

RARE

Washington Rare Plant Care & Conservation ♦ University of Washington Botanic Gardens
3501 NE 41st Street, Box 354115, Seattle, WA 98195-4115 USA ♦ 206 616-0780
<http://depts.washington.edu/rarecare> ♦ www.facebook.com/RareCare ♦ rarecare@uw.edu

Fall/Winter
2013
Vol VIII No 2

PLANT

R E S S



Rare Care staff

Sarah Reichard, Ph.D.,
Director
Wendy Gibble,
Program Manager
Jennifer Youngman,
Program Coordinator

Science Advisory Board

Joe Arnett
Peter Dunwiddie, Ph.D.
John Gamon
Art Kruckeberg, Ph.D.
Regina Rochefort, Ph.D.
Ted Thomas
Kelli Van Norman

Intrepid volunteers brave heat to monitor Hanford Reach plants

You never quite know what you'll get when planning a botanizing trip six months in advance. Our 2013 monitoring weekend to Hanford Reach turned out to be a scorcher, and it landed right in the middle of a relatively dry stretch of spring. Consequently, we knew at the outset that it would not be a good year for annuals and that we might be too late to see some of our target species in bloom. Despite these conditions, our annual monitoring weekend again proved to be a great success.

Under a blazing May sun and 100-degree temperatures, 24 intrepid Rare Care volunteers monitored 16 known rare plant populations and documented 3 new populations over a 3-day weekend. Several groups visited the sand dunes above the White Bluffs east of the Columbia River to check on populations of *Cryptantha leucophaea* and the diminutive annual *Astragalus geyeri*. Rare Care surveys of other populations of *C. leucophaea* around the state suggest that the species may be in decline, and we observed a similar trend at Hanford. Of five populations visited, only three were successfully relocated, and all had significantly lower numbers than reported in surveys completed in the late 1990s. Of the two populations of *A. geyeri* that were visited, one was not relocated and is likely extirpated, whereas the second held hundreds of individuals that were just starting to flower. Considering the dry spring, this was a positive result for this species.

Rare Care survey groups also visited several sites in Rattlesnake Hills, checking on populations of three annuals, *Camassonia minor*, *C. pygmaea*, and *Cryptantha scoparia*, and on two populations of the perennial *Oenothera cespitosa* ssp. *cespitosa*. As expected, we did not relocate any of the annuals, but we found both *Oenothera* populations. The plants were just past bloom and their populations were of similar size to previous estimates.

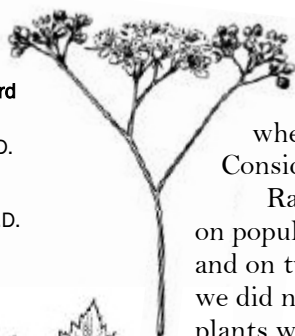
Three new populations were discovered over the weekend, one for *Erigeron piperianus* and two for *Aliciella leptomeria*. Although *E. piperianus* is a regional endemic restricted to Washington State, it is fairly abundant at Hanford and likely occurs more widely than current mapping suggests. *A. leptomeria* is a small annual in the phlox family that grows on sandy soils. Two new locations of approximately 40 and 60 plants each were found for this species, both within the general vicinity of known populations.

Blue Mountain *Packera*: undescribed species or variation?

Rare Care joined Umatilla National Forest botanist Mark Darrach for two days in June to look at an unusual *Packera* that Darrach collected last year in the Blue Mountains of southeastern Washington. Darrach had sent his specimen for identification to a *Packera* expert, who thought this might be an undescribed species. Our goal for this year's visit was to determine whether there were additional individuals in the vicinity where the specimen was collected and to collect additional vouchers for taxonomic review.

The *Packera* collected by Darrach occurred in Idaho fescue bunchgrass community at an elevation of 3,500 feet. We spent a day at this site looking for more individuals, but found only the original one from which the 2012 collection was made. On the second day, we visited a nearby ridge where specimens of a similar-looking *Packera* were collected in the 1990s. We found the plants at this site but determined that all of the individuals were *Packera cana*. The conclusion from these results

(continued on page 3)



Filipendula occidentalis



School of Environmental
and Forest Sciences
College of the Environment



Sisyrinchium sarmentosum: A field researcher's perspective

By Rosemary Baker

Can a field scientist work single-mindedly on the tangible goals of seed collecting while experiencing extraordinary intangibles and delight? Absolutely. Following the chaos and drawn-out completion of a Master's degree, this researcher hurtled herself into a journey to aid Rare Care and the US Forest Service (USFS) in investigating the elusive relationship between the common *Sisyrinchium idahoense* E.P. Bicknell (Idaho blue-eyed grass) and its rare cousin, *Sisyrinchium sarmentosum* Suksd. ex Greene (pale blue-eyed grass) within the family Iridaceae (USDA, NRCS, 2013). *S. sarmentosum* is a Washington State threatened species and a federal species of concern. Its current range is restricted to sites near Mt. Adams within Klickitat, Skamania, and Yakima Counties, and several sites south of Mt. Hood in Clackamas County, Oregon (WNHP 2013).

