University of Washington
BOTANIC GARDENS

School of Environmental and Forest Sciences
College of the Environment

RARE PLANT CARE & CONSERVATION

Washington Rare Plant Care and Conservation
Rare Plant Monitoring
2020 Annual Report

SUMMARY

Despite many challenges associated with conducting field work during a pandemic, Rare Care completed a successful season in 2020 monitoring rare plant populations across Washington State. The late start due to Governor's Stay Home order resulted in fewer shrub steppe and early season species being monitored. In 2020, 65 volunteers participated in the rare plant monitoring program and completed 58 monitoring reports for sites across Washington State, mostly on public lands. Monitors found the target species at 55% of the sites. Five sites found by volunteers are potentially new occurrences for the Natural Heritage Program to track. A rare plant monitoring training was offered in Seattle in late February attended by 21 volunteers. Since the inception of the program in 2001, volunteers have contributed 2,353 monitoring reports and over 53,000 hours documenting the status of rare plant populations.

INTRODUCTION

This report summarizes the results of the2020 field season for the rare plant monitoring citizen science program. The project commenced in 2001 with the goal of monitoring known populations of rare native plants in Washington State. Washington Rare Plant Care and Conservation (Rare Care) partners with the Washington Natural Heritage Program (WNHP) in order update records on over 350 plant species that WNHP ranks as endangered, threatened, or sensitive to decline in Washington State. Many of the 3,500 occurrences of rare plants tracked by WNHP are visited very infrequently; therefore, land managers often do not have recent information to use when evaluating management activities and prioritizing conservation projects.

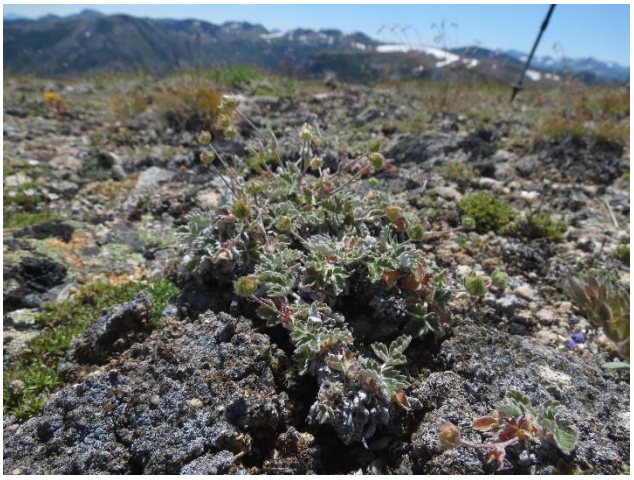
The 2020 field season turned out to be very different compared to previous years. Before the field season began, the COVID19 pandemic emerged and Washington State citizens were asked to stay home for several months. During this time, Rare Care developed a health and safety plan for volunteers to follow while conducting site visits and we reached out to partnering agencies to determine if and when they were allowing volunteers to conduct work on their

lands. By May, we authorized volunteers to begin field work at a limited number of sites as public lands slowly started reopening. By the end of the summer, most public lands were allowing volunteer activities. Despite the late start and access restrictions, Rare Care volunteers contributed valuable information on the conservation of rare plants and played a vital role by checking on the status and condition of rare plant populations and their habitat on public lands.

2020 PRIORITIES

Rare Care develops a list of potential sites for monitoring each season based on a set of priorities developed in conjunction with WNHP and managers at partnering agencies. The highest priority is given to 1) monitoring occurrences specifically requested by managers of public lands where rare plant populations occur and 2) Rare Care's focus species. Focus species are those that Rare Care designate in order to complete the monitoring of all of their occurrences on public lands in a five-year time frame.

High priority is also given to monitoring occurrences whose records in the WNHP database have not recently been updated. Within this group, higher emphasis is placed on species considered to be threatened or endangered under WNHP's ranking system; therefore, these sites are selected if they have not been monitored in the past five years. For other species, sites are selected if they have not been monitored within the past 10 years in western Washington and the past 20 years in central and eastern Washington. Priority is also placed on monitoring occurrences that were not found by Rare Care volunteers in previous years. After three unsuccessful attempts have been made to locate an occurrence, Rare Care considers the occurrence to be extirpated and will no longer include it on the list of monitoring priorities in future years.



Snow cinquefoil (*Potentilla nivea*), a 2020 focus species, is found on alpine fellfields in Okanogan County. Photo by Brenda Cunningham.

