RARE PLANT PRESS

Fall/Winter
2007
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Washington Rare Plant Care & Conservation ♦ University of Washington Botanic Gardens
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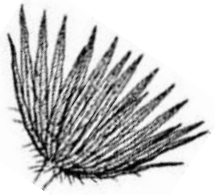

Rare Care takes an in-depth look at the basalt daisy

Rare Care staff and volunteers gathered at the Yakima Canyon for the first ever group monitoring weekend in June. The focus for the weekend was a rare endemic plant called the basalt daisy (*Erigeron basalticus*). This cliff-dwelling plant occurs only in a 20-square-mile area along the Yakima River and a couple of its tributaries. It grows in crevices on basalt cliffs where few other plants occur. Because of its narrow distribution, small number and size of populations, and very specific habitat requirements, this daisy is a candidate species for listing under the Endangered Species Act.

Goals for the monitoring weekend were twofold. First, we wanted to census all known populations of the basalt daisy because the US Fish and Wildlife Service needed updated population data for its status review. The last time basalt daisy populations were inventoried was in 2000. Second, we wanted to provide an opportunity for volunteers from across the state to meet one another, and an opportunity for newer volunteers to gain experience by working with long-time Rare Care volunteers.

The basalt daisy was an ideal focal species for a group monitoring weekend. Because it grows on cliffs, there was no threat of plants being trampled by a small group of surveyors. Also, its narrow geographic range meant that it was logistically feasible to visit all known populations in a single weekend. There are 10 known populations ranging in size from fewer than 50 to 6,000 individuals. Two of these populations were first reported to the Natural Heritage Program after the 2000 census; thus, no population data existed for them prior to our survey.

Estimating the size of the basalt daisy populations proved to be challenging. Many of the cliffs where it grows could only be viewed from a distance; therefore, surveys were completed using optical equipment. But estimating the population size using binoculars was difficult. For instance, the surveyor typically could not get close to the plant to make sure it was in fact a basalt daisy and not some other

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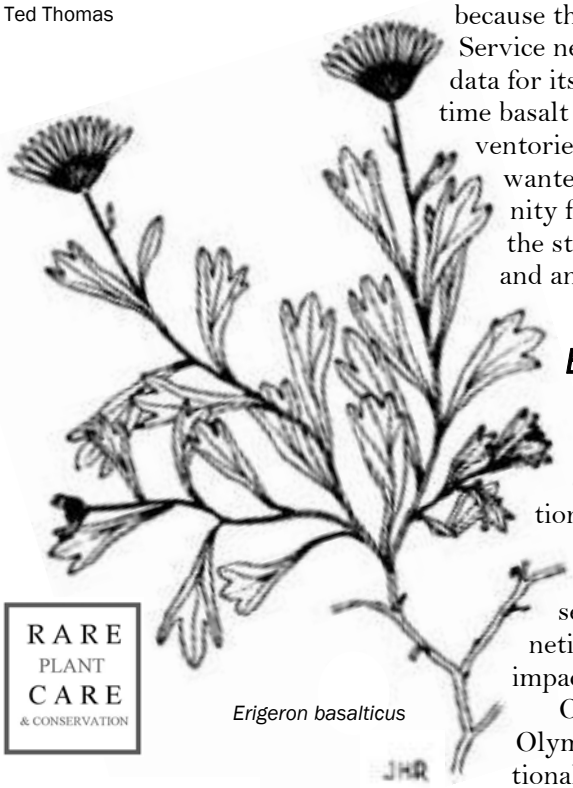

Erigeron basalticus

Ex situ conservation responds to global climate change

Rare Care is working with the National Park Service to conserve rare alpine plants that may be vulnerable to extirpation due to global climate change. Under this project, Rare Care is collecting seeds from populations of rare and endemic plants on national parks for long term storage in the Miller Seed Vault. By banking seeds of wild plant populations now, the NPS is safeguarding against the loss of the genetic diversity represented in the populations today and at the same time collecting the genetic material needed for restoring populations of these species once the impacts of global climate change are better understood.

