

# Inventory and Assessment of Prairie and Oak Ecosystems in the BLM Northwest Oregon District - 2022 Report



9/30/2022

Task Orders 140L0620F0494 and 140L0618D0031  
BLM Region 1 - Northwest Oregon District

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## PREFACE

IAE is a non-profit organization whose mission is conservation of native ecosystems through restoration, research and education. IAE provides services to public and private agencies and individuals through development and communication of information on ecosystems, species, and effective management strategies. Restoration of habitats, with a concentration on rare and invasive species, is a primary focus. IAE conducts its work through partnerships with a diverse group of agencies, organizations and the private sector. IAE aims to link its community with native habitats through education and outreach.



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## ACKNOWLEDGMENTS

We thank the US Bureau of Land Management (BLM) for providing funding for this project. The authors gratefully acknowledge the cooperation and support of all field office specialists who provided access and directions to sites and supporting documents. Additionally, we would like to thank Bernadette Hoffman for developing the survey forms used for data collection and troubleshooting throughout the field season. And lastly, we would like to thank Stephanie Dawn for her continued leadership and support of this project.

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**Cover photograph:** Upper Willamette Field Office site; UPW\_023. Photo by Zade Clark-Henry, May 16, 2022.

## SUGGESTED CITATION

Alaica, S., Z. Clark-Henry, A. Lamas, A. Pfeifer, A. Esterson. 2022. Inventory and assessment of prairie and oak ecosystems in the BLM Northwest Oregon District. Report to the U.S. Bureau of Land Management. Institute for Applied Ecology, Corvallis, Oregon.

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## EXECUTIVE SUMMARY

Willamette Valley prairie and oak habitats are some of the rarest ecosystems in the United States. The Bureau of Land Management (BLM) Northwest Oregon District manages a vast network of lands throughout the Willamette Valley, including thousands of acres of prairie and oak habitat. Conservation and restoration of these lands is crucial to the recovery of threatened and endangered prairie and oak-dependent species. However, many BLM parcels have not been visited or inventoried in years, if ever. The BLM partnered with the Institute for Applied Ecology (IAE) to develop rapid habitat assessment protocols, survey potential restoration and conservation sites on the Northwest Oregon District, identify high priority sites for restoration, and develop restoration prescriptions that reflect current site conditions to maximize use of limited resources.

In support of the BLM's vision to implement habitat restoration and recovery actions for federally listed species at strategically selected sites, the overall goals of this project were to:

1. Assess prairie and oak habitat on BLM-managed lands within the Northwest Oregon District.
2. Develop restoration and management prescriptions for high priority sites.

IAE, in collaboration with the BLM, developed a rapid habitat assessment protocol to survey sites for prairie and oak habitat. At each site, two forms of data were collected: 1) detailed spatial data of key features and 2) generalized tabular data describing the entire site.

From May 10 to July 13, 2022, IAE surveyed 40 sites in the Upper Willamette, Siuslaw, Cascades, and Marys Peak Field Offices. We merged eight sites (CAS\_150-155 and UPW\_064-065) into two site complexes (CAS\_150 and UPW\_064, respectively) due to the proximity of their meadows, resulting in 34 total site surveys. We prioritized sites from the 2022 target list, followed by sites from the 2018 target list. We surveyed approximately 592 acres. In 2022, we observed prairie/oak habitat at 30 out of the 34 sites, including 160 oaks with greater than 15 inches diameter at breast height.

A ranking system was developed to help land managers prioritize future restoration activities and make the most of limited conservation and restoration resources. As time and resources allow, the "Priority 2" category should be further divided using a more complex ranking system that accounts for the field ranking of a site, cover of native, non-native, and woody species, prevalence of large oaks trees, size of a site, proximity to other prairie and oak habitat, and the potential for creating partnerships with neighboring landowners. Broad management and restoration recommendations are described for sites with prairie and oak habitat. Generally, short-term recommendations involve removing encroaching woody species to expand prairie and oak habitat(s) and removal of listed noxious weeds or species of particular concern as identified in the *Recovery Plan*. Long-term management recommendations focus on reestablishing disturbance regimes and augmenting the plant community with native plant material.

