

Columbia Hills Natural Area Preserve

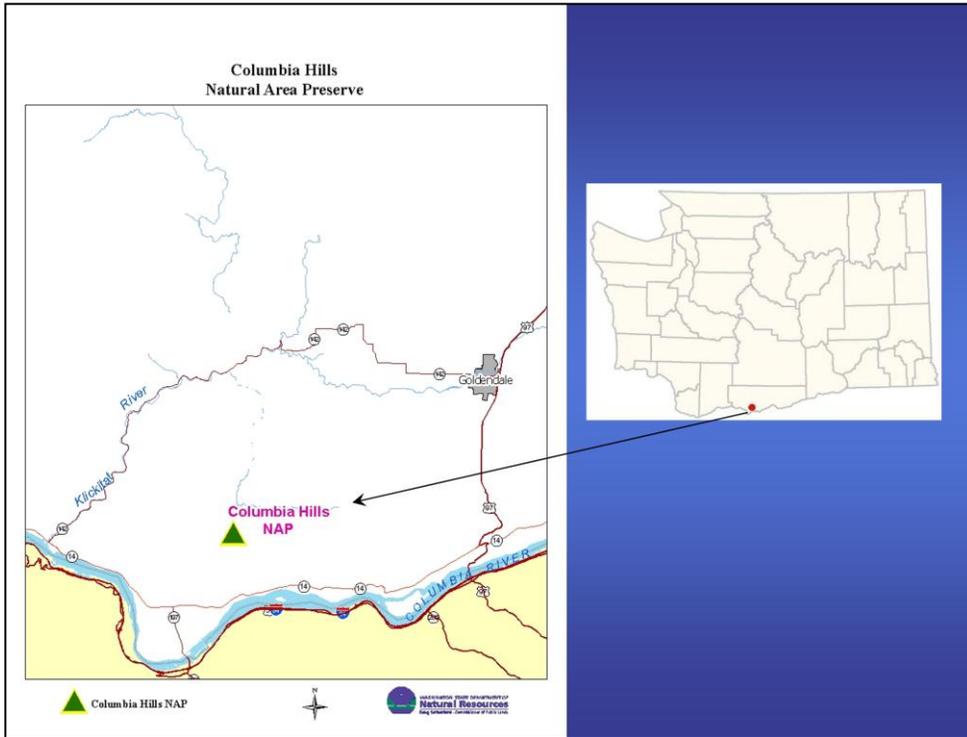
Expansion Proposal

Presented to:
Natural Heritage Advisory Council
October 12, 2011

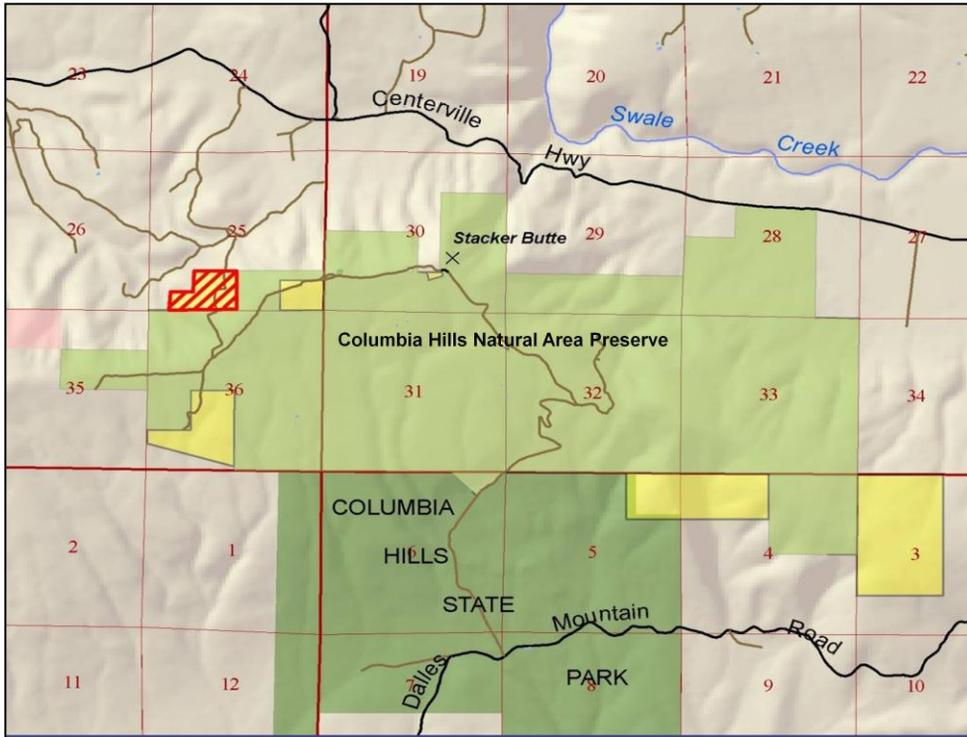
Objectives of Proposed Expansion

- Provide more viable protection of rare elements
- Improve site manageability
- Protect additional ecological features





Location: Columbia Hills NAP is located in Klickitat County.



