# Washington Rare Plant Care and Conservation
# Rare Plant Monitoring
# 2008 Annual Report


## Summary

Washington Rare Plant Care and Conservation's Rare Plant Monitoring Project provides critically-needed information on the status of Washington State's rare plant species. Trained citizen scientists monitor known occurrences of rare plants and report on their status and the habitat where they occur. Monitoring data collected under this project are provided to the Washington Natural Heritage Program and to federal, state, and local land managers to inform short-term and long-term conservation practices. A total of 125 locations of rare plants throughout the state of Washington were monitored in 2008 and 64% of these visits successfully relocated the rare plant species. A total of 108 volunteers participated in the project and 50 new volunteers were trained in 2008.


## Introduction

In 2001, Washington Rare Plant Care and Conservation (Rare Care) initiated the Rare Plant Monitoring project to provide critically-needed information on rare plant populations in the state of Washington. The project was developed in partnership with the Washington Natural Heritage Program (WNHP), the agency responsible for tracking and preserving the native biological diversity of the state. Currently in its eighth year, the Rare Plant Monitoring project focuses on the approximately 370 species of native plants considered endangered, threatened or sensitive to decline or extirpation by WNHP. These plants face an ever-increasing level of threat to extirpation due to ongoing loss or degradation of habitat and an ever-expanding flora of invasive species. However, there is insufficient funding and personnel to adequately maintain and update population data on these species or to monitor known sites for potential threats. Thus, the information provided by this project often represents the only current information available for individual populations of rare plant species.

Under this project, known occurrences of rare plants are visited by citizen scientists trained by Rare Care. During a site visit, volunteers collect information on population size, habitat characteristics and threats posed by invasive species and current land use practices. This information is provided to land managers on whose land the population occurs and to WNHP. Through WNHP, these data are available to scientists and land managers developing conservation strategies and making land use decisions across the state and the nation. The purpose of this document is to report on the results of the 2008 season.

## 2008 Monitoring Priorities

Species and occurrences selected for monitoring are based on a pre-determined set of priorities developed in conjunction with WNHP. The highest priority is given to monitoring occurrences specifically requested by land managers of public agencies where rare plant populations occur and to Rare Care's focus species. Focus species are those that Rare Care has selected to concentrate monitoring efforts so that all or most of its occurrences are monitored in a three to five year time frame.

High priority is also given to monitoring occurrences whose records in the WNHP database have not been updated since 1990. Within this group, higher emphasis is placed on species considered to be threatened or endangered under the WNHP ranking system. Finally, priority is placed on occurrences that were not located by Rare Care volunteers in previous years. After three attempts on an occurrence by at least two different surveyors, Rare Care considers the occurrence to be extirpated and no longer includes it in the list of monitoring priorities.

**2008 Monitoring Results**

During the 2008 field season, Rare Care completed 125 surveys of rare plant occurrences throughout Washington State representing 70 species (Table 1). An additional five occurrences were attempted to be monitored; however, they could not be reached due to access or time constraints. At 64% of the sites, the monitor(s) found and documented the rare plant occurrence. Thirty-seven of the 80 rare plant populations found consisted of fewer than 50 individuals. It is unknown whether these populations are stable or in decline. Surveyors reported invasive species at 39% of the sites (Table 2) and reported potential land use and management concerns at 39% of the sites (Table 3). Original data sheets were provided to WNHP and copies were provided to land managers for occurrences monitored under their jurisdiction.

Of the 125 surveys completed by Rare Care volunteers in 2008, three represented potentially new locations for rare plants, as follows:

- A population of *Cypripedium fasciculatum* consisting of approximately 24 individuals was observed in the Okanogan-Wenatchee National Forest.
- Approximately 100 individuals of *Polemonium viscosum* was discovered at a new location in the Pasayten Wilderness of the Okanogan-Wenatchee National Forest.
- Approximately 22 clumps of *Silene seelyi* were observed on a cliff in the Wenatchee River Ranger District of the Okanogan-Wenatchee National Forest.

These populations occur outside the recorded extent of existing element occurrences in the Washington Natural Heritage Program database. They should be reviewed by WNHP to determine if in fact they represent new occurrences.

For the second year, Rare Care organized a rare plant monitoring weekend. Volunteers and staff gathered for two days to assist WNHP with their three-year review of Wenatchee Mountain endemic and rare plant species. In 2008, the monitoring weekend focused on areas in and around Icicle Creek drainage. In addition to compiling plant lists and locations of endemic taxa, 13 occurrences of rare plants were monitored: 11 *Silene seelyi* occurrences, one *Cypripedium fasciculatum*, and one *Iliamna longisepala* occurrence.

## Addendum to the 2007 Monitoring Results

Rare Care received one additional field data report from a volunteer after the 2007 Annual Report was finalized (Table 4). The surveyor successfully relocated the rare plant species at the known site. Therefore, the total number of occurrences monitored and reported on for the 2006 field season was 122.

## Volunteer Recruitment and Management

Overall, 108 volunteers devoted 3,061 hours to rare plant monitoring during the 2008 field season. This includes hours dedicated to training, preparation and planning, field work and report writing. The major accomplishment of the project this year was the successful recruitment of 50 new rare plant monitoring volunteers. Rare Care continued to build its volunteer base in central and eastern Washington by recruiting and training 21 new volunteers from areas east of the Cascade Mountains.

