golden Paintbrush

continued from page 85

are protected through implementation of management programs, they are still in need of ongoing management.

Additional threats to the species include the conversion of prairies and grasslands to shrub and forest communities in the absence of periodic fires. Fire suppression since the mid-nineteenth century has allowed for the encroachment of native and non-native woody species into grassland habitat. Therefore, a portion of *Castilleja* habitat is now dominated by trees, primarily Douglas-fir, and shrubs including wild rose and Scot's broom.

In 1997 golden paintbrush was listed as threatened under the Endangered Species Act allowing for conservation measures to be undertaken including recovery actions, Federal protection on public lands, and prohibitions against certain activities. The Endangered Species Act also allows for reintroduction as part of the species recovery plan in order to promote new, self-sustaining populations. However, it is also important that remaining populations are maintained and enhanced through appropriate management.

Efforts are currently being made to explore the possibility and suitability of establishing new populations of *Castilleja levisecta* in the vicinity of historically known sites as well as expanding

existing populations. Prior to making this step in the recovery process, conservationists need a full biological understanding of the species, including knowledge of its ecosystem and pollination biology. Through my internship with IAE, I have been able to participate in a portion of the research aimed at gaining information essential to successful reintroduction and recovery of *C. levisecta*.

Golden paintbrush typically occurs on generally flat grasslands and on grass-dominated coastal bluffs. It is known to be parasitic or hemi-parasitic with roots that develop connections called haustoria that penetrate the roots of other plants. *Castilleja* plants will also develop haustoria on its own roots when grown without a host plant. Although it has the potential to survive without a host plant, greenhouse studies have shown that *Castilleja* tend to flourish with hosts. *Festuca roemerii* (Roemer's fescue) and *Eriophyllum lanatum* (woolly sunflower) are two species that are commonly found in the grassland habitats where *Castilleja levisecta* occurs and possibly serve as good host plants for it.

Through my internship with IAE, I was able to participate in a project investigating the importance of potential host plants to the growth and survival of golden paintbrush. In September of 2000, seeds were collected from various source populations, germinated, then planted in a greenhouse and shade-

house environment. The seeds collected for this study were from sites located on Whidbey Island, San Juan Island and in Thurston County in Washington. When the plants were two months old, they were planted with either *Festuca roemerii*, *Eriophyllum lanatum*, or alone (serving as a control) in a 4-inch pot with sterile potting soil. The initial data collected in 2001 indicated that the host plant had no significant effect on the rate at which plants flowered and only a weak indication that host plant affected plant size. Plants grown with *Eriophyllum* were the largest while plants grown alone were smallest. Furthermore, the results showed that the seed source was more influential for plant growth than host plant.

A second year of data collection has allowed for additional evaluation of the flowering and growth of *Castilleja* with the *Festuca* and *Eriophyllum*. Results from this year show a significant difference in response of *Castilleja* to different host. Plants grown with *Eriophyllum* were significantly larger, produced more flowers, and flowered more often than those grown alone or with *Festuca*. However, plants grown with *Festuca* were no larger than those grown alone. It will be interesting to see through additional research the long-term effects of the varying host plants on the growth and reproduction of *Castilleja*.

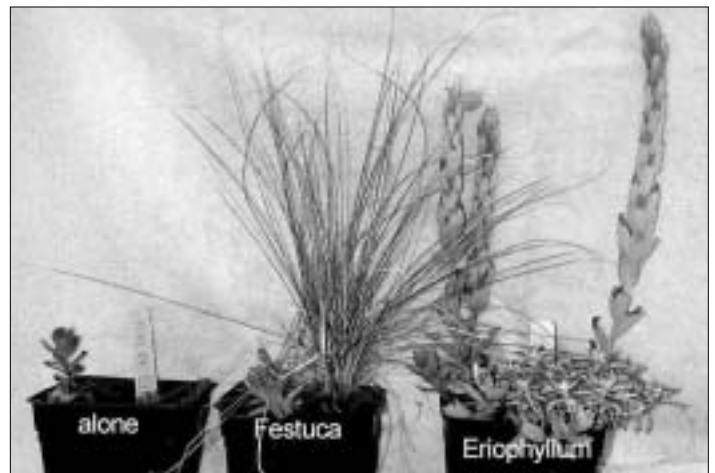
In addition to studying the

continued on page 94



TOM KAYE

Golden paintbrush is an endangered plant that has been extinct in Oregon for over 50 years.