Size / Ownership: The existing NAP owned/managed by the Washington State Department of Natural Resources encompasses 3,594 acres. The subject properties (two parcels totaling 50 acres) are privately owned.

Columbia Hills State Park = Dark green

Columbia Hills NAP = Light green

Lands eligible for inclusion = Yellow (not including the red cross-hatched area)

Subject of this expansion proposal = Red cross-hatched area

Proposed Expansion: Justification and Primary Elements

- Presence of priority ecosystems
- Potential presence of rare plant species
- Improved protection of the existing NAP and the species and ecosystems found within it

This proposal seeks to protect existing conservation elements located within the Columbia Hills Natural Area Preserve (NAP) by expanding the boundary to include a 50-acre property located adjacent to the NAP. Inclusion of this property within the natural areas would buffer the NAP from impacts to habitat resulting from inappropriate access via roads and trails and encroachment by weed populations to the north. The property would also extend protection and provide greater connectivity for oak Woodlands, grasslands, and potential rare plant habitat between the NAP and adjacent areas.

The conservation elements found within the NAP include Washington's largest populations of three rare plants as well as the largest occurrence of a rare grassland community. The current boundary of the NAP encompasses almost all of the populations of the three rare plants and most of the best condition grasslands found in the Columbia Hills area. The boundaries mostly follow fence lines that delineate change of condition and which provide control along major access points. Due to nearby development and associated threats along the northern portion of the NAP, this project seeks to establish an important buffer between conservation elements on the NAP and such threats. These threats include invasion of exotic species and trespassing. The property targeted for acquisition is privately owned and the landowners have indicated their interest in selling their property to DNR.

Site Description

- complex mix of vegetation types and habitat for rare & endemic plants
 - arid climate plant communities such as shrub-steppe and grassland



- mesic woodlands of Oregon white oak, ponderosa pine, & Douglas-fir
- five rare plants
- six rare plant communities

Ecological & Biological Characteristics

Conservation Significance of Columbia Hills NAP

- Protects numerous Priority elements in 2011 Natural Heritage Plan
- Conservation Opportunity Priorities (WA Biodiversity Council)
 - Moderate to High biodiversity significance
 - High risk
- Columbia Plateau Eco regional Assessment – Priority Portfolio Site
- Within Audubon’s Columbia Hills Important Bird Area
- WDFW Priority Habitats
 - Oregon White Oak Woodlands



Physiography / Geology / Climate:

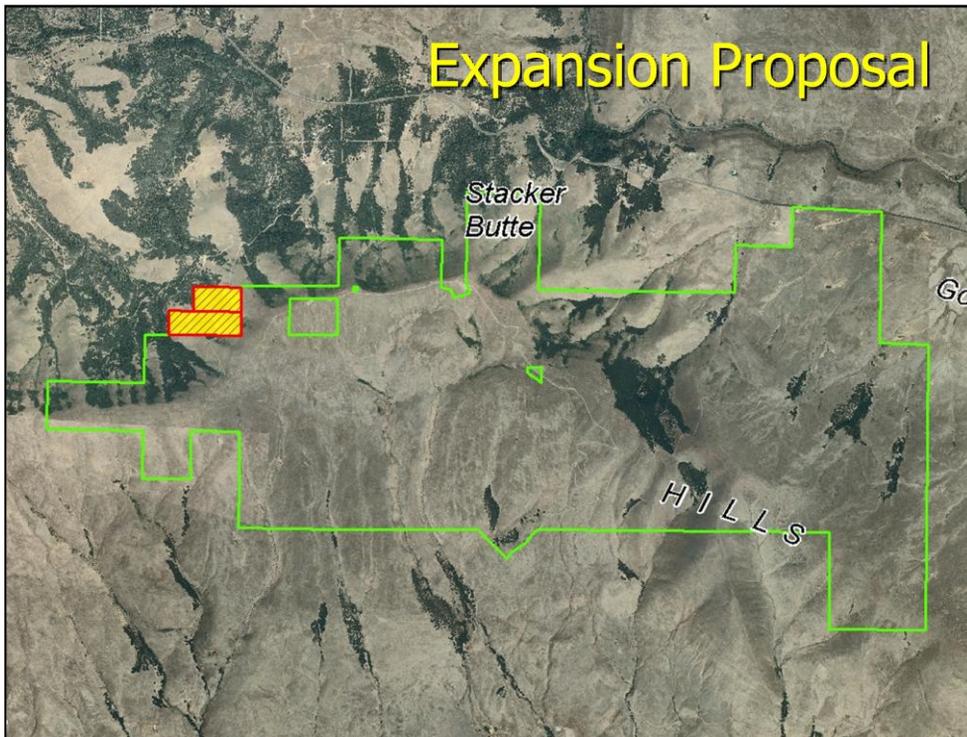
The Columbia Hills consist of thick lava flows which were uplifted by compression from the north and south.