Of the 188 populations assigned to volunteers for monitoring, 58 were not attempted this season due to a variety of reasons. In most cases, the volunteer simply did not have time to complete the survey. In other cases, trail obstructions, washed-out or decommissioned access roads, or inadequate level of expertise kept volunteers from completing their assignments. Late snow was also a factor this year, particularly in the north and central Cascade Mountains west of the crest.

## Table 1
## Rare Plant Monitoring 2008 Field Season Results

| Species name | EO Code | Species found? (Y/N/U/X)[1] | Population Size Estimate[2] | Management Unit | Owner |
|---|---|---|---|---|---|
| *Anemone nuttalliana* | PDRAN040U0*007 | N | | Methow Valley RD, Okanogan-Wenatchee NF | USFS |
| *Astragalus arrectus* | PDFAB0F0V0*013 | Y | 85 | Campus Prairie BSA | WSU |
| *Boschniakia hookeri* | PDORO01010*004 | Y | 23 | Lake Anderson State Park | WA SPR |
| *Botrychium ascendens* | PPOPH010S0*011 | N | | Mt Baker RD, Mt Baker-Snoqualmie NF | USFS |
| *Camissonia scapoidea* | PDONA031G0*001 | N | | Yakima Training Center | DOD |
| *Campanula lasiocarpa* | PDCAM020F0*005 | X | | Skykomish RD, Mt Baker-Snoqualmie NF | USFS |
| *Carex magellanica ssp irrigua*[3] | PMCYP03AT0*008 / PMCYP03G31*047 | N | | Darrington RD, Mt Baker-Snoqualmie NF | USFS |
| *Carex magellanica ssp. irrigua* | PMCYP03G31*039 | Y | 350 stems | Little Pend Oreille River NAP | WA DNR |
| *Carex pauciflora* | PMCYP03A50*003 | Y | 1.3 million culms | Darrington RD, Mt Baker-Snoqualmie NF | USFS |
| *Carex pauciflora* | PMCYP03A50*008 | Y | 300 stems | Snoqualmie Bog NAP | WA DNR |
| *Carex proposita* | PMCYP03B60*001 | Y | 1,500 | Wenatchee River RD, Okanogan-Wenatchee NF | USFS |
| *Carex saxatilis var. major* | PMCYP03C10*011 | N | | Darrington RD, Mt Baker-Snoqualmie NF | USFS |
| *Carex stylosa* | PMCYP03D50*005 | Y | 1000s | Mt Baker RD/Mt Baker-Snoqualmie NF | USFS |
| *Chaenactis thompsonii* | PDAST200J0*010 | N | | Entiat RD, Okanogan-Wenatchee NF | USFS |
| *Chaenactis thompsonii* | PDAST200J0*017 | Y | >200 clumps | Cle Elum RD, Okanogan-Wenatchee NF | USFS |
| *Chaenactis thompsonii* | PDAST200J0*031 | Y | 100s | Cle Elum RD, Okanogan-Wenatchee NF | USFS |
| *Chrysolepis chrysophylla* | PDFAG02030*004 | Y | 1 | Mt. Adams RD, Gifford Pinchot NF | USFS |
| *Chrysolepis chrysophylla* | PDFAG02030*004 | Y | 1 | Mt. Adams RD, Gifford Pinchot NF | USFS |
| *Chrysolepis chrysophylla* | PDFAG02030*048 | Y | 28 | Mt. Adams RD, Gifford Pinchot NF | USFS |
| *Cicuta bulbifera* | PDAPI0M020*020 | Y | 1000 | Little Pend Oreille River NAP | WA DNR |
| *Cimicifuga elata elata* | PDRAN07030*011 | Y | 3 | Beacon Rock State Park | WA SPR |
| *Cochlearia officinalis* | PDBRA0S030*006 | N | | Hoodsport Hatchery | WDFW |
| *Corydalis aquae-gelidae* | PDFUM03046*012 | Y | 25 | Mt St Helens NVM, Gifford Pinchot NF | USFS |
| *Corydalis aquae-gelidae* | PDFUM03046*034 | X | | Mt. Adams RD, Gifford Pinchot NF | USFS |
| *Cryptantha leucophaea* | PDBOR0A1N0*057 | N | | Yakima Training Center | DOD |
| *Cryptantha leucophaea* | PDBOR0A1N0*059 | N | | Hanford ERP, South Columbia Basin WA-Wahluke Slope Unit | USFWS |
| *Cryptogramma stelleri* | PPADI0B020*002 | U | | Chelan RD Okanogan-Wenatchee NF | USFS |
| *Cryptogramma stelleri* | PPADI0B020*003 | X | | Methow Valley RD, Okanogan-Wenatchee NF | USFS |
| *Cryptogramma stelleri* | PPADI0B020*004 | N | | Methow Valley RD, Okanogan-Wenatchee NF | USFS |
| *Cryptogramma stelleri* | PPADI0B020*005 | N | | Methow Valley RD, Okanogan-Wenatchee NF | USFS |
| *Cypripedium fasciculatum* | PMORC0Q060*013 | N | | Kamiak Butte County Park | Whitman County |