2020 MONITORING RESULTS

The field season got off to a late start this year because of restrictions due to the pandemic. No monitoring occurred before mid-May, and approval for volunteer activities was further delayed for some public lands. Therefore, many early blooming species, particularly in the shrub-steppe and the Columbia River Gorge, were not monitored this year. Table 1 provides a list of the 56 rare plant occurrences monitored and two botanical surveys completed in 2020. Rare plant species were successfully relocated at 30 of the occurrences, and at an additional three occurrences, volunteers were uncertain of the ID of the species they found. These occurrences will need to be revisited. Three volunteers were unable to reach their site because of

challenging terrain or access constraints. For these sites, volunteers provided reports that include valuable access information for future surveyors. Volunteers discovered and reported on seven potentially new sites.

At each site, rare plant monitors also collected information on the condition of the habitat in the vicinity of the rare plant populations and noted potential management concerns. Surveyors reported invasive species at 38% of the sites (Table 2) and reported potential land use and management concerns at 32% of the sites (Table 3).

Sites of populations monitored in 2020 were located across Washington State on federal, state, and local public lands as well as a couple of private properties (see Figure 1). Approximately 84 percent of the sites were on federal land, 16 percent were on state lands, and three percent were on private lands (some sites occurred on two or more jurisdictions). Federal lands visited by volunteers in 2020 included sites in the North Cascades National Park, all National Forests in Washington except Olympic, Bureau of Land Management lands, four National Wildlife Refuges (Columbia, Conboy Lake, Little Pend Oreille and Turnbull) and Hanford Reach National Monument. State lands visited this year included Little Pend Oreille Natural Area Preserve, two Wildlife Areas managed by Washington State Department of Fish and Wildlife (Colockum and Klickitat) and Lewis & Clark State Park.

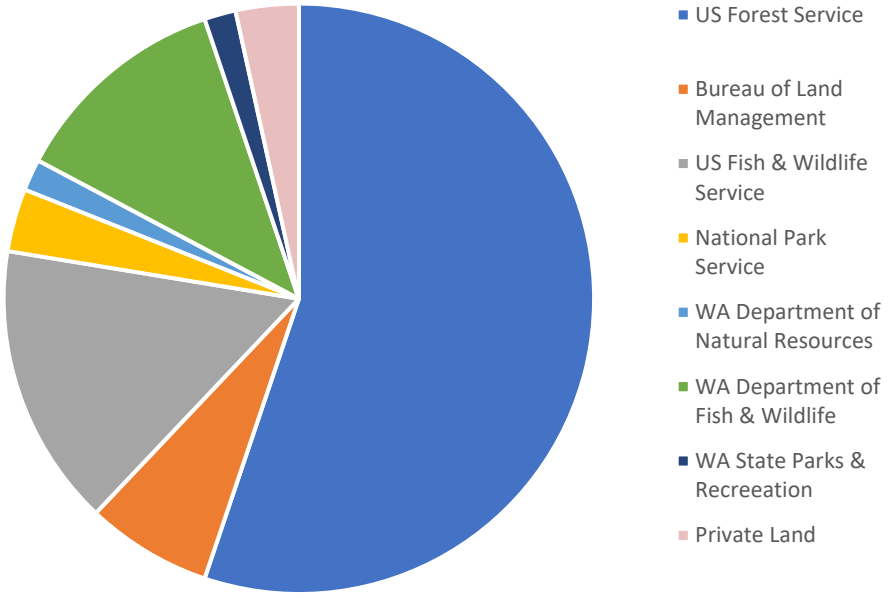


Figure 1. Land ownership of sites monitored by Rare Care volunteers in 2020.

This year started out dry, with below normal precipitation between February and early May across most of the state. East of the Cascades, evidence of drought was observed in stressed plants and dry soils. In the second half of May, volunteers were able to conduct field work in Klickitat, Chelan, Grant and Spokane Counties, monitoring species such as snowball cactus (*Pediocactus nigrispinus*), gray cryptantha (*Cryptantha leucophaea*) and yellow lady's slipper

(*Cypripedium parviflorum*). By June, more volunteers were given the green light to conduct site visits and eight more populations were visited, including a population of Wolf's currant (*Ribes wolfii*) in the Umatilla National Forest and populations of adder's tongue (*Ophioglossum pusillum*) and water avens (*Geum rivale*) in the Colville National Forest. July was the busiest month, with 19 populations monitored across the state. These included several populations of two of Rare Care's 2020 focus species, snow cinquefoil (*Potentilla nivea*) and Oregon goldenaster (*Heterotheca oregana*). Summer provides a short window of opportunity for monitoring subalpine and alpine species, and volunteers took advantage of the opportunity to look for populations of Alaska harebell (*Campanula lasiocarpa*), alpine azalea (*Kalmia procumbens*) swertia (*Swertia perennis*), and Salish fleabane (*Erigeron salishii*).