# Inventory and Assessment of Prairie and Oak Ecosystems in the BLM Northwest Oregon District - 2022 Report

## INTRODUCTION

Willamette Valley prairie and oak habitats are some of the rarest ecosystems in the United States (Noss et al. 1995). A variety of factors led to the decline of these habitats, including fire suppression, urban and agricultural development, and invasion of non-native weeds. With less than 1% of prairie habitat and less than 10% of oak habitat remaining (when compared to pre-European settlement conditions), it is no surprise that the species dependent upon these habitats are also imperiled (Alverson 2005). There are four threatened and endangered plants, two federally listed butterflies, and one federally listed bird associated with Willamette Valley prairie and oak habitats, as well a myriad of additional rare plants, songbirds, invertebrates, and other species that call prairie and oak habitats home.

The Bureau of Land Management (BLM) Northwest Oregon District (NWOD) manages a network of lands throughout the Willamette Valley, including thousands of acres of prairie and oak habitat. Conservation and restoration of these lands is crucial to the recovery of threatened and endangered prairie and oak-dependent species. However, many of these parcels have not been visited or inventoried in years, if ever. To maximize the positive impacts of limited restoration resources, the BLM partnered with the Institute for Applied Ecology (IAE) to assess where prairie and oak sites are located, identify high priority sites for restoration, and develop appropriate restoration prescriptions. This work will enable the BLM to implement targeted restoration and recovery actions that support the eventual delisting of threatened and endangered species as described in the *Recovery Plan for Prairie Species of Western Oregon and Southwestern Washington (Recovery Plan, USFWS 2010)*.

This report describes the inventory and assessment of prairie and oak habitat surveyed by IAE in 2022 throughout the BLM NWOD.

## GOALS AND OBJECTIVES

In support of the BLM's vision to implement habitat restoration and recovery actions for federally listed species at strategically selected sites, the overall goals of this project were to:

1. Assess prairie and oak habitat on BLM-managed lands within the Northwest Oregon District.
2. Develop restoration and management prescriptions for high priority sites.

The following objectives were identified to help achieve the goals listed above:

1. Compile an inventory of all potential prairie and oak habitats within BLM's Northwest Oregon District (completed in 2018);
2. Work with BLM staff to identify high priority BLM-managed sites with prairie and oak habitat or potential habitat (completed in 2019);
3. Conduct assessments of high priority sites using protocol developed in 2018 and refined in 2020;
4. Develop site reports and management prescriptions for target sites; and
5. Implement restoration and recovery actions at selected sites (future BLM objective).

The following deliverables were identified for completion by September 2022:

1. Geodatabase with spatial data collected and photos taken at each site; and
2. Site reports for all sites visited, including spatial data, maps that show BLM-provided site boundaries, and restoration prescriptions.

## METHODS

### Rapid site assessment protocol

IAE, in collaboration with the BLM, developed a prairie and oak rapid site assessment protocol for target sites to evaluate the need for habitat restoration prescriptions. At each site, two types of data were collected: 1) detailed spatial data for key features and 2) tabular data describing the overall site. A 50-meter buffer was added to sites with open habitat to search for oaks and remnant prairie habitat. Completely forested sites did not require a 50-meter buffer.

Data were collected using ArcGIS Field Maps (Field Maps) and Survey123 on Samsung Tab A tablets. Data forms were created by the BLM with assistance from IAE. Data was hosted by ArcGIS Online through GeoPlatform. Post processing edits were made in ArcGIS Online and ArcGIS Pro.

The rapid site assessment protocol is described below.