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|---|---|---|---|---|---|
| *Cypripedium fasciculatum* | PMORC0Q060*061 | Y | 144 | Wenatchee River RD, Okanogan-Wenatchee NF | USFS |
| *Cypripedium fasciculatum* | Possible new occurrence | Y | 24 | Cle Elum RD, Okanogan-Wenatchee NF | USFS |
| *Cypripedium parviflorum* | New in 2007 | Y | 25 stems | Sinlahekin WA | WDFW |
| *Cypripedium parviflorum* | PMORC0Q090*011 | N | | Turnbull NWR | USFWS |
| *Damasonium californicum* | PMALI03010*002 | Y | 12,000 | Horsethief Lake/Columbia Hills State Park, Columbia River Gorge NSA | WA SPR |
| *Damasonium californicum* | PMALI03010*004 | N | | Dalles Mt. Ranch State Park, Columbia River Gorge NSA | WA SPR |
| *Eatonella nivea* | None[4] | Y | 100 | Yakima Training Center | DOD |
| *Erigeron oreganus* | PDAST3M2W0*005 | U | | Beacon Rock State Park | WA SPR |
| *Erigeron salishii* | PDAST3M4U0*012 | N | | Methow Valley RD, Okanogan-Wenatchee NF | USFS |
| *Erythronium revolutum* | PMLIL0U0F0*062 | Y | 47 | State trust lands, Olympic Region | WA DNR |
| *Eurybia merita* | PDASTEB0D0*005 | Y | 2 | Mt Baker Wilderness, Mt Baker RD, Mt Baker-Snoqualmie NF | USFS |
| *Fritillaria camschatcensis* | New in 2007 | N | | Snoqualmie RD, Mt Baker-Snoqualmie NF | USFS |
| *Fritillaria camschatcensis* | PMLIL0V050*005 | Y | 800-2600 | Boulder River EWA, Darrington RD, Mt Baker-Snoqualmie NF | USFS |
| *Fritillaria camschatcensis* | PMLIL0V050*010 | N | | Mt Baker RD, Mt Baker-Snoqualmie NF | USFS |
| *Fritillaria camschatcensis* | PMLIL0V050*012 | X | | Mt Baker RD, Mt Baker-Snoqualmie NF | USFS |
| *Fritillaria camschatcensis* | PMLIL0V050*017 | N | | Darrington RD, Mt Baker-Snoqualmie NF | USFS |
| *Githopsis specularioides* | PDCAM07060*015 | N | | Bald Hill NAP | WA DNR |
| *Heuchera grossulariifolia var. tenuifolia* | PDSAX030G2*009 | Y | >60 clumps | Klickitat WA | WDFW |
| *Howellia aquatilis* | PDCAM0A010*013 | Y | 6 | Turnbull NWR | USFWS |
| *Howellia aquatilis* | PDCAM0A010*014 | Y | >105 | Turnbull NWR | USFWS |
| *Howellia aquatilis* | PDCAM0A010*017 | N | | Turnbull NWR | USFWS |
| *Howellia aquatilis* | PDCAM0A010*024 | Y | 10 | Turnbull NWR | USFWS |
| *Howellia aquatilis* | PDCAM0A010*025 | Y | 23 | Turnbull NWR | USFWS |
| *Howellia aquatilis* | PDCAM0A010*029 | Y | 1 | Turnbull NWR | USFWS |
| *Howellia aquatilis* | PDCAM0A010*031 | Y | 300 | Turnbull NWR | USFWS |
| *Howellia aquatilis* | PDCAM0A010*054 | Y | 32-35 | Turnbull NWR | USFWS |
| *Howellia aquatilis* | PDCAM0A010*055 | Y | >25 | Turnbull NWR | USFWS |
| *Howellia aquatilis* | PDCAM0A010*056 | N | | Turnbull NWR | USFWS |
| *Howellia aquatilis* | PDCAM0A010*057 | Y | 1000 | Turnbull NWR | USFWS |
| *Howellia aquatilis* | PDCAM0A010*061 | Y | 48 | Turnbull NWR | USFWS |