Sisyrinchium sarmentosum occurs within open, seasonally wet grass and sedge meadows primarily at middle elevations. It overlaps with *S. idahoense* in geographic range, habitat, and populations. *Sisyrinchiums* are tufted perennial herbs up to 12 inches tall. The narrow, grass-like leaf blades are generally shorter than the flowering stems. One to seven flowers occur on each stem, and they often bloom in sequence, one after the other. Flowers typically have 6 tepals, 8-20 mm long, united at the base and tapering evenly to a pointed apex (Henderson, 1976; Burke Museum, WTU Herbarium, 2013). Characteristics used to differentiate these two species include tepal color, shape, length, and reflexed angle. *S. idahoense* ranges in color from dark red violet to deep purple, whereas *S. sarmentosum* is typically pale blue to violet (Raven, 2007).

This summer's seed collections have provided propagules for a 2014 common garden study to be conducted by Rare Care at the UW Botanic Gardens' Center for Urban Horticulture. The study is designed to shed light on the apparently close relationship and potential hybridization between these species. Common garden studies bring maternal lines from different populations together in a single growing medium and environmental regimen to help determine relationships between phenotypic traits and environmental variables related to source locations (light, moisture and temperature). Information from this common garden study will be combined with genetic analyses of nuclear and chloroplast DNA to tease out the relationship between the two taxa, which was not possible using the results of DNA analyses completed by the Forest Service last year.

Sites with either one or both species were selected by USFS botanists for seed collections in the spring of 2013. Individuals were tagged in July and data were collected on floral characteristics in a joint field effort between Washington and Oregon USFS botanists. The tepals, sensitive to diurnal

(continued on page 3)



Counterclockwise starting top right: *Crataegus phippsii* (photo by Midori Clarke). Top center: *Anemone patens* var. *multifida* (photo by Susan Ballinger). Top left and thumbnails: *Sisyrinchium sarmentosum* and variations (photos by Rosemary Baker). Bottom: *Mimulus pulsiferae* (photo by Paul Slichter).

View newsletter online to see photos in color at <http://depts.washington.edu/rarecare/Links.htm>

Blue-eyed grass research demands patience

(continued from page 2)

light changes, typically open between 11:00 AM and 4:00 PM, creating a bit of a waiting game for one who wants to observe the flowers. This often results in return site visits. If the plants were to speak, they would say either, "Hurry up and wait!" or "Nope, try again next week!" This group of plants requires patience, flexibility, freedom from external timelines, and an ability to read the landscape with a sixth sense, as they are well camouflaged in their vegetative stages.

Not to be undone by thunderstorms, forest fire season, no-see-ums, mosquitos, horseflies, red ants, myriad bees and wasps, and pin-flag meddling elk herds, seed collections on tagged individuals successfully occurred in August and early September. Interestingly and surprisingly, each site visited in this study contained specimens with a broad mix of atypical and intermediate traits in variable abundances in spite of assumed population species purities.

Weeks spent in sunscreen and excessive field gear, in serene meadows buzzing with a din of pollination, in vehicles on numbingly long trips and I-5 traffic, and in tents and quiet rural bunkhouses, are now concluded. They have boiled down to a box of tiny black seeds in nondescript envelopes, sitting in the Miller Seed Vault. This summer's work demonstrates the care involved in discovering the order, or in this case disorder, of only a small part of life. It also celebrates the endless intangibles of curiosity, discovery and sense of place for botanists, ecologists, naturalists, and plant enthusiasts alike.

Burke Museum, WTU Herbarium. 2013. *Sisyrinchium idahoense* and *S. sarmentosum*. Accessed at: (<http://biology.burke.washington.edu/herbarium/imagecollection.php>, 13 September 2013).

Henderson, D. M. 1976. A biosystematics study of Pacific Northwestern blue-eyed grasses (*Sisyrinchium*, Iridaceae). *Brittonia* 28(2): 149-176.

Raven, A. 2007. An Exploration of Possible Hybridization between Pale Blue-Eyed Grass and Idaho Blue-Eyed Grass in Washington and Oregon. Report submitted to the Gifford Pinchot National Forest, Washington.

USDA, NRCS. 2013. The PLANTS Database (<http://plants.usda.gov>, 13 September 2013). National Plant Data Team, Greensboro, NC 27401-4901 USA.

WNHP. 2013. *Sisyrinchium sarmentosum* Suksd. ex Greene. (<http://www1.dnr.wa.gov/nhp/refdesk/fguide/pdf/sisa.pdf>, 12 June 2013.) Washington Natural Heritage Program, Washington Dept. of Natural Resources, PO Box 47014, Olympia WA 98504-7014 USA.

Monkeyflower, quillwort among great finds

Every year brings surprises. This year Donna Enz, Susan Saul and Nancy Allen found and documented a new Oregon coyote-thistle (*Eryngium petiolatum*) population while searching for Nuttall's quillwort (*Isoetes nuttallii*). Paul Slichter, Donna and Susan documented a new smooth desert-parsley (*Lomatium laevigatum*) population during a recreational hike. Susan Ballinger stopped to gather data on a new pasqueflower (*Anemone patens* var. *multifida*) subpopulation, spotted while mountain biking. And Midori Clarke found new Phipps' hawthorn (*Crataegus phippisii*) sites near one of just two known populations in the state.

