

Spiranthes stellata, Starry Ladies'-tresses, The Newest Orchid Species in Western North America

by Paul Martin Brown with Lucy A. Dueck & Kenneth M. Cameron

or some years, a distinctive Spiranthes in the Sierra Nevada range of eastern California has attracted the attention of botanists. These orchids are unlike either S. romanzoffiana Chamisso, which is widespread in the region, or S. porrifolia Lindley, which is local to rare in the mountains. The distinctive plants are common in the moderate elevation fen meadows found throughout Yosemite National Park (YNP) and have been observed as far north as southern Oregon and as far south as Tulare County, California.

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Five currently recognized species of Spiranthes are found west of the Rocky Mountains in North America. Two of them, S. infernalis Sheviak and S. delitescens Sheviak, are locally endemic to southwest Nevada and southeast Arizona, respectively. A third species, S. diluvialis Sheviak, is known primarily from Colorado but with small populations in Utah, Idaho, Washington, Wyoming, and western Nebraska. The two remaining species are S. porrifolia from California, Oregon, southern Washington, western Nevada, and western Idaho, and the circumboreal and widespread S. romanzoffiana. Only the latter two species have been recorded from northern California and southern Oregon, but the presence of another *Spiranthes* unlike the others has been noted in this area as well by previous researchers (Coleman, 1995; Sheviak, 1990). Coleman (1995) photo-documented and made note of a Spiranthes, particularly in Yosemite National Park, California, that was

relatively common and that appeared intermediate between S. romanzoffiana and S. porrifolia. At the time, these plants were generally considered to be a local race of S. romanzoffiana, although when compared with typical S. romanzoffiana growing within the park several notable differences were observed. Coleman mentioned that perhaps they represented a hybrid between the more common S. romanzoffiana and the locally much rarer S. porrifolia—or even a new species. With scattered individual plants this hybrid theory may be sound, but the mystery Spiranthes grows in great abundance in YNP. Interestingly, only in Yosemite does one of the proposed parents (S. romanzoffiana) grow with or near any of the plants in question, and then only at one site. A closer inspection of the distinctive aspects of these plants revealed that both morphological and molecular data support their recognition as a new species, described below.

continued on page 30

!! IF YOU HAVEN'T RENEWED YET FOR 2008, YOUR MEMBERSHIP WILL LAPSE SOON !!

Look at the address label on this *Bulletin* and if "2007" appears along the top edge, this is the LAST Bulletin you'll receive. If you don't want to miss any of this year's Bulletins, or Kalmiopsis, please send your dues payment right away!

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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.

New NPSO Secretary Needed!

NPSO will soon need a new State Secretary. This is a great opportunity to learn what the different chapters and committees of NPSO are doing. This is also a great experience for someone interested in how a small non-profit organization operates. Responsibilities include attending and participating in State Board meetings as a voting member, organizing and distributing Board meeting reports and minutes, and assisting the NPSO President in developing Board meeting agendas. A large time commitment is usually not required. If you are interested in the position, please contact the current secretary, Harold Zald, at harold.zald@oregonstate.edu or the NPSO President David Lebo at president@NPSOregon.org.

Join Project Budburst

You can help collect important climate change data on the timing of leafing and flowering in your area through Project BudBurst. This national field campaign targets native tree and flower species across the country. With your help, valuable environmental and climate change information will be gathered and compiled from around the United States.

Project Budburst was initiated in 2007 by the Plant Conservation Alliance, an 11 federal agency partnership including the USDA Forest Service, and many other partners including universities, botanic gardens and the National Science Foundation.

Last year's event drew thousands of people of all ages taking careful

observations of the phenological events such as the first bud burst, first leafing, first flower, and seed or fruit dispersal of a diversity of tree and flower species, including natives, weeds and ornamentals. The citizen science observations and records were entered into the Bud-Burst data base. As a result of the pilot field campaign, useful data was collected in a consistent way across the country so that scientists can use it to learn about the responses of individual plant species to climatic variation locally, regionally, and nationally, and to detect longer-term impacts of climate change by comparing with historical data.

For more information about the program and how you can participate, visit www.budburst.org.



Amorous beetles inadvertantly cover themselves in pollen while visiting a beautiful Trillium ovatum. With any luck they'll deposit the pollen on another trillium during their spring activities.

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NPSO CALENDAR

State

July 11-13, Friday-Sunday

Annual Meeting: The Emerald Chapter will host the meeting at the Mount Pisgah Arboretum in Eugene. Watch for more information and registration materials on our web site and in upcoming issues of the *Bulletin*.

