

RARE

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Washington Rare Plant Care & Conservation - University of Washington Botanic Gardens
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PLANT

R E S S



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GREAT FINDS: Vague sighting from 45 years ago confirmed

Two of Rare Care's rare plant monitors reported exciting finds this year. Richard Ramsden located an occurrence of *Dryas drummondii* originally reported in 1961. It was observed somewhere on a mountain in Snohomish County, but the report was so vague, its location couldn't be mapped with any degree of precision.

Ramsden had heard of this historic occurrence and selected a *Campanula lasiocarpa* assignment for Rare Care on the same mountain. After collecting data on the *Campanula*, he searched in likely spots for the *Dryas*. His search was rewarded by the discovery of 18 plants.

The report of his find has added many details to the element occurrence record, including the specific location, associated species found at the site and potential threats. This is one of five known occurrences in Washington, and the only one in Snohomish County.

Meanwhile, Annee Pusateri accepted a *C. lasiocarpa* assignment elsewhere in Snohomish County. She knew that others had searched unsuccessfully for the same population in 2004 and 2005. Spring rainfall, vague directions and rerouted trails and roads are just 3 factors affecting the search for historic populations, so Rare Care generally conducts 3 searches in different years by at least 2 volunteers before discontinuing a search. Pusateri found the occurrence in mid-August. See her images on page 2.

Training planned in 3 locations

Two rare plant monitoring and seed collection training sessions are planned for eastern Washington in 2007. The first will be in Wenatchee March 31-April 1. Spokane will host the second training, date to be announced. The annual Seattle-based monitoring session is set for March 3.

RESEARCH: Cheatgrass limits *Astragalus* seedling establishment

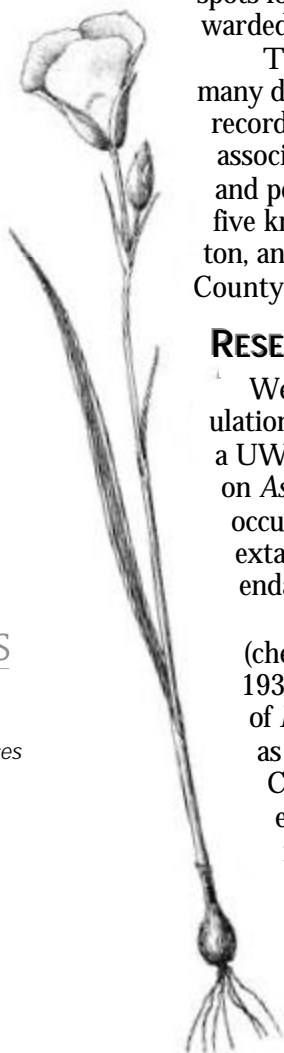
We have all heard that invasive species are a threat to native rare plant populations, but exactly how they impact rare plants is often unclear. Julie Combs, a UW graduate student, sheds some light on this subject in her master's research on *Astragalus sinuatus*. *A. sinuatus* is a narrowly distributed endemic plant that occurs in two drainages in the foothills of the Wenatchee Mountains. Only eight extant populations remain. Consequently, it is listed as a Washington State endangered plant and a Federal Species of Concern.

A. sinuatus populations occur in areas heavily invaded by *Bromus tectorum* (cheatgrass). *B. tectorum* was accidentally introduced in the late 1800s. By the 1930s it was widespread across the western United States. The rapid spread of *B. tectorum* stems in part from the ranching industry, because it's favored as a forage crop. "One of the biggest challenges of controlling *Bromus*," notes Combs, "is that ranchers are still plowing native shrub-steppe vegetation to encourage the establishment of *Bromus* for forage." Thus, understanding the role *B. tectorum* plays in threatening the persistence of rare plant populations is important for building consensus on appropriate land management practices in eastern Washington.