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| Species name | EO Code | Species found? (Y/N/U/X)[1] | Population Size Estimate[2] | Management Unit | Owner |
|---|---|---|---|---|---|
| *Howellia aquatilis* | PDCAM0A010*063 | Y | many | Turnbull NWR | USFWS |
| *Iliamna longisepala* | PDMAL0K050*029 | Y | 1 | State trust lands, Southeast Region | WA DNR |
| *Iliamna longisepala* | PDMAL0K050*034 | N | | Wenatchee River RD, Okanogan-Wenatchee NF | USFS |
| *Isoetes nuttallii* | PPISO010F0*006 | Y | many | Bald Hill NAP | WA DNR |
| *Isoetes nuttallii* | PPISO010F0*012 | N | | Horsethief Lake/Columbia Hills State Park, Columbia River Gorge NSA | WA SPR |
| *Lobelia dortmanna* | PDCAM0E0C0*024 | Y | 130,000 | Moran State Park | WA SPR |
| *Lobelia kalmii* | PDCAM0E0W0*002 | Y | 50-55 | Yakima Training Center | DOD |
| *Lomatium sandbergii* | PDAPI1B1R0*001 | N | | Sullivan Lake RD, Colville NF | USFS |
| *Lomatium suksdorfii* | PDAPI1B1W0*015 | Y | 190 | State trust lands, Southeast Region | WA DNR |
| *Lomatium suksdorfii* | PDAPI1B1W0*029 | Y | 220 | Klickitat WA | WDFW |
| *Lomatium tuberosum* | PDAPI1B200*012 | Y | 800 | | BLM |
| *Microseris bigelovii* | PDAST6E020*002 | N | | Friday Harbor Labs | UW |
| *Microseris borealis* | PDAST6E030*009 | N | | Cowlitz RD, Gifford Pinchot NF | USFS |
| *Microseris borealis* | PDAST6E030*014 | N | | Mt Adams RD, Gifford Pinchot NF | USFS |
| *Microseris borealis* | PDAST6E030*015 | Y | 3 | Mt Adams RD, Gifford Pinchot NF | USFS |
| *Mimulus pulsiferae* | PDSCR1B290*016 | N | | State trust lands, Southeast Region | WA DNR |
| *Montia diffusa* | PDPOR05040*008 | N | | State trust lands, Olympic Region | WA DNR |
| *Montia diffusa* | PDPOR05040*021 | N | | State trust lands, Northwest Region | WA DNR |
| *Myosurus clavicaulis* | PDRAN0H080*001 | N | | Horsethief Lake State Park | WA SPR |
| *Ophioglossum pusillum* | PPOPH020F0*008 | N | | Killebrew Lake NAP | WDFW |
| *Ophioglossum pusillum* | PPOPH020F0*009 | Y | 65 | Little Pend Oreille NWR | USFWS |
| *Orobanche californica* spp *grayana* | None[5] | N | | Conboy Lake NWR | USFWS |
| *Orthocarpus bracteosus* | PDSCR1H030*001 | Y | 68 | Conboy Lake NWR | USFWS |
| *Parnassia kotzebuei* | PDSAX0P070*001 | Y | 6 | Chelan-Sawtooth EWA, Methow Valley RD, Okanogan-Wenatchee NF | USFS |
| *Parnassia palustris var. neogaea* | PDSAX0P080*012 | Y | 100,000 stems | Hood Canal RD, Olympic NF | USFS |
| *Pellaea breweri* | PPADI0H040*005 | U | 2 stems | Cle Elum RD, Okanogan-Wenatchee NF | USFS |
| *Pellaea breweri* | PPADI0H040*007 | Y[6] | 2 | Cle Elum RD, Okanogan-Wenatchee NF | USFS |
| *Penstemon barrettiae* | PDSCR1L0R0*021 | Y | 21 | Klickitat WA | WDFW |
| *Penstemon eriantherus var. whitedii* | PDSCR1L274*001 | Y | 90 | Hanford ERP, South Columbia Basin WA-Wahluke Slope Unit | USFWS |
| *Penstemon eriantherus var. whitedii* | PDSCR1L274*003 | Y | 70 | Hanford ERP, South Columbia Basin WA-Wahluke Slope Unit | USFWS |

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| Species name | EO Code | Species found? (Y/N/U/X)[1] | Population Size Estimate[2] | Management Unit | Owner |
|---|---|---|---|---|---|
| *Petrophyton cinerascens* | PDROS18030*005 | Y | 5 | Colockum WA | WDFW |
| *Petrophyton cinerascens* | PDROS18030*007 | Y | 23 mats | Colockum WA - Swakane Unit | WDFW |
| *Petrophyton cinerascens* | PDROS18030*008 | Y | 100 mats | | Private |
| *Phacelia lenta* | PDHYD0C2M0*008 | Y | 75 | | BLM |
| *Platanthera obtusata* | PMORC1Y0J0*020 | N | | Republic RD, Colville NF | USFS |
| *Platanthera sparsiflora* | PMORC1Y0NO*003 | X | | Mt Baker RD, Mt Baker-Snoqualmie NF | USFS |
| *Polemonium viscosum* | PDPLM0E0M0*003 | Y | 30 | Methow Valley RD, Okanogan-Wenatchee NF | USFS |
| *Polemonium viscosum* | PDPLM0E0M0*007 | Y | >150 | Methow Valley RD, Okanogan-Wenatchee NF | USFS |
| *Polemonium viscosum* | Possible new occurrence | Y | 100 | Pasayten Wilderness, Methow RD, Okanogan-Wenatchee NF | USFS |
| *Potentilla nivea* | PDROS1B150*011 | Y | 300 | Methow Valley RD, Okanogan-Wenatchee NF | USFS |
| *Pyrrocoma liatriformis* | PDASTDT0C0*013 | N | | State trust lands, Southeast Region | WA DNR |
| *Salix maccalliana* | PDSAL021T0*003 | Y | 20-25 stems | Sinlahekin WA | WDFW |
| *Sanguisorba menziesii* | PDROS1L030*005 | N | | Carlisle Bog NAP | WA DNR |
| *Saxifraga rivularis* | PDSAX0U1G0*014 | Y | 20 | Mt Baker RD, Mt Baker-Snoqualmie NF | USFS |
| *Saxifraga tischii* | PDSAX0U230*008 | Y | 3 | Hood Canal RD, Olympic NF | USFS |
| *Silene seelyi* | PDCAR0U1N0*007 | Y | 16 clumps | Enchantment SI, Wenatchee River RD, Okanogan-Wenatchee NF | USFS |
| *Silene seelyi* | PDCAR0U1N0*008 | N | | Cle Elum RD, Okanogan-Wenatchee NF | USFS |
| *Silene seelyi* | PDCAR0U1N0*009 | Y | 29 clumps | Wenatchee River RD, Okanogan-Wenatchee NF | USFS |
| *Silene seelyi* | PDCAR0U1N0*010 | Y | 81 clumps | Wenatchee River RD, Okanogan-Wenatchee NF | USFS |
| *Silene seelyi* | PDCAR0U1N0*012 | Y | 4 clumps | Wenatchee River RD, Okanogan-Wenatchee NF | USFS |
| *Silene seelyi* | PDCAR0U1N0*013 | Y | 54 clumps | Wenatchee River RD, Okanogan-Wenatchee NF | USFS |
| *Silene seelyi* | PDCAR0U1N0*014 | Y | 25 clumps | Wenatchee River RD, Okanogan-Wenatchee NF | USFS |
| *Silene seelyi* | PDCAR0U1N0*015 | Y | 47 clumps | Wenatchee River RD, Okanogan-Wenatchee NF | USFS |
| *Silene seelyi* | PDCAR0U1N0*016 | Y | 18 clumps | Wenatchee River RD, Okanogan-Wenatchee NF | USFS |
| *Silene seelyi* | PDCAR0U1N0*018 | Y | 2 | Wenatchee River RD, Okanogan-Wenatchee NF | USFS |
| *Silene seelyi* | PDCAR0U1N0*019 | Y | 69 | Wenatchee River RD, Okanogan-Wenatchee NF | USFS |
| *Silene seelyi* | PDCAR0U1N0*020 | Y | 57 clumps | Wenatchee River RD, Okanogan-Wenatchee NF | USFS |
| *Silene seelyi* | PDCAR0U1N0*023 | Y | 200 clumps | Wenatchee River RD, Okanogan-Wenatchee NF | USFS |
| *Silene seelyi* | Possible new occurrence | Y | 22 clumps | Wenatchee River RD, Okanogan-Wenatchee NF | USFS |
| *Sisyrinchium septentrionale* | PMIRI0D180*018 | Y | 257 | Little Pend Oreille NWR | USFWS |
| *Spiranthes porrifolia* | PMORC2B0T0*008 | Y | 5 | Chelan RD, Okanogan-Wenatchee NF | USFS |
| *Sullivantia oregana* | PDSAX0X020*003 | N | | Beacon Rock State Park | WA SPR |
| *Trifolium thompsonii* | PDFAB40280*001 | Y | 149 | Entiat RD, Okanogan-Wenatchee NF | USFS |