Blue Mountain

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

Cheahmill

March 27, Thursday, 7 pm

Program: Conserving Native Ecosystems. Andrea Thorpe, Director of the Conservation Research Program with the Institute for Applied Ecology will lead us on a trip through Oregon as she describes some of IAE's work studying and reintroducing rare and endangered species, including Willamette daisy and Kincaid's lupine in the Willamette Valley, Errter's senecio in Leslie Gulch, Cook's lomatium in the Illinois Valley and pink sandverbena on the coast. IAE, a non-profit organization located in Corvallis, has been conducting natural resource conservation, research, and education since 2000. Carnegie Room, McMinnville Library, 225 NW Adams

April 24, Thursday, 7 pm

Program: The Flora of King's Mountain. Jake Hurlbert has been documenting an ecological study of a temperate rainforest about 50 miles NW of McMinnville near Elk Creek Campground for the past year. The study takes place between 600' and 3200' over a 2.5 mile climb on the slopes of King's Mountain. It is an area that receives between 100 and 200 inches of rainfall per year. This study explains the relationships between au-

totrophic and heterotrophic plants and animals; how insects and mushrooms help recycle the biomass; and why certain plants have problems where others thrive. His motivation for the study was a large fruiting of phantom orchids that can only exist because of their mycoheterotropic adaptation. Come and enjoy a virtual tour of a year in the life of King's Mountain. Carnegie Room, McMinnville Library, 225 NW Adams Street.

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.

Corvallis

To join the Corvallis email list to receive notification of upcoming events, please email matths@peak.org

March 10, Monday, 6 pm

Dinner with Our Speaker. Join us for dinner at Nearly Normals, 109 NW 15th Street, Corvallis. All welcome. RSVP Matt at mattbs@peak.org so we can save table space.

March 10, Monday, 7:30 pm

Meeting: Incorporating Native Plants into Agricultural Systems and the Garden. Mike Russell, graduate student in the Department of Horticulture, will discuss the use of native plants in agricultural systems and their importance for beneficial insects. Mike will also make suggestions on how you can incorporate these elements into your home garden to increase wildlife habitat. Meetings held at Avery House, Avery Park, Corvallis. For directions or information contact Matt Blakeley-Smith at 541-231-9861 or mattbs@peak.org

March 15, Saturday, 9 am

Field Trip: Silver Falls State Park. Rob Weiss will lead a 3–4 mile hike around North and Winter Falls to observe bryophytes, lichens and some of the early flowering plants in the area. Bring raingear, lunch and hand lens. Meet at the Wilkinson Hall parking lot SW of The Beanery, 26th and Monroe, Corvallis. For more info contact Rob at 541-752-1362. Other chapters are welcome to meet us at the North Falls Parking area at 10:30 am, but please notify us so we know to look for you!

Emerald

March 17, Monday, 7:30 pm
Meeting: Inside Trees—A Look at
Rare and Beautiful Woods from
Around the World. Alan Curtis, a
retired forester/botanist for BLM, has

been collecting wood for over 50 years, and has sent over 1000 specimens to universities for their studies. He also supplies specimens to collectors around the world. He has gathered most of these woods through travels here in the USA and abroad. He will bring some of his most beautiful specimens for viewing. EWEB Training Room, 500 East 4th Avenue, Eugene. For more information call 541-746-9478.

April 19, Saturday, 9 am

Field Trip: New City Park Area. The City of Eugene has acquired new parcels of land in the south hills to create a corridor of natural areas extending west to Willow Creek. We will visit one of the new properties to study native plant communities. Wear hiking shoes. Bring water and snacks. Meet at 9 am at South Eugene High School. Call 541-345-5531.

April 21, Monday, 7:30 pm Meeting: Exploring the KlamathSiskiyou Bioregion. The area is known for convoluted geology and astounding biodiversity. Please join Siskiyou Field

Institute outreach Coordinator, Cece Bowerman for a presentation that will highlight the intriguing characteristics of this region. After a short film Cece will share slides of unique flora and fauna. EWEB Training Room at 500 East 4th Avenue, Eugene. Call 541-746-9478.

High Desert

For information on the High Desert Chapter, call Berta Youtie at 541-447-8166.

Klamath Basin

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

Mid-Columbia

March 13, Thursday, 7 pm
Meeting: Western Penstemons.
Ginny Maffit will show us penstemons from across the West and explain how to identify them and grow them

successfully, including how to germinate their seeds and root their cuttings. The Board Room, Building 1, Columbia Gorge Community College, The Dalles. Please Note New Location and Time.

April 20, Sunday, 10 am-4 pm
Event: Wildflower Show. The Mid-Columbia Chapter presents the Annual Wildflower Show at the American Legion Hall in Mosier.

North Coast

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

Portland

The semi-official e-mail newsletter of the Portland Chapter is The Calochortus. If you are not receiving it and would like to, send an e-mail to Don Jacobson at: donjphoto@gmail.com

March 13, Thursday, 7 pm

Meeting: Anza Borrego State Park. Paul Slichter will present a program on Anza Borrego State Park in southern California, the largest state park in California and a fabulous place to see the desert in bloom. Paul is an excellent photographer. Check out his Pacific Northwest Flower Menu at http://ghs.gresham.k12.or.us/science/ps/nature/pnwmenu.htm. Mt. Tabor Presbyterian Church on SE Belmont Street at SE 54th Avenue. Enter the church parking lot from SE 54th Avenue.