Snowball cactus (*Pediocactus nigrispinus*) goes on dry ridgetops in the foothills of eastern Cascade Mountains and in the Columbia Basin. Photo by Regina Wandler.

Volunteers made several trips to Klickitat Wildlife Area to continue botanical surveys of the Simcoe Unit and found three previously undocumented rare plant populations of Idaho hawksbeard (*Crepis bakeri*), Monterey century (*Zeltnera muehlenbergii*) and dwarf rush (*Juncus hemiendytus* var. *hemiendytus*) and one population of oblong bluecurls (*Trichostema oblongum*), a species currently under review by WNHP. A volunteer also reported on a potentially new population of pink agoseris (*Agoseris aurantiaca* var. *carnea*) photographed by a third party, but the identification will need to be verified with a specimen.

VOLUNTEER CONTRIBUTIONS

Despite the unusual and challenging year, 65 volunteers participated in the rare plant monitoring project. Volunteers were responsible for all aspects of the work needed to successfully monitor a site, including researching their species and determining phenology, investigating site access requirements, conducting the site visit, and preparing the monitoring report. Successful volunteers possess strong plant identification skills, a keen interest in native plants and a commitment to conservation. Volunteers' activities include participating in trainings, preparing for their site visit, conducting the site visit and collecting scientific data on the populations and writing up their results. In 2020, volunteers devoted 1,718 hours to these activities for rare plant monitoring project.

Rare Care offered one training in 2020 in Seattle in late February just before the Governor issued the Stay Home Stay Healthy directive. The training was attended by 20 new volunteers and one volunteer returning for a refresher.

Volunteers at the February 29, 2020 training in Seattle. Walter Fertig, WNHP botanist, assisted with the training (pictured in the back row, second from the left). Photo by Wendy Gibble.

ADDENDUM TO 2019 MONITORING RESULTS

Rare Care received three additional monitoring reports from volunteers after the 2019 Annual Report was finalized (Table 4). With these reports, the total number of occurrences monitored in 2019 was 132.

Table 1. Rare plant monitoring results for 2020.

Species Name	EO Num[1]	State Status[2]	Visit Date	Species Found	Pop. Size[3]	Managed Area	Owner
A General Survey	None[5]		6/30/2020			Klickitat WA	ST DFW
A General Survey	None[5]		5/23/2020, 6/5/2020, 7/1/2020			Klickitat WA	ST DFW
Actaea elata var. *elata*	23	S	7/27/2020	Yes	1	Lewis & Clark State Park	ST SPR
Actaea laciniata	11	S	9/26/2020	Site not reached		Cowlitz RD, Gifford Pinchot NF	USAFS
Agoseris aurantiaca var. *carnea*	New[4]	S	7/10/2020	Uncertain	2	Naches RD, Okanogan-Wenatchee NF	USAFS
Agoseris elata	15	S	8/31/2020	No		Darrington RD, Mt Baker-Snoqualmie NF	USAFS
Agoseris elata	48	S	7/31/2020	Yes	501-1,000	Naches RD, Okanogan-Wenatchee NF	USAFS
Allium campanulatum	3	T	7/30/2020	Yes	501-1,000	Naches RD, Okanogan-Wenatchee NF	USAFS
Ammannia robusta	1	T	9/1/2020	No		Saddle Mountain NWR - Wahluke Slope Unit	USAFWS
Ammannia robusta	1	T	8/30/2020	Yes	501-1,000	Saddle Mountain NWR - Wahluke Slope Unit	USAFWS
Anemone patens var. *multifida*	2	T	8/8/2020	No		Wenatchee River RD, Okanogan-Wenatchee NF	USAFS
Anemone patens var. *multifida*	3	T	5/20/2020	Yes		Colockum WA, Wenatchee River RD, Okanogan-Wenatchee NF	ST DFW, USAFS
Aphyllon californicum ssp. *grayanum*	None[5]	E	7/28/2020	Yes	301-500	Conboy Lake NWR	USAFWS
Astragalus geyeri var. *geyeri*	2	T	6/18/2020	No		Sentinel Slope ACEC	USABLM
Campanula lasiocarpa	1	S	8/7/2020	Yes	68 stems	Darrington RD, Mt Baker-Snoqualmie NF	USAFS
Carex magellanica ssp. *irrigua*	39		8/25/2020	No		Little Pend Oreille River NAP	ST DNR
Carex rostrata	5	S	7/23/2020	No		Sullivan Lake RD, Colville NF	USAFS
Carex stylosa	4	S	8/19/2020	No		Darrington RD, Mt Baker-Snoqualmie NF	USAFS

