

# RARE PLANT PRESS

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## ABOVE THE TREE LINE

Rare Care is beginning a new initiative with the National Park Service to monitor rare plant species in alpine communities and bank their seeds in the Miller Seed Vault. This work will occur over the next three years at: Mount Rainier, North Cascades, and Olympic National Parks. The primary goals are to improve our understanding of the vulnerabilities of sensitive alpine plants to climate change and to develop management strategies to alleviate impacts of a warming climate.

As avid plant enthusiasts, many of you know the beauty and wealth of plant diversity offered in Washington State's National Parks (NP). They protect 28 percent of our state's subalpine and alpine ecosystems, which include sensitive species tracked by the Washington Natural Heritage Program. Thirty-eight tracked species are found in Olympic NP, 10 in Mount Rainier NP, and five in North Cascades NP. These parks provide habitat for species at the southern edge of their range, like Kotzebue's Grass-of-Parnassus (*Parnassia kotzebuei*), as well as harbor species endemic to Washington, such as obscure paintbrush (*Castilleja cryptantha*) of Mount Rainier NP and cut-leaf synthyris (*Synthyris pinnatifida* var. *lanuginosa*) of Olympic NP.

Above the tree line, the alpine zones has long been referred to as islands in the sky. Their irregular and exacting terrain along a steep gradient create microhabitats over short distances. This patchwork of unique microhabitats have become a cradle for speciation over the course of millennia. It is for this reason that some alpine zones, like those of the Olympic Mountains, can be places of high endemism. However, this distinctive

nature of alpine areas also makes them vulnerable to the impacts of climate change. As the climate warms, alpine species with narrow climate envelopes may not be able to retreat any higher. Their options for survival are limited. They can tolerate changing conditions, adapt, move, or go extinct. We hope to prevent the latter and better understand if the former options are possible.

Our initial information gathering efforts reveal large data gaps for species identified as potential monitoring candidates. Data on population sizes, reproductive strategies, pollinator relationships, and seed viability are scant. In our first field season we will work to fill these gaps with observational data. We have hired two interns to help with this fieldwork: Maya Kahn-Abrams and Callie Zender. We are excited to have them join us in June and together, with the support of the NP staff, we expect a fruitful year of research. We look forward to sharing our preliminary findings in the fall.



Mt. Rainier's endemic obscure paintbrush (*Castilleja cryptantha*)





Snow cinquefoil is an apomictic species. Apomictic reproduction is a common trait of alpine plants.

## NEW FOCUS SPECIES OF 2019

Each year, Rare Care designates a handful of species as focus species – species that we are attempting to monitor all known populations on public lands within a three to five year period. This year, we added snow cinquefoil (*Potentilla nivea*) to our list.

In Washington, snow cinquefoil is a relic of a much colder period, when glaciers covered the northern part of the state. As glaciers receded, snow cinquefoil retreated north, following the toe of the glacier and colonizing the newly exposed soils. Today, snow cinquefoil only persists in Washington on alpine ridges and fellfields in Okanogan County.

This past summer several Rare Care volunteers relocated a healthy population during the monitoring weekend near Tiffany Mountain. Unfortunately, we searched unsuccessfully for four other populations, leaving us to wonder if this species is declining due to climate change.

Washington Natural Heritage Program (WNHP) tracks 20 populations of snow cinquefoil, all located above elevation 7,000 feet. According to their records, only one site's population data has been updated in the past 20 years. Herbarium records show that just four specimens have been collected in that same time frame. The dearth of information provides little insight into how this species is responding to climate change. Our goal is to revisit all populations to understand its current status. To learn more about its morphology and unique reproductive strategies, check out our full article at: <http://bit.ly/snowcinq>.

We know very little about the Washington populations of snow cinquefoil but hope our focus over the next few years will provide some insight. We added this species to the Miller Seed Vault in 2018, and hope to make more collections in the future.

## UPCOMING EVENTS

TWO STEPPE NATURAL AREA  
PRESERVE BOTANICAL SURVEYS  
May/early June |  
Two Steppe NAP

SPALDINGS' CATCHFLY MONITORING  
Ongoing, summer through fall |  
Turnbull National Wildlife Refuge

WENATCHEE MOUNTAIN  
CHECKERMALLOW MAPPING  
Tuesday-Wednesday, June 18-19 |  
Camas Meadows

ANNUAL MONITORING WEEKEND  
Friday-Sunday, August 2-4 |  
Colville National Forest



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## VOLUNTEER SPOTLIGHT

Terri Knoke, a Tri-Cities resident, was the catalyst for rejuvenating our volunteer corps in south central Washington by asking for a training in the area. As the area's regional coordinator, Terri recruits volunteers, arranges meeting spaces and organizes botanical surveys. During the past year, she took on the colossal task of organizing surveys at the Columbia National Wildlife Refuge. In 2018 she donated 225 hours to compile a target species list, identify priority areas for survey, recruit volunteers, and lead site visits.



Sarah Shank is recognized for outstanding contributions to our plant propagation program. Sarah began volunteering in 2017 at the start of her UW Masters program in Environmental Horticulture. She took the lead on running our germination tests for the Miller Seed Vault, and propagated Whited's milk-vetch, and showy stickseed for upcoming planting this fall. Along with her volunteer and student roles, she also manages the Center for Urban Horticulture's native plant nursery.