Over a two year period, Rare Care will collect seeds from rare plants in Olympic National Park, Mt Rainier National Park, and North Cascades National Park. In 2007, successful collections were made of Cotton's milkvetch (*Astragalus cottonii*) from Olympic National Park, green keeled cotton-grass (*Eriophorum viridicarinatum*) from North Cascades National Park, and Mt. Rainier lousewort (*Pedicularis rainierensis*) and obscure Indian paintbrush (*Castilleja cryptantha*) from Mt. Rainier National Park. Additional collections will be made in the 2008 season.

(continued on page 4)

RARE PLANT CARE & CONSERVATION

UNIVERSITY OF WASHINGTON BOTANIC GARDENS
Plants for Life

College of Forest Resources

Top left, Rare Care volunteer Phelps Freeborn uses a spotting scope to count *E. basalticus* (photo by Jennifer Youngman); Right, close-up of *E. basalticus* by Richard Ramsden; Bottom, *E. basalticus grows* on cliff faces such as this one (photo by Lee Ellis).

Rare Care counts all known daisy populations in one weekend

(continued from page 1)

white-flowered, mat-forming plant, such as roundleaf alumroot (*Heuchera cylindrica*), which also grow on the cliffs. Also, it was difficult to keep track of which plants have already been counted as a surveyor scanned a cliff with binoculars. This was particularly true at sites with large populations.

Rare Care volunteers were up for tackling these challenges. On the first day, they convened at one of the more accessible sites to study the plant through binoculars and spotting scopes. Surveyors had an opportunity to study the plant up close at the base of a cliff. They also practiced using a sampling technique to estimate the population size for sites that had too many plants to count individually. This technique involved counting a subset of the plants in a given number of binocular views, and then averaging the count over the area of the cliff where the plants occurred.

Rare Care staff and 13 volunteers visited 10 sites in 2 days, using foot, car and boat to complete the surveys. In addition to estimating population size, they recorded information on the daisy's habitat characteristics, plant species growing with them, invasive plants competing with the daisies, and growth stages the plants were in *(phenology)*.

Data collected during the weekend suggest that the basalt daisy population sizes were generally comparable or greater to previous estimates. Five sites contained between 1,800 and 5,000 individuals; two of these sites had more than twice the number previously estimated. Two sites held less than 30 individuals, which represented a decline since the 2000 survey. Both of these populations have shown large fluctuations in size over the 19 years for which data are available. Finally, at the two new sites, Rare Care documented population sizes of 166 and 325 individuals.

An intensive survey effort such as this provides a detailed picture of the status of the daisy's populations at one moment in time. What about the future health of these populations? Rare Care's surveys did not reveal obvious evidence of imminent threat to the basalt daisy. Because this plant grows on cliffs, it is not vulnerable to ground disturbances such as grazing or recreational use. Few plants can survive the stressful conditions of its habitat, so competition by invasive species does not appear to be a major threat. Finally, there appears to be very little development occurring adjacent to the cliffs, and many of the sites are located on state or federal lands. Future development could potentially be a threat if herbicides are applied to land where groundwater sources originate, or if irrigation works are built that affect the amount of groundwater seeping into the ground and through the cliffs.

All of these factors will be considered as the US Fish and Wildlife Service evaluates whether to list this plant under the Endangered Species Act. A Candidate Notice of Review currently being drafted by the USFWS Wenatchee office is expected in the near future.

FEATURE PLANT: How do you distinguish *Erigeron basalticus?*

Although there are nearly 200 species of *Erigeron* worldwide, there are only two other species in Washington that have lobed leaves like *Erigeron basalticus*, making this a relatively easy daisy to identify. Both *E. compositus* and *E. salishii* have tri-lobed leaves like *E. basalticus*; however, neither species occurs in *E. basalticus* habitat. *E. basalticus* also differs from these two species in that the flowers are born on leafy stems, whereas most leaves of *E. compositus* and *E. salishii* are basal and the flowers are born on naked stems or stems with a few, reduced leaves.