March 15, Saturday, 8:30 am Field Trip: Catherine Creek. The pre-

miere early flower spot in the Gorge, with Olsynium douglasii in profusion, Fritillaria pudica, Lithophragma glabra, several Lomatiums, and many others. Leave at 8:30 am, Gateway/NE 99th Ave Park and Ride, southeast corner of parking lot. Or meet at Catherine Creek at 10 am. 120 miles round-trip drive; easy walking 3 to 4 miles, with 500 ft. elevation gain. Call Jan and Dave Dobak at 503-248-9242 for more information.

NPSO Items for Sale

NPSO Membership Directory lists names, addresses, phone numbers, and e-mail address of NPSO members (April 2007). Available from Jan Dobak, 2584 NW Savier St., Portland OR 97210. **\$3 postpaid.**

Vascular Plants of Lane County, Oregon: An Annotated Checklist. Emerald Chapter, NPSO. More than 1,740 species and varieties representing 39% of the 4,460 plants currently recognized by the Oregon Flora Project are listed with information on habitat, ecoregion, occurrence frequency, and native or non-native origin for every species. To order, send \$15 payable to Emerald Chapter, NPSO to Lane County Checklist, Emerald Chapter, NPSO, PO Box 902, Eugene, OR 97440-0902.

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. Fourth printing, February, 2004. Nearly sold out, now reduced to \$8.00 per copy. To order, send check for the appropriate amount (made payable to NPSO) to: Occasional Papers, NPSO, PO Box 902, Eugene, OR 97440-0902.

"Land of Umpqua" T-Shirt featured at the 2005 Annual Meeting is still available. It depicts the delightful *Calochortus umpquaensis* illustrated by Dorothy Schattenkerk and in cream, purple, yellow, and green. The shirts are **\$16 plus \$5 shipping** and come in light gray, beige, pink or light blue in sizes M, L, and XL. To order call Ron Hatt at 541-863-7024.

March 29, Saturday, 8:30 am

Field Trip: Eastern Columbia River Gorge. The early season bloom should be well underway in the eastern Gorge. Come search for early bloomers between Hood River and US 97. We should see yellow bells, daggerpods, shooting stars, milk-vetch, a wealth of desert parsleys and perhaps even some early balsamroots and lupines! 200 highway miles round-trip. Car stops with short walks. Contact Paul Slichter at pslichte@teleport.com or 503-661-3292.

Siskiyou

SOU Herbarium Public Hours

The SOU Herbarium will be open from 7–7:30 pm immediately preceding the NPSO meetings on the third Thursday of each month. The Herbarium is located in the SOU Science Building, Room 206. Call Connie at 541-488-0368 for in-formation or to schedule another time.

March 20, Thursday, 7:30 pm

Meeting: The Exquisite Orchids of Oregon. Charlene Simpson will touch on the economic importance of orchids world-wide and discuss their diverse morphology, habitat preferences, and reproductive strategies. She will explore the high cost of pollinator specialization and obligate mycorrhizal associations. Charlene will illustrate her program with stunning images of Oregon orchids, drawn from her 30-year archive of native plant photographs. Her photographs are displayed at the Mt. Pisgah Arboretum Spring Festival and have been reproduced in several rare plant guides. Charlene is a fellow of the NPSO and a founding member of the Emerald Chapter. Her specialty is Lane County's native plants, and she is the coordinator of the Lane County Vascular Plant Checklist Project. She volunteers for the Oregon Flora Project as an Oregon Atlas Project Leader and Regional Coordinator. Room 171 of the SOU Science Building, Ashland. For more information, contact Alex Maksymowicz, 541-482-1964.

Umpqua Valley

March 1, Saturday, 8:30 pm Field Trip: Beatty Creek RNA. The flowers were just starting to bloom at this time last year. Beatty Creek, tucked away on the north slope of Cow Creek, is a wonderful place to view many different saxifrages. We will try to see them all this year. Meet in the NE corner of the parking lot behind the Douglas County Courthouse, west of Fowler Rd, between Hwy. 138 and Douglas Ave in Roseburg. Or, you can meet us at the Tri City McDonalds, Exit 103 at 9 am to carpool or caravan. For information call Sam Friedman at 541-673-0589.