The site is located at the extreme western edge of the Columbia Plateau ecoregion, an area characterized by arid climate and dominated by shrub-steppe and grassland vegetation.

Immediately to the west, the East Cascades ecoregion is typified by a more mesic climate supporting woodland or forest vegetation of Oregon white oak, ponderosa pine, Douglas-fir, and grand fir, among others.

The Columbia Gorge is a nearly sea-level route through the Cascade Mt. range, providing the only such east-west passage for several hundred miles to the north and south, resulting in high diversity of species.

The unique weather patterns and topography of the Gorge create a setting that has encouraged development of a complex mix of vegetation types and provides habitats for a number of endemic plant species within the NAP.



Aerial View of the Natural Area Preserve:

The red hatching indicates the proposed expansion.

The high point is Stacker Butte which is at 3,220 ft.

The ridgeline of the Columbia Hills is of significance; many of the rare elements are located here.

Much of the site is dominated by grassland, representative of the more arid Columbia Plateau ecoregion, but in sheltered riparian zones and on some north-facing slopes oaks and occasional ponderosa pine dominate and are representative of the more mesic East Cascade ecoregion.

Springs are also sporadically distributed throughout the site.

Species & Communities with Special Status

Rare Plants

Plants	Conservation Status Rank	WANHP 2011 Plan Priority
Obscure buttercup	G2S1	Priority 1
Douglas' draba	G4G5S1	Priority 2
Hot-rock penstemon	G5T2S1S2	Priority 2
Clustered Lady's-slipper	G4S2	Priority 3
Columbia kittentails	G4T4S?	N/A

The five species listed in the table are known from within the existing NAP boundary. Although none are currently known from within the proposed expansion, there is potential habitat for the obscure buttercup.

Columbia kittentails is included in the table even though it is not currently a priority within the Natural Heritage Plan. It is limited in its distribution in Washington. Furthermore, the populations within the Columbia River Gorge have been considered a distinct variety by some taxonomists.

Obscure buttercup (*Ranunculus reconditus*)

- Global rank = G2 (imperiled)
- State rank = S1 (critically imperiled)
- Priority 1 in WA Natural Heritage Plan
- Endemic to the eastern end of the Columbia River Gorge



Photo: David Wilderman

The obscure buttercup is known only from the eastern end of the Columbia River Gorge, primarily along a small stretch of the Columbia Hills in Washington. The population within the preserve is by far the largest of any known, including perhaps 75% of the known plant individuals.

Obscure buttercup

- Largest known population in the world
 - ~7,500 individuals
- Habitat
 - grasslands
 - upper slopes & crests of basalt ridges
 - varying aspects



White polygons represent known occurrences.

Douglas' draba

- Global rank = G4G5 (apparently secure)
- State rank = S1 (critically imperiled)
- Priority 2 in WA Natural Heritage Plan
- Northern edge of range



Photo: Priya Shahani

The NAP is at the extreme northern edge of the range of the Douglas' draba, which extends south and east to California and Utah. The NAP contains the only known population in Washington.

Douglas' draba

- Only known population in WA
 - ~ 10,000 individuals
- Habitat
 - exposed ridgelines & upper southern slopes
 - shallow, scabland soils
 - sparsely vegetated



White polygons represent known occurrences.