View the photographs in this newsletter in color at http://courses.washington.edu/rarecare/Links.htm.

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CALENDAR

Ongoing
Seed cleaning in the Miller Seed Vault, Seattle

Tuesdays, Feb. 26 - April 1, plus Saturday, April 12, 2008
Plant Identification course with field trip to Deception Pass, UW Botanic Gardens

Sat., March 1, 2008
Rare Plant Monitoring Training, Seattle

Sat., March 29, 2008
Navigation Training for Rare Care volunteers, Seattle

Sat., April 5, 2008
Rare Plant Monitoring Training, Wenatchee

Sun., April 6, 2008
Rare Plant Seed Collecting Training, Wenatchee

Sat., May 17, 2008
Rare Seed Collecting Training, Seattle

Rare Care is recruiting

Who do you know that might make a good rare plant monitor? Transportation and plant ID skills are necessary. Applications are now being accepted for 2008. They're online at http://depts.washington.edu/rarecare/RarePlantMonitoring.htm.

No need to wait until 2008 to help with seed cleaning and germination testing, though! Help us prepare this year's collections for storage in the Miller Seed Vault. For more information, contact Rare Care at 206-616-0780 or rarecare@u.washington.edu.

Seeds of Success update

See a world in the smallest of seeds, and heaven in a wild flower, hold infinity in the palm of your hand, and eternity in an hour. –William Blake (paraphrase by Ellen Kuhlmann)

Seeds of Success, the US arm of the Kew Millenium Seedbank Project, has been moving full steam ahead this year (for background on this program, see article in Washington Native Plant Society's **Douglasia**, Winter 2007, vol. 31 #1). Rare Care was fortunate to have Ellen Kuhlmann lead this project again this year. Collections in 2007 ranged from seeds so small they resemble flea feces (that of alumroot, *Heuchera micrantha*) to relatively large seeds such as those of bracted lousewort (*Pedicularis bracteosa*). Volunteer Marie Hitchman remarked that she had never in twenty years of botanizing looked closely at the flowers or fruits of devil's club (*Oplopanax horridus*) until she participated in the seed collection for this species. She enjoyed the challenge of figuring out how to gather seed without being stuck by the plant's prickles, and found the red berries to be quite beautiful.

The devil's club collection was just one of seven collections made for the Millenium Seedbank Project. An additional four collections were made for the US Seed Extractory in Bend, Oregon for use in restoration projects on federal lands.

The collections included several from the south Puget Sound prairies, where favorable spring conditions results in a bumper crop of seeds. Rare Care collected seeds of crown brodiaea (*Brodiaea coronaria*) and western buttercup (*Ranunculus occidentalis*) for the Millenium Seed Bank and seeds of the composite cutleaf silverpuffs (*Microseris laciniata*) for the Bend Seed Extractory.

Devil's club seed heads were spread out to dry in the Miller Seed Vault before being sent to Millenium Seed Bank in Kew, England.

The Seeds of Success team is proud to be contributing local seed to this worldwide project, and looks forward to another collection season in 2008. If you would like to volunteer for the Seeds of Success project in 2008, contact Rare Care at rarecare@u.washington.edu.

Rare Care's sixth annual **Celebrating Wildflowers** drew new audiences in June. We partnered with Seattle Art Museum for the first time and presented the event at Olympic Sculpture Park. The program included some new activities this year, all designed to increase children's appreciation of the plants around them. Above left, a young visitor paints with plants, exploring the colors of Oregon grape, Western redcedar bark, carrots, berries and beets. Above right, the pollinator game is a perennial favorite. (All photos this page by Jennifer Youngman.)

DEEP THANKS TO ALL WHO HAVE CONTRIBUTED BETWEEN JULY 1, 2006, AND JUNE 30, 2007

Rare Care is very grateful for the financial support provided by our generous donors. Rare Care relies on grants and donations to fund all of our program activities. We are also grateful for the support provided by talented and dedicated corps of volunteers who gave 3,843 hours of their time.