Willamette Valley

March 6, Thursday, 7-8:30 pm March 8, Saturday, TBA

Class: Backyard Insects. Learn about the insects inhabiting your backyard in this two-part class. Dr. Andrew Moldenke, Professor Emeritus at Oregon State University, will provide a basic introduction to entomology—the study of insects. Class members will learn about the biology and classification of insects and learn to identify some of the more common backyard insects. More information on the March 8 program will be announced during the first class, which will be held at the Straub Environmental Learning Center, 1320 A St. NE, next to Olinger Pool, near North Salem High. The class costs \$5 and is open to the public. The program, part of the Amateur Naturalist Series, is sponsored by the Friends of Straub Environmental Learning Center. To register, please call 503-391-4145.

March 27, Thursday, 7–8:30 pm March 29, Saturday, 9 am-12 pm

Program: Mushroom Identification. Jon Mayer, Oregon Department of Forestry, will provide a general overview of common mushrooms and explain how to identify and find edible mushrooms in this two-part class. The March 27 class will be held

at the Straub Environmental Learning Center, 1320 A St. NE, next to Olinger Pool, near North Salem High. The March 29 field trip to the Santiam State Forest area is limited to 20 persons; details will be announced during the first class. The program costs \$5 and is open to the public. It is co-sponsored by the Friends of Straub Environmental Learning Center and the Willamette Valley Chapter. To register, please call 503-391-4145.

William Cusick

March 20, Thursday, 7 pm Meeting: Speaker to be determined. LaGrande Public Library.

April 24, Thursday, 7 pm Meeting: Speaker to be determined. Baker County Library, 2400 Resort Street, Baker City.



Hot rock penstemon (Penstemon deustus) is a handsome cream-colored species found in hot, dry sites. To learn more about penstemons, go to Mid-Columbia chapter's March meeting.

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OTHER EVENTS

Plant ID Class

Identification of Plants in the Field April 2-May 21, Weds., 4-7 pm Lane Community College, Eugene

This class, taught by Marcia Cutler of Emerald Chapter, focuses on plant ID and keying. We spend all our time in the field, meeting at various parks and natural areas within 20 miles of Eugene-Springfield. Subjects we'll cover include plant families, terminology, keying to a specific plant (using Gilkey and Dennis's *Handbook of Northwestern Plants*), habitat, ecology, etc.

The first class meets on the LCC main campus, probably in Building 16, Room 206. (Check LCC catalog or website for exact details.) For more information on the class or to register, see the LCC Spring 2008 Catalog or the LCC Website (www.lanecc.edu), or contact Marcia Cutler at 541-687-2559 or mar_c@efn.org.

Eugene Natural History Society

All lectures are held at 7:30 pm in room 100, Willamette Hall on the University of Oregon campus. They are free and the general public is warmly invited to attend. For more information, please call David Wagner at 541-344-3327.

Following in the Footsteps of Darwin: Walking Through Patagonia Today March 21, Friday, 7:30 pm

Frank Lang, Professor Emeritus, Biology, Southern Oregon University

Natural History and Generic Endemism of Hawaiian Flowering Plants April 18, Friday, 7:30 pm

Gerald D. Carr, Affiliate Emeritus Professor, Department of Botany and Plant Pathology, O.S.U.

Nearby Nature Event

Spring New Volunteer Orientation March 12, Wednesday, 6:30-8 pm

Love nature? Enjoy kids? Learn all about leading school nature walks in Alton Baker Park in Eugene this spring as well as other Nearby Nature volunteer opportunities. No experience needed—free training provided in early April. Meet at the Tykeson Room at the Eugene Public Library.

Nearby Nature guides take small groups of K–5th graders on interactive nature walks, sharing with them the wonders of everything from beavers to butterflies, rocks to recycling. Using hands-on activities, nature games, and storytelling, guides help kids learn to appreciate as well care for local natural areas. Walks are held on weekday mornings from late April through midJune. Questions? Call Nearby Nature at 541-687-9699, e-mail info@nearbynature.org, or see www.nearbynature.org.

Explore Nature with Kids

D o you have a strong sense that kids need to spend more time out in nature? Mount Pisgah Arboretum nature guides take 1800 elementary school students out into the woods every spring, sharing with them the wonders of nature and encouraging them to be good stewards of the earth. If you have a few hours a week to spare, join the Arboretum's team of volunteer nature guides! Training begins Thursday, April 3, at Morse Ranch Park, and includes everything you need to know for leading a small group of K-5 grade students on a nature hike: Local Natural History, Outdoor Teaching Skills, Storytelling and Effective Group Management. No experience required. Nature Guides are needed one morning per week, April 21-June 10. For more information or an application, call the Arboretum at 541-747-1504. franrose@efn.org. www.efn.org/~mtpisgah

Wildflower Class

Wildflower Field Class for Beginners and Advanced Beginners April 13, Sunday, 8am-4pm

NPSO member Don Jacobson will teach this class that will focus on learning how to identify flowers but also on identifying individual flowers with both common and scientific names. A brief overview of the history and significance of scientific names will be given. Plant keys, ecology and conservation concepts will also be touched upon. A list of references will be provided.