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| Species name | EO Code | Species found? (Y/N/U/X)[1] | Population Size Estimate[2] | Management Unit | Owner |
|---|---|---|---|---|---|
| *Trifolium thompsonii* | PDFAB40280*001 | N | | Colockum WA - Swakane Unit | WDFW |
| *Trifolium thompsonii* | PDFAB40280*009 | Y | 1 million | Colockum WA-Swakane Unit | WDFW |
| *Trifolium thompsonii* | PDFAB40280*017 | N | | Entiat RD, Okanogan-Wenatchee NF | USFS |
| *Trifolium thompsonii* | PDFAB40280*025 | Y | 429,000-570,000 | | BLM |
| *Utricularia intermedia* | PDLNT020A0*010 | Y | >600 | Snoqualmie Bog NAP | WA DNR |
| *Utricularia minor* | PDLNT020A0*009 | N | | Halliday Fen RNA, Sullivan Lake RD, Colville NF | USFS |

| | |
|---|---|
| **Number of occurrences monitored:** | **130** |
| **Number found:** | **80** |
| **Number not found:** | **41** |
| **Number of uncertain:** | **3** |
| **Number of occurrences not reached:** | **5** |

**Notes:**
1. Y = yes, N = no, U = identity uncertain, X = not monitored (site not reached)
2. Population size estimate represents individuals unless otherwise noted.
3. Identity of this *Carex* species is in question.
4. Site identified by land owner and may not be in WNHP database.
5. Land manager requested Rare Care to look for this species in this area.
6. This occurrence was monitored twice in 2008; however, the first attempt failed to locate the site.

**Abbreviations:**

BLM - Bureau of Land Management
BSA - State University Natural Area
ERP - Environmental Research Park (nuclear reservation)
EWA - Established Wilderness Area
NAP - Natural Area Preserve
NF - National Forest
NSA - National Scenic Area
NVM - National Volcanic Monument
NWR - National Wildlife Refuge
RD - Ranger District
RNA - Research Natural Area
SI - Special Interest
USFS - United States Forest Service
USFWS - United States Fish and Wildlife Service
UW - University of Washington
WDFW - Washington Department of Fish and Wildlife
WA -Washington, Wildlife Area
WA DNR - Washington Department of Natural Resources
WA SPR - Washington State Parks
WSU - Washington State University