Hot-rock penstemon

- Global rank = G5T2 (species = secure; subspecies = imperiled)
- State rank = S1S2 (critically imperiled/imperiled)
- Priority 2 in WA Natural Heritage Plan
- Northern edge of range



Similarly, the NAP is at the northern edge of the range of hot-rock penstemon, which extends south into central Oregon. There are two other known sites of this plant in Washington.

Hot-rock penstemon

- One of three populations in WA
 - ~1400 individuals
- Habitat
 - open, dry, and often rocky areas
 - relatively deep soils
 - slightly disturbed areas



White polygons represent known occurrences.

Rare Plant Communities

Plant Communities	Conservation Status Rank	WANHP 2011 Plan Priority
Idaho fescue-houndstongue hawkweed grassland	G1G2S1	Adequate Representation (Columbia Hills occurrence is best example)
Douglas' buckwheat-Sandberg's bluegrass grassland	G4S2	Adequate Representation (Columbia Hills occurrence is best example)
Oregon white oak/common snowberry woodland	G2G3	Included in Oregon White Oak – Ponderosa Pine cover type, which is Priority 2
Bluebunch wheatgrass-Sandberg's bluegrass grassland	G3S3	Priority 1
Bluebunch wheatgrass-Idaho fescue Palouse grassland	G1G2S1	Priority 2
Thyme buckwheat-Sandberg's bluegrass Dwarf-shrubland	G3S3	Priority 3

Idaho fescue-houndstongue hawkweed grassland

- Global rank = G1G2 (critically imperiled)
- State rank = S1 (critically imperiled)
- Endemic to Columbia Hills in the eastern portion of Columbia River Gorge



Fewer than 20 occurrences of the Idaho fescue/houndstongue hawkweed grassland community are known and all are from along the Columbia Hills in Washington (from the Klickitat River to Rock Creek) and between Mosier and The Dalles in Oregon (a 10 by 40 mile area). The Columbia Hills NAP example is the largest of these, occupying approximately 300 acres, is in the best condition, and is the only protected example of this community.

Idaho fescue-houndstongue hawkweed grassland

- Best example in the world
 - Largest known
 - Highest quality



White polygons represent known distribution within the vicinity of Columbia Hills NAP.

Douglas' buckwheat/Sandberg's bluegrass

- Global rank = G4
(apparently secure)
- State rank = S2
(imperiled)
- Known from south-central WA and Hells Canyon in OR and ID
- Occurs on basalt ridges & plateaus



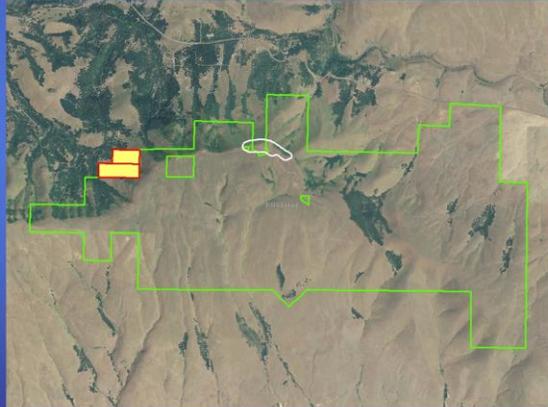
Photo: Don Knoke

The Douglas buckwheat/Sandberg's bluegrass community is more widespread, occurring along the eastern

Cascade foothills and western fringe of the Columbia Basin, from Fort Simcoe southward. The occurrence on the NAP is in good to excellent condition and is one of only two protected examples.

Douglas' buckwheat/Sandberg's bluegrass

- Best example in the Washington
 - Largest known
 - Highest quality



White polygons represent known distribution within the vicinity of the Columbia Hills NAP.

Oregon white oak/common snowberry woodland

- Global rank = G2G3 (imperiled)
- State rank = S2S3 (imperiled)
- Oregon white oak – Ponderosa pine cover type, which is a Priority 2 in WA Natural Heritage Plan, includes this community type
- narrow natural range along the SE Cascade foothills in WA & OR.



Photo: Heather Kapust

Oregon white oak/common snowberry woodland



White polygons represent known distribution within the vicinity of Columbia Hills NAP.