The classroom will be the flower-covered Memaloose Hills, near Hood River. There will be moderate hiking, 4 to 6 miles with about 700' of elevation gain. The pace will be slow with numerous stops for identification. Sponsored by the Audubon Society of Portland. Enrollment limited to 12. Cost is \$25 for non-members. Pre-registration required. For more information visit www.audubonportland.org or contact Steve Engel at sengel@audubonportland.org or 971-222-6119.

Mount Pisgah Arboretum Events

34901 Frank Parrish Rd. (I-5, exit 189 to Seavey Loop Rd.), southeast of Eugene. For more information or to register call 541-747-1504 or visit www.efn. org/~mtpisgah.

Plant Dyes Workshop March 30, Sunday, 1–4 pm

Fiber artist Barbara Setsu Pickett shares her approach to natural dyeing, using low-impact methods mindful of water and chemical use. Learn to dye fabric and fibers using invasive plants and debris from your garden. Barbara will demonstrate dye techniques and lead a walk to identify natural dye sources in the landscape. Fee: \$30. Call 541-747-1504 to sign up.

One Good Deed Leads to Another Orchid

by Lucy A. Dueck

story I wrote for the August/ September 2006 issue of the NPSO Bulletin ("Stalking the Ancient Asparagus, a.k.a. *Spiranthes porrifolia*") documented help received from local plant enthusiasts Veva Stansell and Kay Butler in my search for fresh samples of this terrestrial orchid. I was after the fresh sample because an herbarium specimen of it collected in 1949 from Curry County by William H. (not T.) Baker yielded perplexing results in my DNA study of the Spiranthes 'family tree', at least at that time. The only two samples I could get of this species then were old ones from Oregon and southern California, so they didn't work for all gene regions tested. But what did work was not S. porrifolia (creamy ladies'-tresses), or so it seemed. The Oregon sample partially matched what I had already genotyped as S. infernalis (Ash Meadows ladies'tresses) from Nevada, and the San Diego specimen matched yet another species, S. romanzoffiana (hooded ladies'-tresses).

Then fresh samples of what volunteer collectors thought was *Spiranthes porrifolia* slowly started trickling in. After Veva offered her recent USFS herbarium specimen from the Agness area, I continued south into California and did my own collecting. About the same time, others heard of my plight and began sending me samples. Two were indeed *S. porrifolia* when compared genetically with my new samples and the entire genus—one from my

British friend Mike Parsons, and another from Veva's friend Don Heller, both collected in Curry County, OR.

The third sample, from Hope Stubbs who had read the NPSO article and attended the 2006 Native Orchid Conference in Ashland, was different again, though. It did not match either S. porrifolia, S. infernalis, or S. romanzoffiana. In fact, the picture she sent didn't look like any of them either. But it did look like a photograph in Ron Coleman's book, The Wild Orchids of California (1995), in which he suggested it might be a hybrid between S. porrifolia and S. romanzoffiana. My collaborator, Dr. Ken Cameron of the New York Botanical Garden (now at the University of Wisconsin), and I were again perplexed because it's hard to make a case for anything based on one sample—after all, it could just be a fluke.

However, the article about Veva and questionable identity of local Spiranthes sparked the curiosity of your Bulletin editor Tanya Harvey. She soon sent me pictures of some of the same unusual Spiranthes that Hope had photographed, as well as more easily identifiable S. romanzoffiana and S. porrifolia, so we arranged for her to collect some samples, also from the Cascade mountains of Oregon. Tanya's samples turned out nearly identical to Hope's one sample. Several months later we received yet another sample of almost the same genotype from the Sierra Nevada mountains of California.

Ken and I began to realize that we'd uncovered a new species through our molecular phylogeny project, but we hadn't 'met it in person' ourselves. In the summer of 2007 though, another orchidologist, Paul Martin Brown, did meet the new species personally in Yosemite National Park. Paul and I were well acquainted from his sampling participation in our project, and we excitedly shared the news of our findings (and mutual name choice). So we decided to team up and combine a morphological and molecular description of this new orchid species, Spiranthes stellata (starry ladies'-tresses). An account of the morphological description appears in this issue, and the entire article is easily accessed at: http://wiki. terrorchid.org/tow:journals in North American Native Orchid Journal 14(1):

As for the identity of the original specimen collected by Baker in 1949 from the Agness area, it groups with *Spiranthes porrifolia*, re-identified by Dr. Charles Sheviak from *Spiranthes romanzoffiana* on the herbarium sheet. But that leaves another mystery—why did it first group with the rare *S. infernalis* from Nevada? As seen from the phylogenetic trees in Part II of the article mentioned above, *S. infernalis* is so closely related to *S. porrifolia* that in some gene regions we sequenced, it could not be distinguished.

