

Washington Rare Plant Care and Conservation Seed Collecting for Ex-situ Conservation of Rare Native Plants 2008 Annual Report

Summary

Washington Rare Plant Care and Conservation completed 28 seed collections of sensitive plant species during the 2008 field season. Collections were made on public lands under three separate grant agreements and three collections were made as part of Rare Care's long-term development of the ex-situ collection. Copies of the seed collection reports will be sent to agency botanists where the collections were made once the seeds have been cleaned and counted. In addition to the completed collections, attempts to collect seeds were made at five additional sites. All collected seeds are stored in the Miller Seed Vault at the University of Washington Botanic Gardens. Finally, 16 volunteers participated in seed collections and 7 volunteered in the Miller Seed Vault.

Introduction

Seed-banking is an effective ex-situ conservation tool that complements on-the-ground conservation work to preserve imperiled plant species. It safeguards against the loss of a species due to catastrophic events and also allows for the preservation of the genetic diversity of individual populations. The banked seed can also be used for reintroducing populations to ecologically appropriate sites as part of carefully planned recovery efforts.

Washington Rare Plant Care and Conservation's ex-situ conservation program started in 2003 when the Miller Seed Vault was constructed at the University of Washington Botanic Gardens. The mission of the seed vault is to 1) conserve seed of the rare native species of Washington State to prevent their extirpation or extinction, 2) conserve seed of native species to be used to restore native plant communities, and 3) conserve seed from horticultural varieties that are not commonly used today. The purpose of this report is to summarize the collections made in 2008 for the ex-situ collection of rare native plants.

2008 Seed Collection Projects

Seed collections completed in 2008 for ex-situ conservation were conducted as part of three separate grant agreements with federal agencies and as part of on-going development of Rare Care's ex-situ collection. Rare Care contracted with the USDA Forest Service to collect seeds of sensitive plant species on the Okanogan-Wenatchee National Forests. This year, these collections focused on alpine species vulnerable to decline due to global climate change. Rare Care is also working with the National Park Service to conserve seeds of alpine species endemic to subalpine and alpine areas of national parks in Washington. Finally, Rare Care contracted with the Bureau of Land Management (BLM) to collect federally listed species and critically imperiled species on BLM lands in central and eastern Washington. For these three projects, Rare Care staff worked with agency botanists to identify target species and populations for the 2008 field season.

In addition to collections made under grant agreements, Rare Care staff and volunteers completed three collections of additional species to expand the number of species represented in the seed vault. Species targeted for collection were based on a prioritization ranking developed by Rare Care to guide the development of the ex situ collection.

2008 Seed Collection Results

Twenty-eight seed collections were completed by Rare Care in 2008 (see Table 1). All collections were accessioned into the Miller Seed Vault ex situ collection and have been dried at 15 degrees C and 22% relative humidity. Seeds are currently being cleaned, counted and packaged for long term storage. Cleaned seeds will be stored -18 degree C until they are used or no longer viable. Copies of the seed collecting reports will be mailed to Washington Natural Heritage Program and agency botanists once all seeds have been cleaned and counted.

Attempted Collections

In addition to the completed seed collections listed above, Rare Care attempted collections at several other sites. These included:

- *Oxytropis campestris* var. *columbiana*: A Rare Care volunteer attempted to collect seeds from a population located in Stevens County. However, the species could not be located at the mapped site during the reconnaissance visit. The site appeared to have been significantly altered from the time of the original sighting.
- *Erigeron salishii*: A site visit was made by Rare Care staff and volunteer to a population located in the Wenatchee National Forest. Several hours were spent searching the area for the species. Some of the information on the sighting report does not match characteristics at the site, and it is possible that the population is incorrectly mapped.
- *Castilleja cryptantha*: A site visit was made by a Rare Care volunteer to the population located in the Wenatchee National Forest; however, the plants could not be located. Several meadows with suitable habitat were searched at and around the mapped location. The volunteer noted that the area is heavily used as a horse camp and by elk.
- *Castilleja cryptantha*: Site visits were made to a population located in Mount Rainier National Park; however, the seeds did not ripen before inclement weather closed the access roads to the area.
- *Pedicularis rainierensis*: A site visit was made by a Rare Care volunteer to a population located in the Mt Rainier National Park. Upon review and identification of various individuals throughout the population, it was determined that significant hybridization with *P. bracteosa* had occurred in this population. Therefore, seeds were not collected from this population.