**Table 2**
**Rare Plant Monitoring 2008 Field Seasons Results**
**Invasive Species Threats**

| Species name | EO Code | Species found (Y/N) | Invasive Species Present | Comments on Invasive Species |
|---|---|---|---|---|
| *Astragalus arrectus* | PDFAB0F0V0*013 | Y | Yes | Species list not provided by monitor |
| *Boschniakia hookeri* | PDORO01010*004 | Y | *Cirsium arvense* | Few seen in area |
| *Carex magellanica ssp. irrigua* | PMCYP03G31*039 | Y | *Phalaris arundinacea* , *Cirsium arvense* (?) | Not in immediate proximity to CAMA, but within 30 yards at waypoint 006. |
| *Cicuta bulbifera* | PDAPI0M020*020 | Y | *Phalaris arundinacea* , *Cirsium arvense* (?) | Invasives present within approximately 30 yards of CIBU, in slightly drier habitat, waypoint 006 and on east side subpopulation 4. |
| *Cimicifuga elata elata* | PDRAN07030*011 | Y | *Rubus armenicus* | In area but not directly associated with site. |
| *Corydalis aquae-gelidae* | PDFUM03046*012 | Y | *Mycelis muralis* | Found this weed along trail and along creek banks. |
| *Cryptantha leucophaea* | PDBOR0A1N0*057 | N | *Bromus tectorum* | |
| *Cryptantha leucophaea* | PDBOR0A1N0*059 | N | *Bromus tectorum* | Sparse in sandy areas but much more abundant on the hillsides to west and east of saddle. |
| *Cypripedium parviflorum* | PMORC0Q090*011 | N | *Phalaris arundinacea* | This species is mostly in a band between the open water species (*Scirpus* , etc.) and the cost strip. It has, to some extent, penetrated landward, intermixing with the *Cornus stolonifera* in spots. |
| *Cypripedium parviflorum* | New in 2007 | Y | *Cirsium* sp. | |
| *Damasonium californicum* | PMALI03010*002 | Y | *Phalaris arundunacea, Rubus armeniacus, Bromus tectorum* | |
| *Damasonium californicum* | PMALI03010*004 | N | *Veronica anagallis-aquatica* | |
| *Eatonella nivea* | None | Y | *Erodium cicutarium* | |
| *Erythronium revolutum* | PMLIL0U0F0*062 | Y | *Phalaris arundinacea* | Not a direct threat but possible that reed canary grass that has taken over west end of wetland could change future hydrology of entire site in future. |
| *Fritillaria camschatcensis* | PMLIL0V050*010 | N | *Ranunculus repens* | Some few near start of road where conditions are not as brushy and overgrown. |
| *Heuchera grossulariifolia var. tenuifolia* | PDSAX030G2*009 | Y | *Bromus tectorum* | Does not appear to be displacing other species at present. |
| *Howellia aquatilis* | PDCAM0A010*013 | Y | | <1% PHAR coverage |
| *Howellia aquatilis* | PDCAM0A010*014 | Y | | <1% PHAR coverage |
| *Howellia aquatilis* | PDCAM0A010*024 | Y | *Phalaris arundinacea* | |
| *Howellia aquatilis* | PDCAM0A010*025 | Y | *Phalaris arundinacea* | 25 -50% Cover |
| *Howellia aquatilis* | PDCAM0A010*029 | Y | *Phalaris arundinacea* | Rresent but NOT in the vicinity of the *Howellia* . |
| *Howellia aquatilis* | PDCAM0A010*031 | Y | *Phalaris arundinacea* | 0-40% cover |
| *Howellia aquatilis* | PDCAM0A010*054 | Y | *Phalaris arundinacea* | Mostly to the east & west of the *Howellia* population. |
| *Howellia aquatilis* | PDCAM0A010*055 | Y | *Phalaris arundinacea* | 100% Cover |
| *Howellia aquatilis* | PDCAM0A010*057 | Y | *Phalaris arundinacea* | 30% cover |
| *Howellia aquatilis* | PDCAM0A010*061 | Y | *Phalaris arundinacea* | 10-40% Cover |
| *Howellia aquatilis* | PDCAM0A010*063 | Y | *Phalaris arundinacea* | 0-60% Cover |
| *Isoetes nuttallii* | PPISO010F0*012 | N | *Bromus tectorum* | |

**Table 2**
**Rare Plant Monitoring 2008 Field Seasons Results**
**Invasive Species Threats**

| Species name | EO Code | Species found (Y/N) | Invasive Species Present | Comments on Invasive Species |
|---|---|---|---|---|
| *Lobelia kalmii* | PDCAM0E0W0*002 | Y | *Solonum dulcamara, Circium arvense, Lysimachia* sp. | Evidence of herbicide spraying to control invasives. Invasive activity (growth) would be likely to change the balance here and crowd out struggling species. |
| *Lomatium suksdorfii* | PDAPI1B1W0*015 | Y | *Bromus tectorum, Cynosurus echinatus* | |
| *Lomatium suksdorfii* | PDAPI1B1W0*029 | Y | *Bromus tectorum* | Very abundant |
| *Microseris bigelovii* | PDAST6E020*002 | N | *Hypochaeris radiata* | |
| *Mimulus pulsiferae* | PDSCR1B290*016 | N | *Bromus tectorum* | Present in several open meadows. For the most part, native species dominate the various associations. |
| *Montia diffusa* | PDPOR05040*008 | N | *Bromus tectorum, Anthoxanthum odoratum* | |
| *Montia diffusa* | PDPOR05040*021 | N | *Rumex acetosella* | |
| *Myosurus clavicaulis* | PDRAN0H080*001 | N | *Bromus tectorum* | |
| *Ophioglossum pusillum* | PPOPH020F0*009 | Y | *Cirsium arvanse, Poa pratensis, Myosotis arvensis, Achillea* sp., *Hypericum perforatum, Hieracium pratense* | |
| *Parnassia palustris var. neogaea* | PDSAX0P080*012 | Y | *Lotus corniculatus, Cytisus scoparius* | In and along the road, but the road is adjacent to the population habitat,not IN it. |
| *Penstemon barrettiae* | PDSCR1L0R0*021 | Y | *Bromus tectorum* | Does not appear to be displacing other species at present. |
| *Penstemon eriantherus var. whitedii* | PDSCR1L274*001 | Y | *Bromus tectorum* | Sparsely scattered throughout - dense at lower elevations near road, but not in population areas. |
| *Penstemon eriantherus var. whitedii* | PDSCR1L274*003 | Y | *Bromus tectorum* | Sparse |
| *Petrophyton cinerascens* | PDROS18030*008 | Y | *Bromus tectorum* | |
| *Pyrrocoma liatriformis* | PDASTDT0C0*013 | N | *Centaurea solstitialis* | |
| *Salix maccalliana* | PDSAL021T0*003 | Y | *Solanum dulcamera* | Scattered - nowhere abundant. |
| *Silene seelyi* | PDCAR0U1N0*010 | Y | *Centaurea diffusa, Linaria dalmatica* | Invasives on path leading up to cliffs but not on rocks with *Silene seelyi* . |
| *Silene seelyi* | PDCAR0U1N0*016 | Y | *Bromus tectorum* | Below the cliff. |
| *Sisyrinchium septentrionale* | PMIRI0D180*018 | Y | *Poa pratensis, Bromus inermis, Myosotis arvensis , Achillea* sp., *Cirsium arvense, Hypericum perforatum, Hieracium pratense* | |
| *Trifolium thompsonii* | PDFAB40280*009 | Y | *Agropyron intermedium; Bromus tectorum, Bromus inermis, Centaurea diffusa, Erodium circutarium, Holosteum umbellatum, Sisymbrium altissimum, Tragopogon dubius* | None extensive except *B. tectorum.* |
| *Trifolium thompsonii* | PDFAB40280*025 | Y | *Asperugo procumbens, Convolvulus arvensis, Descurainia sophia, Ceratocephala testiculata, Tragopogon dubius* | |