The role of volunteer collectors has been crucial to our molecular phylogeny project since its inception in 2002. Most of these collectors have been either regional book authors or avid enthusiasts of native orchids. We never would have been able to sample all the Spiranthes species across North America ourselves. In this instance, the generous volunteerism begun by Veva and continued by Hope and Tanya provided us the opportunity to contribute molecular evidence, an important emerging feature type, to the description of this new species. As collecting partners in our project, they too have helped solve these mysteries and advance science.

Rock Garden Society Presentation

Climbing the 'Grand Staircase': Plants of Utah's Grand Escalante Wilderness March 4, Tuesday, 7 pm, Eugene Garden Club, 1645 High St., Eugene

Join us for a look at the flora of Utah's newest national monument. Truls Jensen and his wife Emma recently relocated from Utah to Beavercreek Oregon. Their nursery, Wild Ginger Farms, specializes in alpine and trough plants, including such hard-to-find rarities as *Campanula rainieri*, and they'll bring a selection of their treasures for sale at our meeting. Sponsored by the Emerald Chapter of the North American Rock Garden Society. The meeting is free and open to the public. A trough planting demonstration, door prizes and refreshments follow. Call 541-484-1284 with questions.



Spiranthes stellata at Fish Creek Valley, Cascades of Douglas County

Spiranthes stellata continued from page 23

Spiranthes stellata P.M. Brown, L.A. Dueck & K.M. Cameron

Flowers white, the nearly conduplicate oval lip tapered to the apex with pale green or cream in the trough; the apices of the petals and sepals slender, acuminate and spreading.

Plants 15-45 cm tall; roots few, descending, tuberous, short and stout to 3.0 x 1.5 cm; rachis sparingly glandular; leaves 4–6 persisting through anthesis, basal or nearly so, ascending, petiolate, lanceolate to oblanceolate, to 16×2 cm; 3–4 slender sheathing stem bracts, floral bracts acuminate ± equaling perianth in length; spikes single ranked, usually loosely flowered, 5 flowers per cycle of spiral with flowers occupying ca. (1/3) 1/4 of the upper portion of the stem; rachis glabrous with very few sessile glands. Flowers ascending, white to pale ivory, tubular for ½-¾ the length; sepals and petals sparsely glandular, lateral petals and dorsal sepal connivent above a gently descending lip (ca. 45°); sepals and petals linear to oblanceolate, acute and spreading at the apex;

Key to the *Spiranthes* of Northwestern North America (Calif., Ore., Wash., Alaska, B.C.)

- 2b flowers tubular not more than half of their length; white to pale cream 3
- 3b sepals markedly incurved, lip not conduplicate S. diluvialis (c. Washington)

Traits Specific to Spiranthes stellata

Single-ranked, loose to moderately spaced flowers—both *S. porrifolia* and *S. romanzoffiana* (usually) are multiple-ranked and densely-flowered

Folded lip—both *S. porrifolia* and *S. romanzoffiana* have a moderately channeled lip, but neither are folded (conduplicate)

Descending tuberous roots—both *S. porrifolia* and *S. romanzoffiana* have multiple thickened tuberous roots that are generally horizontal in orientation

Non-stoloniferous—both *S. porrifolia* and *S. romanzoffiana* produce stolons and eventually new growth at the tips

5–12 mm; the perianth resembling a star; lip oval but nearly conduplicate and appearing long and slender, the trough often suffused with light green or pale yellow, $4.5-10.0 \times 1.7-6.0$ mm, the base only slightly expanded, apex tapering to a point, nearly glabrous or with a few scattered glands; ovary green, 5 mm, pedicle pale or often white. Seeds monoembryonic, chromosome number n = 22 (preliminary).

California: Butte, Calaveras, El Dorado, Fresno, Madera, Mariposa, Nevada, Placer, Plumas, Tulare, and Tuolumne counties.

Oregon: Douglas, Klamath, and Lane counties.

Although *Spiranthes stellata* may possess some of the characters of *S. romanzoffiana* and *S. porrifolia*, such as similar color and general flower form, it has many morphological features that are unique and which clearly separate it well from either of those taxa. Perhaps

the most notable feature is seen at first observation when the spikes of white, star-shaped flowers dot the meadows. The slender, pointed, wide-spreading sepals and lip on the loosely spaced inflorescences give the flowers a star-like appearance. It is interesting to mention that unbeknownst to each other, both Brown and Dueck made this observation and immediately selected *stellata* as a species epithet should the new species eventually be published.

Plants of *Spiranthes stellata* have thick tuberous roots that descend rather than spread horizontally and the bud for the next season is immediately adjacent to the current season's growth. Alison Colwell (pers. comm.) noted that, after most plants in the meadows had senesced for the season (early October) and there was no evidence of other orchids, plants of *S. stellata* were easily seen by their sturdy brown fruiting stalks and the tiny green bud for the next year's growth. It is also important

to note that in most *Spiranthes* species, which are typically single-ranked and loosely-flowered, inflorescences do occur with crowded flowers that appear to be multiple-ranked. This characteristic, as well as direction of the spiral, is variable from year to year on individual plants.