Combs became interested in rare *Astragalus* species while working for The Nature Conservancy in southern Nevada. (continued on page 2)

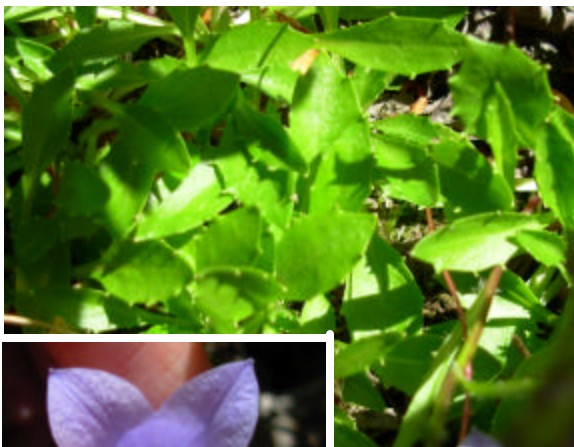
NEW — ADOPT A RARE PLANT POPULATION!

Visit <http://depts.washington.edu/rarecare/SupportUs.htm> to see up-to-date species lists and learn more about this new way to support rare plant conservation!



Calochortus nitidus

FEATURE PLANT: *Campanula lasiocarpa*



By Richard Ramsden

In this state, *Campanula lasiocarpa* shares habitat with one other of its genus, *C. rotundifolia*. The blue nodding bell flowers are similar, though *C. lasiocarpa*'s are somewhat larger. Foliage is a key difference. *C. rotundifolia* has lance-shaped leaves on its stems and rounded leaves at its base. *C. lasiocarpa*'s leaves are jagged or toothed. Seed capsules differ, too. *C. rotundifolia*'s remain nodding like its flowers, while *C. lasiocarpa*'s straighten and mature upright.

Unverified reports also place *C. lasiocarpa* in the Olympic mountains. There it would also share habitat with *C. piperi*. *C. piperi* has very sharply toothed leaves and upright seed capsules like *C. lasiocarpa*. The two are easily differentiated when in bloom as *C. piperi*'s flowers take the shape of stars, not bells. 🌱



Photographs by
Annee Pusateri

Clear diagnostic images are vital for documenting species identification. Upper left: *Campanula lasiocarpa* has jagged or toothed leaves. Right: *C. lasiocarpa*'s hypanthium is moderately to densely covered with long hairs. (See these photos in color at <http://depts.washington.edu/rarecare/>.)

Herbarium manager to teach plant ID to volunteers & public

Rare Care is working with the UW Botanic Gardens continuing education program to provide focused training for volunteers. Sessions will encompass a range of subjects, such as invasive plant identification, soil classification and preparation of voucher specimens.

The first class will be native plant identification taught by UW Burke Museum Herbarium Manager Dr. David Giblin. In this class, you'll learn diagnostic characteristics of major plant families represented in Washington's native flora, and practice keying out native species using a technical key. The course will meet at UWBG once a week on a weeknight starting in February 2007.

Volunteers receive priority registration and a discount. See UWBG's website later this year for more information: <http://depts.washington.edu/urbhort/html/education/adulteducation.htm>. 🌱

Germination tests yield seedlings

Germination testing has begun, and we have already produced 12 seedlings! We are finding good germination of *Astragalus sinuatus* seeds after 3 years of storage in the Miller Seed Vault at 15°C and 22% relative humidity.

More germination testing is planned. If you can help on a weekly basis, please contact 206 616-0780 or rarecare@u.washington.edu. 🌱

What factors affect the persistence of *A. sinuatus*?

(continued from page 1)

One of the questions she addresses in her research is the impact *B. tectorum* has on seedling establishment and plant fecundity. Combs established experimental plots in two different *A. sinuatus* populations. In one experiment, she evaluated whether seedling germination and survival differed in plots where *B. tectorum* was manually removed versus control plots, where no *Bromus* was removed.

In a second experiment, plant fecundity (measured by number of seeds produced by a plant that are not damaged by seed-eating insects) was compared in *B. tectorum* removal plots and control plots.

Astragalus sinuatus seeds are heavily predated.
Photograph by Julie Combs.

The results of these experiments showed no effect of *B. tectorum* presence on seed germination or plant fecundity. But seedling survival was drastically reduced in control plots.

Combs hypothesizes that since *B. tectorum* is a winter annual and germinates before *A. sinuatus*, it may dramatically reduce the amount of soil moisture available to *A. sinuatus* seedlings. The evidence from this study supports the idea that *B. tectorum* may be a strong driver in limiting population growth of *A. sinuatus*.

Combs also evaluated the importance of seed herbivory by insects. She found that pre-dispersal seed predation had a profound negative effect on seed output in both populations studied. 🌱