RARE PLANT ENDOWMENTS
Seattle Garden Club
Tacoma Garden Club

$1,000 AND ABOVE
Jocelyn Horder
Sarah Reichard
Lily Takatsuka

$500 TO $999
Gretchen Hull
Scott and Susan Lipsky
Walter and Patricia Riehl

$100 TO $499
Elisabeth Bottler
Barbara Carman
Patricia Danford
Sylvia Duryee
V. Lee Ellis
Leonard Fuller
D. Jean Gillespie
Michelle Margroff
and James Ellingboe
Wendy McClure
Mani Soma
Fred Stark
Alan Sugino
George Thornton and Lee Miller
Iris Wagner
Jeffrey Walker

$50 TO $99
Sue Anderson
Julie Combs
Earl and Tena Doan
Sharon Dunn
Jean Emmons
Anne Goslin
Michael and Jana Hobbs
Patricia Medvick
Ken and Lois Prestrud
Gloria Reading
David Selk and Teresa O'Connor
Nancy Totton

UP TO $49
Neal Baker
Grant Cummings
Kimberly Frappier
Thomas Guobis
Cleveland Hall
Robert Jackson
Carla Langdon
Elizabeth Lyons
Peggy Miller
Phyllis Pierce
Wendy Wayne

IN-KIND GIFTS
Molbak's
Ravenna Gardens
Seasons Nursery & Gifts
Sky Nursery
Smith & Hawken

Regional endemics may be most at risk

(continued from page 1)

Narrowly distributed species, including regional endemic plants, may be more impacted by global climate change compared to more widely distributed species. They often have specific environmental and ecological requirements that hinder them from expanding their range beyond their optimal habitat. This limitation may not allow these endemic species to shift their distribution or otherwise adapt to the changing climatic conditions in the relatively short time frame over which global climate change is predicted to occur. In addition, sensitive and endemic plant species with small population sizes are more at risk of extirpation. Small populations often have relatively low genetic diversity that hinders these species from successfully adapting to changing environmental conditions.

RARE CARE FORUM: 2008 focus species announced, Toonen and Zamora recognized

At this fall's Volunteer Forums, Rare Care recognized David Zamora of Wenatchee and Ron Toonen of Seattle for their consistently outstanding volunteer contributions over a period of several years. This year alone, Ron searched for and/or collected data on *Carex epapillosa* in Whatcom County, *Montia diffusa* in Skagit County, *Salix maccalliana* in Okanogan County, *Howellia aquatilis* in Spokane County, and *Juncus kelloggii* and *Orobanche californica* sp. *grayana* in Klickitat County. David monitored populations of *Agoseris elata* on national forest land, *Cryptantha leucophaea* on state fish and wildlife land, and *Hackelia hispida* var. *disjuncta* on US Bureau of Land Management property, and he has contributed outstanding images to Rare Care's plant photo collection. Both Ron and David are trained seed collectors, and both offered to mentor new volunteers this year.

David Zamora (above) and other Rare Care volunteers joined the Seattle and Tacoma Garden Clubs in October to enhance *Sidalcea oregana* var. *calva* habitat with native plants (photo by Wendy Gibble).

During end-of-season forums in three locations — Seattle, Thorp and Spokane — volunteers were treated to a special look at species Rare Care will focus on for monitoring in 2008. Designating "focus species" is a new approach to improve our ability to assess species status. It results from a monitoring analysis (2001-2005) prepared by Program Manager Wendy Gibble and presented during the forums.

Also during the forums, volunteers broke into small discussion groups to provide feedback that will help shape the Rare Care program and the volunteer experience in the years to come.

Sky Nursery in Shoreline provided a very generous in-kind gift for Rare Care's volunteer recognition.

Rare Care is grateful for generous support from the Miller Charitable Foundation, National Fish and Wildlife Foundation, The Bullitt Foundation, the Hugh and Jane Ferguson Foundation, The Mountaineers Foundation, private organizations and individual donors.