Relationships of Spiranthes stellata

Coleman (1995) suggested that the then-unknown plants described here as Spiranthes stellata could be hybrids, as they had characters of both other Spiranthes species in the region. When Spiranthes hybrids are found, they usually, as do most hybrids, occur with both parents nearby in a mixed population. The distribution of *S. romanzof*fiana extends well away in all directions from the Sierra Nevada-Cascade ranges, whereas *S. porrifolia* is more limited, being found primarily in California with a few sites in Oregon, southern Washington and northwestern Nevada, but their ranges do overlap. However, except in one site in Yosemite National Park, neither of the other two species is present with *S. stellata* at the sites studied. Plants of S. stellata appear to prefer a typical bog or fen setting, such as that of a wet Sphagnum meadow or fen abundant in forbs and several other orchid species, including in some sites the recently described and locally endemic Platanthera yosemitensis (Colwell et al., 2007). Although it would not be unreasonable for the other two species to co-occur in the same habitat, S. porrifolia is much more frequent in a seep/streamside environment in the interior and wet bluffs along the West Coast, while *S. romanzoffiana*, on the other hand, grows in a wide variety of damp to wet areas from open gravels to mossy turfs and roadside ditches. Spiranthes stellata is far more widespread and common in the meadows of the Sierra Nevada than any other orchid in that region and often forms dense, almost turf-like colonies.

Several interesting facts were noted in examining herbarium specimens from seventeen herbaria. The earliest collection was in 1890 (Chestnut and Drew) in Plumas Co. Calif. near Lake Tahoe. R. Lauri photographed plants of *Spiranthes stellata* in a similar area

in 2007. Spiranthes stellata has been vouchered for 11 counties in California and 3 counties in Oregon. The most interesting specimen annotation is from Crater Lake National Park in 1929: "Spiranthes sp. nov.? lip ligulate, not constricted as wide at tip as elsewhere; nipples none; spike apparently one-sided, and 1-spiral. 12 August 1929 F. Lyle Wynd 1651". Most specimens identified as *S. stellata* were originally labeled as *S. romanzoffiana* or possible hybrids but rarely as *S. porrifolia*. This is not surprising as *S. romanzoffiana* is highly variable morphologically throughout its range across North America and distinctive local populations have often been noted, as well as plants with three different ploidy levels -2n = 44, 66,88 (Sheviak & Brown, 2002). But in all cases of these 'races', the plants are easily identifiable to *S. romanzoffiana* by their prominently hooded flowers and pandurate lips and none have the distinctive morphology of S. stellata.

In at least five instances, herbarium specimens originally identified by others as hybrids between S. romanzoffiana and *S. porrifolia* have proven to be *S.* stellata. Hybridization and gene flow among these species may still represent a real aspect of the biology of S. stellata, but future biosystematic studies will be necessary to reveal any possible complexities in its breeding system. Such studies are already underway. S. Servick of the University of Florida is currently working to determine the karyotype of *S. stellata*. His preliminary findings (pers. comm.) indicate that the species is a diploid with a base chromosome number of 22, not unlike its closest relatives. This does not eliminate the possibility of hybridization or allopolyploidy among the three sympatric species, with formation determined by factors such as number of plants in a colony, proximity of alleged parents, geographic location, pollinators, and phenology. A sheet consisting of three plants collected in 1882 by L.F. Henderson near Falcon Prairie, Oregon (no county given) was annotated by C.J. Sheviak as S. romanzoffiana, S. porrifo*lia*, and the third as a possible hybrid. The 'hybrid' bears no resemblance to Spiranthes stellata.

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This article is an extraction from Brown, P.M., L.A. Dueck and K.M. Cameron. 2008. *Spiranthes stellata* (Orchidaceae), a new species of ladies'-tresses from the western United States. *North American Native Orchid Journal* 14(1): 3-21 which contains an extensive section on the molecular evidence for the new species written by Dueck and Cameron. The complete article is at http://wiki.terrorchid.org/tow:journals

Paul Martin Brown is the author of numerous books on Orchids including Wild Orchids of the Pacific Northwest and Canadian Rockies published by University Press of Florida in 2006.

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Highlights of the January 26 Quarterly NPSO State Board Meeting

by Harold Zald, NPSO Secretary

The Corvallis Chapter hosted the January Board meeting at Oregon State University. The board heard reports on activities from chapters and committees, in addition to focusing on numerous subjects: publication updates, current membership numbers, the NPSO draft budget, Field Research Grants, the Oregon Flora Project, and Invasive and Exotic Vegetation Management.