Table 1. Rare plant monitoring results for 2020 (continued).

Species Name	EO Num[1]	State Status[2]	Visit Date	Species Found	Pop. Size[3]	Managed Area	Owner
Chaenactis thompsonii	37	S	8/9/2020	No		Cle Elum RD, Okanogan-Wenatchee NF	USAFS
Chrysolepis chrysophylla var. *chrysophylla*	1	S	10/14/2020	Yes	80	Mt Adams RD, Gifford Pinchot NF	USAFS
Coptis aspleniifolia	5	S	7/21/2020	Yes	10,001-100,000 clumps	Darrington RD, Mt Baker-Snoqualmie NF	USAFS
Crepis bakeri	New[4]	E	5/23/2020	Yes	30	Klickitat WA	ST DFW
Cryptantha leucophaea	13	T	5/31/2020	No		Columbia NWR	USAFWS
Cryptantha spiculifera	New[4]	S	5/13/2020	Yes	~300	Private Land	PVTUUU
Cuscuta denticulata	1	T	6/18/2020	No		Saddle Mountain NWR - Wahluke Slope Unit	USAFWS
Cypripedium parviflorum	9	S	5/30/2020	Yes	151 stems	Turnbull NWR	USAFWS
Dactylorhiza viridis	6	T	7/8/2020	No		Tonasket RD, Okanogan-Wenatchee NF	USAFS
Dendrolycopodium dendroideum	11	S	9/3/2020	Site not reached		Mt Baker RD, Mt Baker-Snoqualmie NF	USAFS
Eatonella nivea	7	T	5/10/2020	Yes	101-300	Saddle Mountain NWR	USAFWS
Erigeron salishii	7	S	8/14/2020	Uncertain	98	Wenatchee River RD & Cle Elum RD, Okanogan-Wenatchee NF	USAFS
Geum rivale	21	S	6/19/2020	No		Newport RD, Colville NF	USAFS
Heterotheca oregona	5	S	7/28/2020	Yes	301-500	Naches RD, Okanogan-Wenatchee NF	USAFS
Juncus hemiendytus var. *hemiendytus*	New[4]	T	5/23/2020	Yes	10	Klickitat WA	ST DFW
Kalmia procumbens	3	T	8/18/2020	No		Darrington RD, Mt Baker-Snoqualmie NF & Chelan RD, Okanogan-Wenatchee NF	USAFS
Luzula arcuata ssp. *unalaschensis*	None[5]	S	7/31/2020	No		Darrington RD, Mt Baker-Snoqualmie NF	USAFS
Ophioglossum pusillum	17	S	6/25/2020	Yes	361	Sullivan Lake RD, Colville NF	USAFS
Pediocactus nigrispinus	26	S	5/28/2020	No		Colockum WA	ST DFW

Table 1. Rare plant monitoring results for 2020 (continued).