TOM KAYE

Golden paintbrush grows larger and flowers more often when grown with woolly sunflower (*Eriophyllum lanatum*, right) than with Roemer's fescue (*Festuca roemerii*, center) or alone (left).

Decoding the Basic Biology of Golden Paintbrush

continued from page 93

ecological aspects involved in the reintroduction and conservation of *Castilleja*, I was involved in research to further understand the breeding system and pollination biology of this species. This aspect of my internship involved the construction of a screenhouse to simulate the natural conditions in which *Castilleja* is found and also to prevent external pollinators from influencing the results. By performing pollen crosses inside the screenhouse, we explored the capacity of the plants to self-pollinate and investigated the success of crosses using different combinations of maternal plants and pollen donors from different source populations and different maternal lineages. Data collection is currently in progress from these breeding system experi-

ments, but preliminary results suggest that the species is not self-compatible, but instead requires insects to move pollen between genetically different plants. In combination with genetic evaluation of extant populations, information gathered from this study will be important in determining the most viable crosses to use in propagation of *Castilleja* plants.

Although there is a great deal of research yet to be done for the recovery of golden paintbrush, I hope that the efforts of IAE in gaining knowledge of the plant's habitat and pollination biology will prove to be of importance in the reintroduction process and strategy. Of the many projects I have worked on this summer, I will be particularly eager to follow the progress of this project and the plans being made for the future of *Castilleja* in Oregon, Washington and British Columbia. I would like to thank Tom Kaye and IAE for this

opportunity to learn more about the conservation of native plants and for contributing so much to making my internship an enjoyable learning experience.

References

- Kaye T. 2001. Restoration research for golden paintbrush (*Castilleja levisecta*), A threatened species, [Online]. Available: http://www.appliedeco.org/Reports/Cale_research.PDF [2002, August].
- U.S. Fish and Wildlife Service. 2000. Recovery Plan for the Golden Paintbrush (*Castilleja levisecta*). U.S. Fish and Wildlife Service, Portland, Oregon. 51pp.
- Washington Natural Heritage Program. 2001. Reintroduction Plan for *Castilleja levisecta*. Washington State Dept. of Natural Resources, Olympia, Washington. 46 pp.

NPSO Items for Sale

Vascular Plants of Lane County, Oregon: An Annotated Checklist by C. Simpson, J. Koenig, J. Lippert, R. Love, B. Newhouse, N. Otting, S. Sundberg, D. Wagner, and P. Warner. Emerald Chapter, NPSO. This new county checklist includes more than 1,740 species and varieties representing 39 percent of the 4,460 plants currently recognized by the Oregon Flora Project at Oregon State University. It also includes a color map of Lane County's five major ecoregions; and information about rare and endangered species, noxious weeds, and escaped cultivated plants. Information is included for every species on habitat, ecoregion, occurrence frequency, and native or non-native origin. To order, send **\$15** payable to Emerald Chapter, NPSO to Lane County Checklist, Emerald Chapter, NPSO, PO Box 902, Eugene, OR 97440-0902.

NPSO Membership Directory lists names, addresses, phone numbers, and e-mail address of NPSO members (April 2003). Available from Jan Dobak, 2921 NE 25th Avenue, Portland, OR 97212-3460. **\$3 postpaid.**

Camas Tee Shirt from Cheahmill Chapter. Beautiful moss green or tan tee shirts with botanical drawing in color of *Camassia quamash* by Carlton, OR artist and Cheahmill chapter member Marilyn Karbonski. Short sleeve, high quality, **\$15 plus shipping.** For ordering information call 503-852-7230, or send order to PO Box 291, Carlton, OR 97111.

The "**Atlas of Oregon Carex**" was NPSO's first Occasional Paper. The Atlas has 128 location maps, one for each Carex taxon in the state of Oregon. Also included are a synonymy, fun facts about sedges, a history of the project, and Oregon geography maps. **Price: \$5.**

"**Louis F. Henderson (1853-1942): The Grand Old Man of Northwest Botany**" by Rhoda M. Love. NPSO's second Occasional Paper is the only existing publication with detailed coverage of the long and fascinating life of this John Muir-like western character. Included: 56 pictures, 133 notes, chronology, list of plants named for Henderson. Third printing nearly sold out. Order your copy today! **Price: \$10.**

To order either or both Occasional Papers, send check for the appropriate amount (made payable to NPSO) to: **Occasional Papers, Native Plant Society of Oregon, PO Box 902, Eugene, OR 97440-0902.**

Oregon's Rare Wildflower Poster depicts Punchbowl Falls and three of the Columbia River Gorge's endemic wildflowers. Text on the back describes the natural history of the Gorge and the mission of the NPSO. Available from Stu Garrett, 21663 Paloma Drive, Bend, OR 97701, 541-389-6981. Individuals may order posters at **\$12 each**, plus \$3 per order for shipping. Posters are mailed in tubes.