New and renewal memberships are off to a slow start this year. The combined Dec/Jan issue of the *Bulletin* could be a possible cause. For all of you that have not renewed your NPSO memberships, please use the renewal form in this issue of the *Bulletin!* The Emerald Chapter is making good progress as hosts for this year's annual NPSO meeting in Eugene. The board decided to extend the deadline for two Field Research Grant awardees, Harold Zald and Tom Brokaw, till the end of

2008. Look for information on Field Research Grant requests for proposals in future issues of the *Bulletin* or on the NPSO website. Rhoda Love provided a detailed update on the status of Occasional Paper # 3: *Vile Weeds: Urbanizing Flora of Portland, Oregon 1875-2005*, by John Christy, Angie Kimpo, Vernon Marttala, Nancy Christy. The board heard from the Budget Committee about the draft budget for 2008.

Bruce Newhouse briefed the Board about the lack of an NPSO state-level policy regarding invasive and exotic vegetation management. This discussion was brought about when the Lane County roadside vegetation management director asked the Emerald Chapter to comment on a vegetation management proposal. Realizing the need to act quickly while not committing to anything without adequate review, the Board voted to adopt an interim policy statement. This policy

statement should be available on the NPSO website in the near future. There should be a committee coming together in the near future to craft a long-term invasive and exotic vegetation management policy.

Linda Hardison gave a brief update on recent work of the Oregon Flora Project (OFP). The OFP Photo Gallery should be released to public in March, while the plant checklist is very close to being submitted for review. The OFP continues to search for additional funding sources to bolster its important

The position of State Secretary and two Director-at-Large positions will be open for election in June. Please see the information regarding the Secretary position on p. 24 in this issue of the *Bulletin*. The next Board meeting will be held on April 5th at a yet-to-bedetermined location.

OPB = Oregon's Public Botanists?

by Linda Hardison, Oregon Flora Project Coordinator

As a regular public radio listener, I follow Oregon Public Broadcasting's fundraising campaigns with interest. I find a number of similarities between public radio and the Oregon Flora Project: 1) a large portion of their budget depends upon donations from individuals; 2) many users mistakenly assume that state or federal dollars are automatically apportioned to their program; 3) the information they present often requires expertise to gather, assess, and produce; 4) their products are available to the general public free of charge. One great difference I see between our organizations is public radio's thrice-yearly, intensive fundraising campaigns. Users are reminded hourly of the valuable service public radio provides, and of the good faith effort listeners are asked to show in supporting a service that is freely provided.



www.oregonflora.org

The Oregon Flora Project does not conduct multiple inundating appeals, nor do we offer lavish incentive gifts. Virtually every cent we receive is used to pay salaries and disseminate our work to the public, at no cost to users. Without your donations, our staff will be reduced, and services curtailed—we simply will not have the resources to continue to operate.

We are working hard to launch both the Photo Gallery and the Checklist for the public this year, while also developing our infrastructure and gathering data for writing the *Flora*. The progress we make on these efforts is limited by the staffing we are able to support. *Now* is an ideal time to do the right thing and financially support the Oregon Flora Project—a project that provides both personal satisfaction and contributes to society's knowledge about our environment.

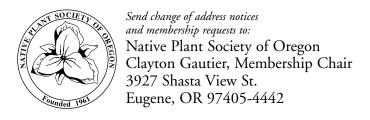
Checks can be made out to NPSO (with "OFP" on the memo line) and mailed to:

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

Corporate and agency sponsors are urgently requested (we'll display your logo to demonstrate your support), and volunteers are needed. Please contact me at 541-737-4338 or hardisol@science.oregonstate.edu for details.

NATIVE PLANT SOCIETY OF OREGON MEMBERSHIP FORM

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Hosted by Emerald Chapter

Mt. Pisgah Arboretum **Eugene**

More Information in Next *Bulletin*!

Willamette Valley Chapter Offers Two Academic Scholarships

C tudents, take note: The Willamette Valley Chapter will once again be offering scholarship awards for 3rd year students who will be enrolling in plant systematics or plant ecology at a State of Oregon college or university for the 2008-2009 school year. The Jean Davis Memorial Scholarship Fund will award \$1,000 to the selected student. In addition, a second scholarship award is available! Due to the generous bequest from the estate of Augusta Rockafellar, an additional student will be awarded \$1,000 from the Augusta Rockafellar Memorial Scholarship Fund.

The rules for both scholarships are identical, and therefore, only one application is necessary to be eligible for either scholarship award. However, only one award will be given to any one candidate. That means there will be two recipients for the 2008–2009 school year. Applications will be accepted by mail until May 1, 2008.

Applicants are required to submit a statement of academic and career intent, two letters of reference from persons able to judge the student's ability to successfully complete study in the area of plant systematics or plant ecology, and a full academic record (transcript).

For more details please contact

Thomas Jenkins Scholarship Committee Chairman 14380 Salt Creek Rd. Dallas, OR 97338 e-mail: torolin1@msn.com