Species Name	EO Num[1]	State Status[2]	Visit Date	Species Found	Pop. Size[3]	Managed Area	Owner
Pellaea brachyptera	None[5]	S	7/20/2020	Yes	11 clumps	North Cascades NPK	USANPS
Pellaea brachyptera	None[5]	S	7/19/2020	Yes	>600 clumps	North Cascades NPK	USANPS
Penstemon eriantherus var. *whitedii*	New[4]	T	5/13/2020	Yes	~435	Private Land	PVTUUU
Polemonium pectinatum	29	T	6/11/2020	Yes	16,160 clumps	Coal Creek ACEC	USABLM
Potentilla breweri	5	T	6/25/2020	Yes	301-500	Cle Elum RD, Okanogan-Wenatchee NF	USAFS
Potentilla nivea	12	S	7/21/2020	No		Methow Valley RD, Okanogan-Wenatchee NF	USAFS
Potentilla nivea	14	S	7/27/2020	Yes		Methow Valley RD, Okanogan-Wenatchee NF	USAFS
Potentilla nivea	25	S	8/9/2020	Yes	1,001-10,000	Methow Valley RD, Okanogan-Wenatchee NF	USAFS
Potentilla nivea	6	S	7/18/2020	Yes	301-500	Methow Valley RD, Okanogan-Wenatchee NF	USAFS
Pyrrocoma hirta var. *sonchifolia*	4	T	9/6/2020	Site not reached		Cle Elum RD, Okanogan-Wenatchee NF	USAFS
Ribes wolfii	4	S	6/26/2020	Yes	100-300	Pomeroy RD, Umatilla NF	USAFS
Rotala ramosior	1	S	8/30/2020	No		Saddle Mountain NWR	USAFWS
Sidalcea hirtipes	12	T	8/8/2020	Yes	200-600 stems	Cowlitz RD, Gifford Pinchot NF	USAFS
Silene spaldingii	48	T	7/9/2020	Yes	101-300	Coal Creek ACEC	USABLM
Silene spaldingii	59	T	7/16/2020	No		Bureau of Land Management - Spokane Dist	USABLM
Sisyrinchium septentrionale	18	S	6/1/2020	No		Little Pend Oreille NWR	USAFWS
Swertia perennis	3	T	8/14/2020	No		Darrington RD, Mt Baker-Snoqualmie NF	USAFS
Synthyris schizantha	6	S	9/5/2020	Yes	1,001-10,000 clumps	Cowlitz RD, Gifford Pinchot NF	USAFS

Table 1. Rare plant monitoring results for 2020 (continued).

Species Name	EO Num[1]	State Status[2]	Visit Date	Species Found	Pop. Size[3]	Managed Area	Owner
Trichostema oblongum	New[4]	R	7/1/2020	Yes	100	Klickitat WA	ST DFW
Utricularia minor	None[5]		8/8/2020	Uncertain		Three Rivers RD, Colville NF	USAFS
Zeltnera muehlenbergii	New[4]	T	7/1/2020	Yes	101-300	Klickitat WA	ST DFW

Notes:

1. EO num is the element occurrence number assigned to the site by the Washington Natural Heritage Program.
2. State Status: E = endangered, R1 = review species (group 1), R2 = reivew species (group 2), S = sensitive, T = threatened, X = possibly extinct or extirpated from Washington.
3. Population size estimate represents individuals unless otherwise noted.
4. Potentially new site that may not be in WNHP database.
5. Site identified by land owner or other party and may not be in WNHP database.

Abbreviations:

ACEC - Area of Critical Environmental Concern
BSA - State University Natural Area
EWA - Established Wilderness Area
ERD - Energy Research and Development
IND - Indian Reservation
LOCCTY - City Municipality or County
NAP - Natural Area Preserve
NF - National Forest
NRCA - Natural Resources Conservation Area
NSA - National Scenic Area
NVM - National Volcanic Monument
NWR - National Wildlife Refuge
PUD - Public Utility District
PVT - Privately owned
RD - Ranger District
ST DNR - Washington State Department of Natural Resources
ST DFW - Washington State Department of Fish and Wildlife
ST SPR - Washington State Parks and Recreation
ST UAA - State University Property
ST WDT - Washington State Department of Transportation
USABLM - Bureau of Land Management
USADOD - United States Department of Defense
USAFS - United States Forest Service
USAFWS - United States Fish and Wildlife Service
USANPS - National Park Service
WA - Wildlife Area

Table 2. Invasive species documented at rare plant occurrences monitored by Rare Care in 2020.