Volunteer Recruitment and Management

Overall, 16 volunteers devoted 555 hours to seed collecting during the 2008 field season. This includes hours dedicated to training, preparation and planning, field work and report writing. In addition, 7 volunteers contributed 110.25 hours of time in 2008 to cleaning and packaging seeds for long term storage in the seed vault.

Table 1. Seed collections completed by Rare Care in 2008.

Species	WNHP Element Occurrence	Collection Date	Managed Area
<i>Astragalus cottonii</i>	PDFAB0F2F0*005	8/23/2008	Olympic National Park
<i>Astragalus cottonii</i>	PDFAB0F2F0*009	8/23/2008	Olympic National Park
<i>Castilleja cryptantha</i>	PDSCR0D0N0*034	9/29/2008 and 10/19/2008	Naches Ranger District, Okanogan-Wenatchee NF
<i>Cimicifuga elata</i> var. <i>elata</i>	PDRAN07030*021	8/15/2008	Olympic National Park
<i>Dryas drummondii</i>	PDROSOL010*006	9/7/2008	Glacier Peak EWA, Darrington Ranger District, Mt Baker-Snoqualmie NF
<i>Erigeron salishii</i>	PDAST3M4U0*001	7/26/2008 & 8/9/2008	Wenatchee River Ranger District, Okanogan-Wenatchee NF
<i>Erigeron salishii</i>	PDAST3M4U0*010	8/16/2008	Chelan Ranger District, Okanogan-Wenatchee NF
<i>Erigeron salishii</i>	PDAST3M4U0*014	8/14/2008	Wenatchee River Ranger District, Okanogan-Wenatchee NF
<i>Eritrichium nanum</i> var. <i>elongatum</i>	PDBOR0F033*001	8/2/2008	Chelan Ranger District, Okanogan-Wenatchee NF
<i>Eritrichium nanum</i> var. <i>elongatum</i>	PDBOR0F033*001	8/10/2008	Methow Ranger District, Okanogan-Wenatchee NF
<i>Hackelia</i> sp. <i>novum</i>	PDBOR0G0Y0*001	8/30/2008	Wenatchee River Ranger District, Okanogan-Wenatchee NF
<i>Lomatium tuberosum</i>	PDAPI1B200*021	5/28/2008	Bureau of Land Management
<i>Lomatium tuberosum</i>	PDAPI1B200*038	6/3/2008	Bureau of Land Management
<i>Oxytropis campestris</i> var. <i>wanapum</i>	PDFAB2X044*001	7/11/2008	Bureau of Land Management
<i>Pedicularis rainierensis</i>	PDSCR1K0Z0*046	10/12/2008	Mt Rainier National Park
<i>Penstemon eriantherus</i> var. <i>whitedii</i>	PDSCR1L274*014	7/11/2008	Bureau of Land Management
<i>Phacelia lenta</i>	PDHYD0C2M0*004	7/23/2008	Bureau of Land Management
<i>Polemonium pectinatum</i>	PDPLM0E0H0*033	7/2/2008	Bureau of Land Management
<i>Polemonium pectinatum</i>	PDPLM0E0H0*041	7/2/2008	Bureau of Land Management
<i>Silene spaldingii</i>	PDCAR0U1S0*032	8/26/2007 and 8/27/2008	Bureau of Land Management
<i>Silene spaldingii</i>	PDCAR0U1S0*052	9/4/2008	Bureau of Land Management
<i>Silene spaldingii</i>	PDCAR0U1S0*083	8/26/2008	Bureau of Land Management
<i>Silene spaldingii</i>	PDCAR0U1S0*085	9/3/2008	Bureau of Land Management
<i>Spiranthes diluvialis</i>	PMORC2B100*003	9/10/2008 and 9/23/2008	Chelan County PUD
<i>Spiranthes diluvialis</i>	PMORC2B100*004	9/2/2008 and 10/9/2008	Bureau of Land Management
<i>Synthyris pinnatifida</i> var. <i>lanuginosa</i>	PDSCR1W052*001	7/17/2008	Olympic National Park
<i>Synthyris pinnatifida</i> var. <i>lanuginosa</i>	PDSCR1W052*001	8/22/2008	Olympic National Park
<i>Trifolium thompsonii</i>	PDFAB40280*001	7/12/2008	Entiat Ranger District, Okanogan-Wenatchee NF