Threats / Management Considerations

- Loss of habitat to agriculture
- Non-native species
- Incidental livestock use
- Recreation, including off-road vehicle use
- Noxious weeds include:
 - Rush skeletonweed
 - Diffuse knapweed
 - Yellow star-thistle
 - Dalmatian toadflax
 - Himalayan blackberry



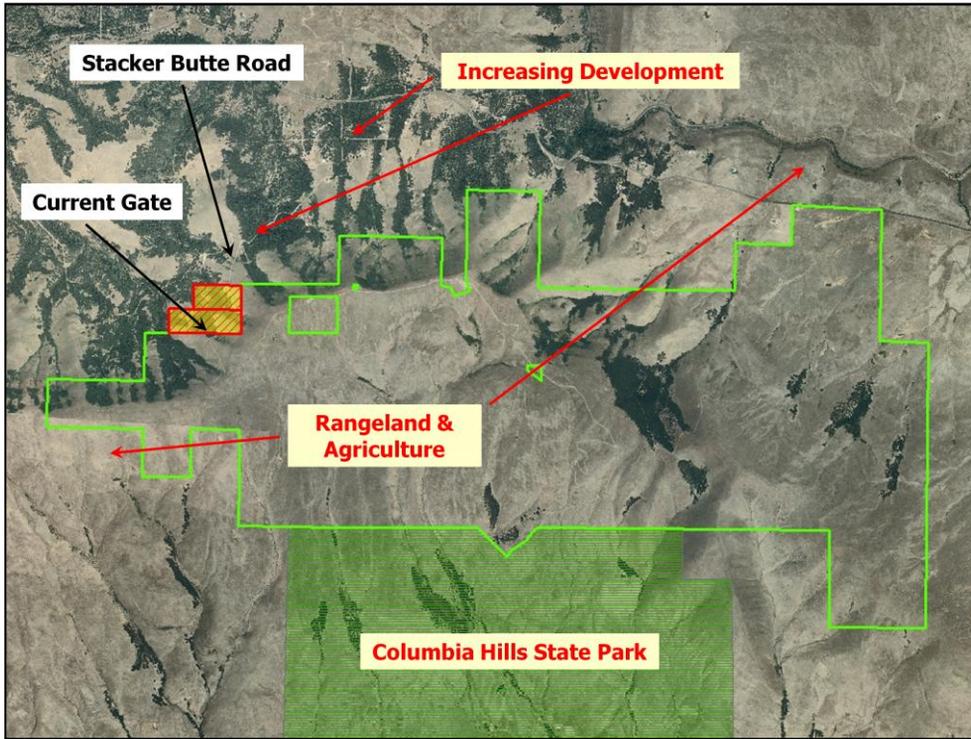
Importance of Acquisition for Long-term Viability

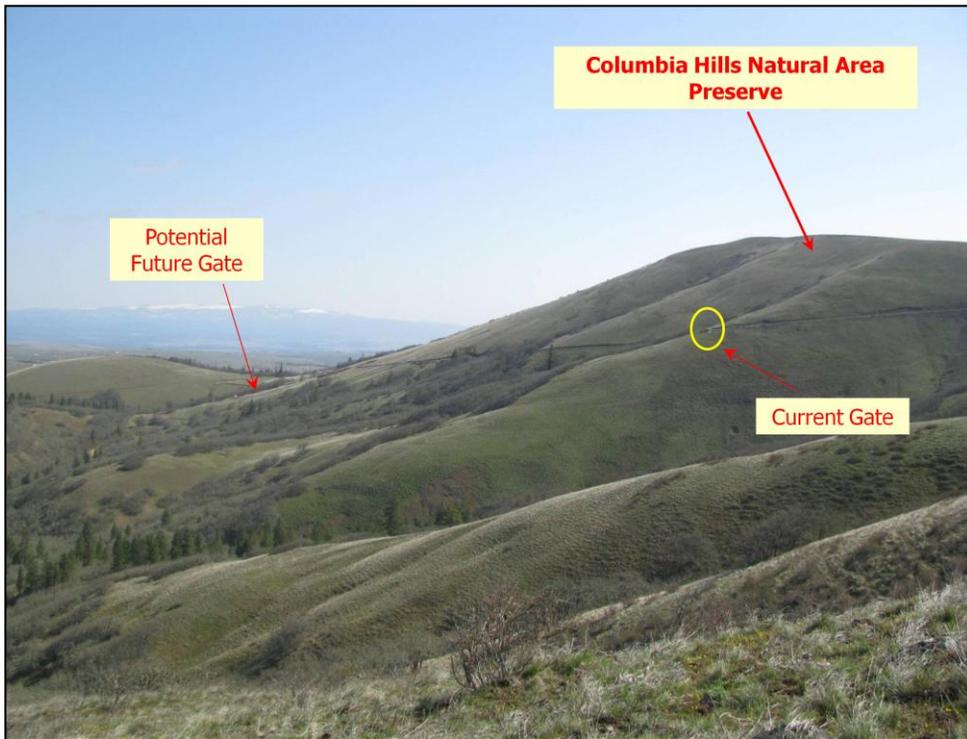
- Improve site manageability, largely through control of important access point
- Extend protection to conservation targets