Species Name	EO Num	Species Found	Owner	Invasive Species Observed
Actaea elata var. *elata*	23	Yes	ST SPR	*Ilex aquifolium*
Agoseris elata	48	Yes	USAFS	*Phleum pratense*
Ammannia robusta	1	Yes	USAFWS	*Lythrum salicaria*
Aphyllon californicum ssp. *grayanum*	None	Yes	USAFWS	*Phalaris arundinacea, Ventenata dubia*
Carex magellanica ssp. *irrigua*	39	No	ST DNR	*Phalaris arundinacea, Cirsium arvense*
Cryptantha leucophaea	13	No	USAFWS	*Bromus tectorum*
Cryptantha spiculifera	New	Yes	PVTUUU	*Bromus tectorum*
Cypripedium parviflorum	9	Yes	USAFWS	*Bromus tectorum*
Eatonella nivea	7	Yes	USAFWS	*Bromus tectorum, Salsola tragus, Erodium circutarium*
Geum rivale	21	No	USAFS	*Cirsium* spp.
Ophioglossum pusillum	17	Yes	USAFS	*Leucanthemum vulgare, Hieracium aurantiacum, Cirsium arvense, Hieracium caespitosum*
Pellaea brachyptera	None	Yes	USANPS	*Bromus tectorum*
Pellaea brachyptera	None	Yes	USANPS	*Bromus tectorum*
Penstemon eriantherus var. *whitedii*	New	Yes	PVTUUU	*Bromus tectorum*
Polemonium pectinatum	29	Yes	USABLM	*Bromus tectorum, Cirsium arvense*
Silene spaldingii	48	Yes	USABLM	*Bromus tectorum*
Silene spaldingii	59	No	USABLM	*Hypericum perforatum, Bromus tectorum*
Swertia perennis	3	No	USAFS	*Cirsium vulgare*
Synthyris schizantha	6	Yes	USAFS	*Cirsium arvense, Leucanthemum vulgare*
Trichostema oblongum	New	Yes	ST DFW	*Hieracium caespitosum, Tragopogon dubius, Taenitherum caput-medusae, Hypericum perforatum, Trifolium repens, Cirsium vulgare, Lactuca serriola, Rumex crispus*
Zeltnera muehlenbergii	New	Yes	ST DFW	*Hieracium caespitosum, Tragopogon dubius, Taenitherum caput-medusae, Hypericum perforatum, Trifolium repens, Cirsium vulgare, Lactuca serriola, Rumex crispus*

Table 3. Land use and management concerns documented for occurrences monitored by Rare Care in 2020.

Species Name	EO Num	Species Found	Owner	Adjacent Land Use and Management Comments
Actaea elata var. *elata*	23	Yes	ST SPR	Trail clearing in one location where plants were found in past.
Agoseris elata	48	Yes	USAFS	Evidence of off-raod vehicle use nearby
Carex rostrata	5	No	USAFS	Cattle grazing in meadow may affect plant's reproductive cycle. ATV's used to monitor cattle are also causing damage to meadow.
Chrysolepis chrysophylla var. *chrysophylla*	1	Yes	USAFS	Nearby forest management/logging is going on and could negatively impact population
Cuscuta denticulata	1	No	USAFWS	The area east of the road near the population has burned once, possibly twice in the past two decades. Fires and subsequent restoration efforts could have affected original population.
Erigeron salishii	7	Uncertain	USAFS	Increased recreational use evident. Site near edge of campsite
Geum rivale	21	No	USAFS	Cattle grazing and trampling
Juncus hemiendytus var. *hemiendytus*	New	Yes	ST DFW	Adjacent lands have been logged. Area is lightly grazed.
Ophioglossum pusillum	17	Yes	USAFS	Cattle grazing in vicinity. Some plants with signs of herbivory. Cattle causing hydrology changes.
Potentilla breweri	5	Yes	USAFS	Tire tracks through meadow, firewood cutting, established hunting camps
Potentilla nivea	25	Yes	USAFS	Near a popular day hike and evidence of horses being taken near population. No direct impact to plants observed.
Potentilla nivea	6	Yes	USAFS	Faint climbers trail through population
Sidalcea hirtipes	12	Yes	USAFS	Encroaching shrubs and trees
Sisyrinchium septentrionale	18	No	USAFWS	Grass encroachment and pines shading meadow
Swertia perennis	3	No	USAFS	Informal campsite within vicinity
Synthyris schizantha	6	Yes	USAFS	Forest is encroaching into meadow and reducing habitat.
Trichostema oblongum	New	Yes	ST DFW	Area is lightly grazed
Zeltnera muehlenbergii	New	Yes	ST DFW	Area lightly grazed by cattle. ATV, horse, and vehicle tracks present

Table 4. Addendum to the 2019 rare plant monitoring results.

Species Name	EO Num	State Status	Visit Date	Species Found	Pop. Size	Managed Area	Owner	Invasive Species Observed	Adjacent Land Use and Management Comments
Cryptantha leucophaea	33	T	5/1/2019	Yes	101 - 250	Bureau of Reclamation	USABOR	*Bromus tectorum*	
Cryptantha spiculifera	3	S	5/19/2019	Yes		Sentinel Slope ACEC	USABLM		Dirt bike tracks present
Epipactis gigantea	None		7/18/2019	Yes		Olympic NPK	USANPS		