**Table 3**
**Rare Plant Monitoring 2008 Field Season Results**
**Land Use and Management Concerns**

| Species name | EO Code | Species found? (Y/N) | Adjacent Land Use and Management Concerns |
|---|---|---|---|
| *Astragalus arrectus* | PDFAB0F0V0*013 | Y | Evidence of disturbance, but minimal - some old human activity - small wooden structures, study plots, fenced with mowed buffer. |
| *Carex pauciflora* | PMCYP03A50*003 | Y | Wetland fed from hillside. Old ski area activities. Hiking nearby, evidence of campfires. |
| *Carex proposita* | PMCYP03B60*001 | Y | Adjacent land use threats: Some plants are close to trails, but many are not. Most groups of plants look undisturbed except for some areas that get some grazing by (goats, pikas, marmots?) animals. |
| *Carex stylosa* | PMCYP03D50*005 | Y | Visible hydrology: standing water in some of the depressions. No disturbance (none other than the road…) Adjacent land use threats: digging up the pipeline for repairs or road work. |
| *Chrysolepis chrysophylla* | PDFAG02030*004 | Y | The tree is being overtopped by Douglas fir. It is growing toward the clearing of the nearby road rather than straight up. Very few seeds. |
| *Cicuta bulbifera* | PDAPI0M020*020 | Y | Hydrology: Stream channels may dry up. |
| *Cimicifuga elata elata* | PDRAN07030*011 | Y | Plants found are in middle of small but still vegetated areas and are spindly, probably not enough light. Population is likely dwindling due to human activity; most areas of fringe sunlight are near paths or roads where trampling is evident from many passing people and their dogs. |
| *Cochlearia officinalis* | PDBRA0S030*006 | N | Recent stream flood altered the beach - washing out built-up sand and vegetation. Stream channel no longer dredged to keep in channel to open water. |
| *Cryptantha leucophaea* | PDBOR0A1N0*059 | N | Area may have burned since last observation based on the presence of burnt stumps. |
| *Cryptogramma stelleri* | PPADI0B020*005 | N | Based on old lichen, moss and water deposits, water course may have changed in recent past. |
| *Cypripedium fasciculatum* | Possible new occurrence | Y | Very close to trail. |
| *Cypripedium fasciculatum* | PMORC0Q060*013 | N | Trail is HEAVILY travelled. |
| *Cypripedium parviflorum* | New in 2007 | Y | Plants close to open water, cow hoof marks in marshy area near plants, many cows present outside of fence. |
| *Damasonium californicum* | PMALI03010*004 | N | Pond is in poor condition overall. |
| *Eatonella nivea* | None | Y | Plants occur on edge of trail. Recreation activitieis could threaten remaining population. |
| *Erythronium revolutum* | PMLIL0U0F0*062 | Y | Timber cut was to the edge of population. It was spared. But removing the trees upslope and leaving this narrow corridor may have funnelled more elk traffic through the center of the population. Site is small enough that a few rails could be erected to divert most elk around it. |