Some of the most delightful surprises come when expectations are modest. Ron Klump found Pulsifer's monkeyflower (*Mimulus pulsiferae*) after we'd searched unsuccessfully twice before. "If not in flower," Ron said of the tiny plant, "I would never have seen it." And Ron Toonen found an "M-precision" Nuttall's quillwort that hadn't been apparent during a previous search. M precision, indicating very imprecise location information, sometimes requires a search of all potential habitat in a large area with up to a one-mile radius.

Packera hunt a botanical delight

(continued from page 1)

is that Darrach's 2012 collection was from a *P. cana* individual displaying some variation outside the normal range for this species.

Although our hunt for a new *Packera* species was unsuccessful, the area proved to be a botanical delight, offering a variety of plant communities and species representative of the Columbia Plateau, Blue Mountains, and Great Basin. We observed more than 165 species, including an unusual-looking *Phlox* that was not identifiable due to a lack of flowers. The scenic views, diverse flora, and the mystery of the unidentified *Phlox* might be enough to entice Rare Care to return next year for more botanical explorations.

2014 RARE CARE CALENDAR

Sat. Mar. 1 — Monitoring Training, Seattle (Apply by Feb. 10)

Sat. Mar. 29 — Navigation Training, Seattle

Sat. Mar. 29 — Volunteer Forum, Seattle

Sat. May 17 — Seed Collecting Training, Seattle

May (date TBA) — Seed Collecting Training, Spokane

TBA — Volunteer Forums, statewide including Walla Walla, Wenatchee, White Salmon and Spokane

TBA — 8th Annual Monitoring Weekend



Far left: *Aliciella leptomeria* (photo by Jeff Thorson).
Center: *Isoetes nuttallii* (photo by Jim Henderson).
Right: *Packera cana* (photo by Wendy Gibble).



THANK YOU, DONORS: JULY 1, 2012 - JUNE 30, 2013

Rare Care is grateful for financial support provided by generous donors. We rely on grants and donations to fund all program activities. We are also grateful for the support of volunteers who contributed more than 4,850 hours of service.

\$1,000 AND ABOVE

Maryanne deGoede
Deupree Family Foundation
Alan Sugino
Lily Takatsuka

\$500 TO \$999

Anonymous (2)
Steven Clark
Chris Mealy
Sarah Reichard

\$250 TO \$499

Marvin and Suzanne Anderson
Eleanor Boba and Alan B. Humphrey
Mrs. Phil Duryee
Walter and Patricia Riehl
Fred Stark
Susan Wheatley

\$100 TO \$249

James Adcock
Lyle Anderson
Julie Bresnan
Barbara Carman
Wendy Descamp
Sharon Dunn
James Ellingboe and Michelle Margroff
V. Lee Ellis
Lucile Flanagan
Wendy Gibble
Michael and Janka Hobbs
Charles Hyde III
Virginia King
Don Knoke
Larry Loftis
John and Lee Neff
Monte and Diane Powell
Lois Prestrud
Puget Sound Mycological Society
Angela Robinson
Seattle Garden Club
Mary Ann Simmons
Paul Slichter
Linda Swartz
Ted Thomas
Jeffrey Walker

\$50 to \$99

Ruth Baetz and Sandra Jo Palm
Elizabeth Boba
David Boose
Brenda Cunningham and Tim Manns
Earl and Tena Doan
Janelle Downs
Peter Dunwiddie
Dorothy Gist
Cleveland Hall
Clifford Hassell
Julia Jose
Kathleen Learned
Ed McArthur
Fred McDonald
Michael and Rebecca McGoodwin
Dan and Pat Montague
Jocelyn Phillips
David Selk
Mani Soma
Hally Swift in Honor of Betty Swift
Tadpole Haven Native Plants
Brian Thompson

UP TO \$49

Piper Bazemore
Joyce Bergen and Larry Lund
Tom Guobis
Marie Hitchman
Dorothy Hudson
Paige Igoe
Bob Jackson
Barbara Kolar and Mark Fessler
Helen Lau
Peggy Miller
Justine Nagel
Phyllis Pierce
Dan Richardson
Susan Saul
Mary Water
Alessandra Zuin

IN MEMORY OF RACHEL VIRDEN HULSCHER

Mary Lee Virden

CORPORATE MATCHES

The Boeing Company

Rare Care is grateful for support from the Miller Charitable Foundation, National Fish and Wildlife Foundation, Seattle Garden Club, Tacoma Garden Club, Washington Native Plant Society, private organizations and individual donors.

From top: *Cryptantha leucophaea* (photo by Hally Swift). *Erigeron piperianus* (photo by Andrea Cummins). *Oenothera cespitosa* ssp. *cespitosa* (photo by Cynthia Smith-Kuebel). *Astragalus geyeri* fruit (photo by Mickie Chamness).

View newsletter online to see photos in color at <http://depts.washington.edu/rarecare/Links.htm>