The proposed expansion will help buffer the existing features through preventing impacts to habitat via inappropriate access via roads and trails to the north, as well as through increasing buffers from weed populations on lands to the north. Current, surrounding land use includes range and cultivated agricultural (ranching, vineyards, grazing) lands to the north, west and east. To the south is the boundary line for The Dalles Mountain Ranch State Park. Year round residents are located to the north along the lower edges of the north facing slopes of the Columbia Hills along the Lyle-Centerville Highway. The general area surrounding Columbia Hills NAP is utilized extensively for recreation. In addition, the Stacker Butte Road runs adjacent to and is gated at the northwest portion of the NAP. Threats associated with these adjacent land uses include noxious weeds/invasive plants, vehicle access, road maintenance, off-road pedestrian use, and incidental livestock grazing. All of these threats could negatively impact the conservation targets at the NAP.

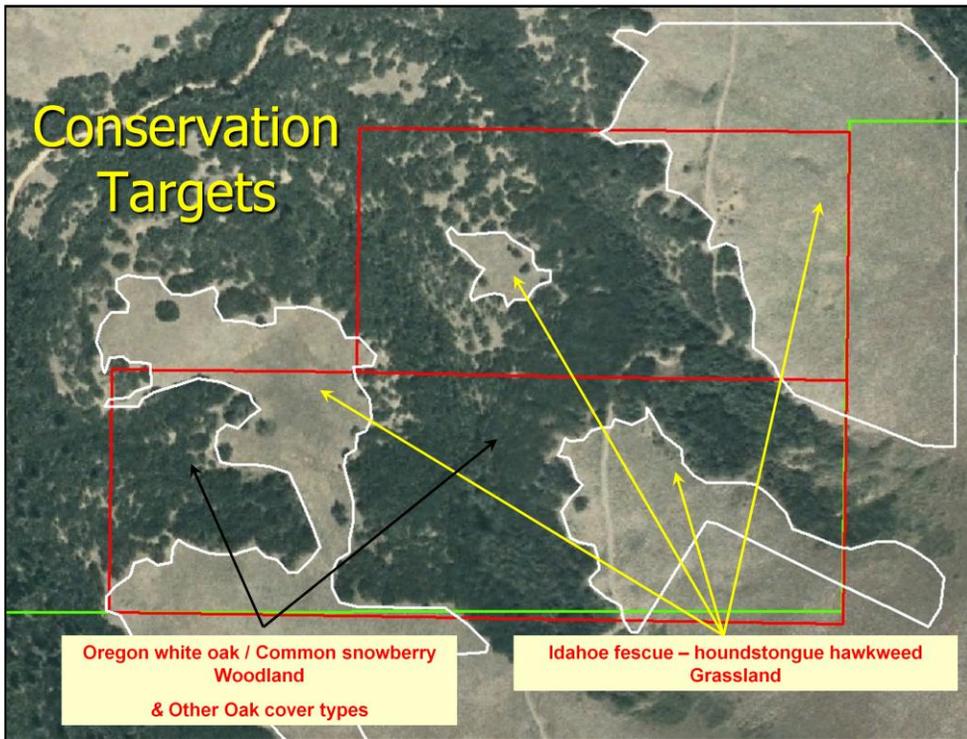
The property identified in this proposed expansion will provide additional buffer and protect additional areas of priority features found within the NAP. Acquisition of this property would allow DNR to more effectively manage inappropriate access along the Stacker Butte Road.







Idaho fescue – houndstongue hawkweed grassland extends down the slope and onto the subject property.



Ecosystems of interest extend onto the subject property.

Educational & Scientific Value

- hiking opportunity along the main road
- environmental education
 - Elder Hostels
 - Columbia Gorge Community College
 - WA Native Plant Society
- scientific research projects
 - RARE Care (UW)
 - Obscure buttercup genetics (Central WA Univ.)
 - Obscure buttercup demographics (DNR)
- Wagons & Wildflowers
 - DNR & partners host annual event
 - Focus on natural & cultural history of Columbia Hills



Questions?



Photo: David Wilderman