**Table 3**
**Rare Plant Monitoring 2008 Field Season Results**
**Land Use and Management Concerns**

| Species name | EO Code | Species found? (Y/N) | Adjacent Land Use and Management Concerns |
|---|---|---|---|
| *Fritillaria camschatcensis* | PMLIL0V050*010 | N | This habitat is greatly altered. The road, which was open in 1981 is now so covered in brush as to be nearly impenetrable. Openings are few and possible habitat for black lily hard to discover. |
| *Fritillaria camschatcensis* | PMLIL0V050*017 | N | A fishermen's trail has been worn along the NE edge of the lake, but most alteration of this heavily used lake is in the upland forest where the campsites are (and black lily would be unlikely). |
| *Githopsis specularioides* | PDCAM07060*015 | N | Should the adjacent timber property be sold, the Balds would very likely experience human pressures. |
| *Howellia aquatilis* | PDCAM0A010*055 | Y | The pond appears to be "dying," i.e., drying out. |
| *Iliamna longisepala* | PDMAL0K050*029 | Y | The area appears to be heavily grazed with cattle trails/signs up and down the draw and its borders. |
| *Iliamna longisepala* | PDMAL0K050*034 | N | Forest and recreation land management practices. |
| *Isoetes nuttallii* | PPISO010F0*006 | Y | If adjacent timberlands sold, people would likely go into areas with permission. |
| *Lobelia dortmanna* | PDCAM0E0C0*024 | Y | Population is in a lake with a regulated outflow. |
| *Lobelia kalmii* | PDCAM0E0W0*002 | Y | There is the danger of taller vegetation moving in on the small space that seems to meet this plant's needs. |
| *Lomatium suksdorfii* | PDAPI1B1W0*029 | Y | Perhaps 5 plants seemed grazed. |
| *Microseris bigelovii* | PDAST6E020*002 | N | Shoreline bluffs are actively eroding. |
| *Microseris borealis* | PDAST6E030*009 | N | The lake may have risen and the forest grown over to encroach the meadows. |
| *Mimulus pulsiferae* | PDSCR1B290*016 | N | Vegetation succession after a clearcut has altered habitat. |
| *Montia diffusa* | PDPOR05040*008 | N | Since the old (ca 1980) burn, the areas has become, no doubt, less open with some shrub/tree encroachment on the open meadow. |
| *Montia diffusa* | PDPOR05040*021 | N | The few open areas in the search area are frequently disturbed with road or trail maintenance and trampling and there is a new bench placed in one of the openings (likely the location of the original sighting). Also, the forest cover is changing around the openings -- as succession occurs. |
| *Orobanche californica* spp *grayana* | None | N | Large areas have been drained and grazed, but most species persist in suitable habitat. |
| *Orthocarpus bracteosus* | PDSCR1H030*001 | Y | Cow pattie at end of population suggest potenital for grazing; however, fences appeared to be in good shape. |
| *Parnassia kotzebuei* | PDSAX0P070*001 | Y | Evidence of disturbance and injury to plants from visitors. |
| *Petrophyton cinerascens* | PDROS18030*008 | Y | Population is on private land. Rock quarrying is occurring north of the population and some digging in to the slope has occurred below population (for a parking area?). |

## Table 3
## Rare Plant Monitoring 2008 Field Season Results
## Land Use and Management Concerns

| Species name | EO Code | Species found? (Y/N) | Adjacent Land Use and Management Concerns |
|---|---|---|---|
| *Platanthera obtusata* | PMORC1Y0J0*020 | N | A road was made over & along Kelly Springs, many new culverts were placed along 2148, and a fire from last year on 700/2149 NW of site. There is also camping and hunting activities in the area, as well as cattle. |
| *Polemonium viscosum* | PDPLM0E0M0*003 | Y | The trail goes right through the populations and is rough so that it is not obvious where the trail is at all points - people could easily misstep and trample the plants if they were not paying attention. There appear to be several "trails" at some points. It is really just a dirt and rock slope. |
| *Pyrrocoma liatriformis* | PDASTDT0C0*013 | N | Extensive, intensive plowing, grazing, hoof traffic nearby. Heavy hoof traffic, grazing, and erosion in site. |
| *Saxifraga tischii* | PDSAX0U230*008 | Y | Hikers climb all over the rocks where this EO was found (several people were there during survey within 5 feet of one plant). It is highly likely that hikers will impact this EO. |
| *Silene seelyi* | PDCAR0U1N0*007 | Y | Population surrounded by area burned about 10 years ago. |
| *Silene seelyi* | PDCAR0U1N0*013 | Y | Any road work could pose a threat. |
| *Silene seelyi* | PDCAR0U1N0*016 | Y | Rock climber use evident (bolts still in rock face). |
| *Silene seelyi* | PDCAR0U1N0*020 | Y | Several established climbing routes on rock face within the population boundaries. Possible impact to plants from removal of plant material (cleaning cracks). |
| *Silene seelyi* | PDCAR0U1N0*023 | Y | Bolted climbing route right through population. |
| *Trifolium thompsonii* | PDFAB40280*001 (USFS) | Y | Population is in road bed. |
| *Trifolium thompsonii* | PDFAB40280*001 (WDFW) | N | Orchard and homesite on bench above (north of) Swakane Canyon Road. |
| *Trifolium thompsonii* | PDFAB40280*009 | Y | Ceanothus sanguineus regrowth following the fire of 1988 has suppressed the growth of Trifolium thompsonii on the north-facing slopes. |
| *Trifolium thompsonii* | PDFAB40280*017 | N | Second growth forest is maturing and creating well-shaded areas. |
| *Trifolium thompsonii* | PDFAB40280*025 | Y | Although cattle were present, direct herbivory of the target species was not observed. |

**Table 4**
**Rare Plant Monitoring 2007 Field Results**[1]

| Species name | EO Code | Species found (Y/N) | Population Size Estimate | Management Unit | Owner | Invasive species present | Comments regarding adjacent land use threats |
|---|---|---|---|---|---|---|---|
| *Sericocarpus rigidus* | PDASTEF010*010 | Y | 80 stems | Fort Lewis MR | DOD | *Aira caryophylla* | The EO occurs in an area where there is virtually no military training. The main threat to SERI in the Artillery Impact Area is from early fires fuelled by introduced grasses. |

[1]Thise 2007 reports were submitted by volunteers after the 2007 Annual Report was completed.