NATIVE PLANT SOCIETY OF OREGON MEMBERSHIP FORM

Name _____
 Address _____
 City _____ State _____ Zip+4 _____
 Phone _____ E-Mail _____
 Chapter (if known) _____

DUES include monthly *Bulletin* and yearly *Kalmiopsis*.
 Membership is for the calendar year. New memberships enrolled after
 September 1 include the following year.

- New Renewal
 Student – \$12 Regular – \$18 Family – \$24
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 Subscription Only (*Bulletin* and *Kalmiopsis*) – \$18 *Only for those who wish to subscribe, but do not want to have full membership status.*

Is this a change of address? If so, please write your old address here:

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CONTRIBUTIONS to NPSO are tax deductible.

Jean Davis Memorial Scholarship Fund	\$ _____
Leighton Ho Memorial Field Botany Award Fund	\$ _____
Rare and Endangered Plant Fund	\$ _____
Friends of the Oregon Flora Project	\$ _____

Please make checks for dues and contributions payable to:
 NATIVE PLANT SOCIETY OF OREGON

Send completed form and full remittance to:
Jan Dobak, NPSO Membership Chair
 2921 NE 25th Avenue
 Portland, OR 97212-3460

Membership in the Native Plant Society of Oregon is open to all.
 Membership applications, renewals and change of address (include old address) should be sent to the Membership Chair.

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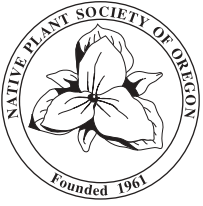
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 WILLAMETTE VALLEY (Salem) Position vacantcontact Karl Anderson; 503-315-7329
 WM CUSICK (La Grande) Frazier Nichol.....c/o Dick Kenton, 1805 U Ave., La Grande, OR 97850; 541-963-7870

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Highlights of the NSPO State Board Meeting, June 22 in John Day

by Kelli Van Norman, Secretary

Thanks to the Portland Chapter for holding a great Annual Meeting in John Day. The Board of Director's quarterly meeting was held on the Sunday morning following the Saturday banquet. As Chris Van Schaack commented during the Board meeting, NPSO is not just a plant group, it's a fun, social group. Gathering at the annual meeting, seeing old friends and meeting new friends is definitely one of the highlights of NPSO.

Our congratulations to the newly awarded NPSO Fellows, Charlene Holzwarth and Russ Jolley. They both have contributed a great deal to educating Oregonians about our native plants.

Our NPSO publications are continuing on time and within budget. We continue to receive good reviews on

our monthly *Bulletin* thanks to the hard work of Tanya Harvey. In fact, the *Bulletin* is full every month and outside organizations ask us to print their events, which is a good sign of its popularity. You should have received your *Kalmiopsis* volume 10 due to the excellent guidance of Cindy Roché. Linda Vorobik has resigned from the *Kalmiopsis* editorial board, and we thank her for her service. We also welcome Frank Lang, the first *Kalmiopsis* editor from 1990-1993, to the *Kalmiopsis* editorial board. Rhoda Love reported that we are almost sold out of the NPSO Occasional Paper *The Life of Henderson*. We will probably reprint more this winter. More copies of the *Atlas of Oregon Carex* were recently published as well.

Jan and Dave Dobak, who have served 12 years as the NPSO Membership Committee, announced that they are stepping down. This is a vital position to NPSO. Thank you Jan and Dave for your dedication. They reported that NPSO membership as of June 2003 is 859 people.

Next year's Annual Meeting is to be planned jointly by the William Cusick Chapter of La Grande and the Blue Mountain Chapter of Pendleton. No date or location has been selected yet, but the two chapters have until September to determine a date and location. The Willamette Valley Chapter is scheduled to host the 2005 Annual Meeting, and the Umpqua Valley Chapter is scheduled to host the 2006 Annual Meeting.