### PRE-FIELDWORK PREPARATION

#### EQUIPMENT LIST

- Tablets for data collection
  - Load field office maps, site-specific geodatabase, and aerial imagery (on Field Maps), reference lists (APPENDIX A: REFERENCE LISTS), and Survey123 tabular data form.
- Gate key
- Reference lists (APPENDIX A: REFERENCE LISTS)
  - Habitat lists:
    - Overall habitat type
    - Bureau Special Habitat types



- Non-native species lists:
  - Non-native species of concern from *Recovery Plan* (USFWS 2010)
  - Non-native woody species of particular concern from *Recovery Plan* (USFWS 2010)
  - Non-native species of concern (Alverson 2010)
  - Cooperative Weed Management Area New Invaders list
- Native species lists:
  - High/moderate fidelity oak/prairie species (Alverson 2010)
  - Nectar species for Fender's blue butterfly
  - Threatened and endangered species
- Wildlife list
- Van Pelt Scoring Card
- Field notebooks/pencils
- Relevé plot datasheets (APPENDIX B: RELEVÉ PLOT DATASHEET) – printed on Rite in the Rain paper
- Clipboard
- One 50-meter tape (for relevé plots)
- Four chaining pins
- Information and access key for backup site if original site is inaccessible
- Car charger for tablets
- Tree diameter tape
- Clinometer
- Compass
- Garmin inReach Mini device (with Earthmate app)
- First aid kits

#### SITE SPECIFIC TASKS

- Once a survey site is chosen, contact the appropriate field office staff and inform them of the planned survey and inquire about site access.
- Get access key if necessary
  - IAE checked out master keys from all field offices, but there may be sites where access is through a private gate. Coordinate access to these sites by contacting the appropriate field office staff.
- Download the target site survey geodatabase and aerial imagery onto each tablet (Wi-Fi required for this step)
- Use field office map layer (available on Field Maps) and information provided in the target site's GIS shapefile to navigate to the site.

#### FIELD PROTOCOL

##### 1. ARRIVE AT SITE

- Note any changes in site access, directions, parking, etc. if different from that provided by BLM field office staff or if access is not readily apparent from the field office maps. Record notes in the Survey123 tabular data form (see steps 4 through 9 below).

##### 2. INITIAL SITE ASSESSMENT AND SPATIAL DATA COLLECTION

- Briefly assess site, are prairie habitat or oaks present? The flowchart in Figure 1 describes what data to collect based on site conditions.
- If site does NOT have prairie habitat or oaks present, minimal data should be collected as described below:
  - Field Maps spatial data: draw a Habitat polygon and a Forested Buffer Areas polygon within the unit boundary to describe forest characteristics.
  - Survey123 tabular data: record date of visit, personnel, Township, Range, and Section (TRS), description of habitat (including slope, aspect, and elevation), reason why more data was not collected, photo points, and any additional notes about the site that will help paint a picture of the site for land managers. It is not necessary to collect data on the buffer, canopy cover estimates, dominant species, cover estimates for woody and herbaceous vegetation, or restoration recommendations.
- If site has the potential to have prairie and/or oak habitat, walk the site methodically from one end to the other to map spatial data. Divide tasks among the crew to make sure each feature is only mapped once. Use Field Maps to draw polygons delineating features of interest listed below, see APPENDIX C: SPATIAL DATA MAPPING PROTOCOL or a detailed spatial data protocol:
  - Non-native species (high priority weeds)
  - Seed collection species for future restoration work
  - T&E (Threatened or Endangered)/Sensitive species
  - Oaks
  - Pines
  - Large trees (greater than 40 inches diameter at breast height (DBH))
  - Forested sites or forested buffer (if surveying an open area)
    1. When adjacent sites have overlapping buffers, forest buffer polygons should be drawn so that they do not overlap. If forest buffer compositions are similar for both units, split the buffer difference between the two sites. If forest compositions for each unit are different, include the overlapping forest buffer area in the buffer polygon for the unit that shares those characteristics.
  - Woody plant encroachment into open meadow, prairie, oak savanna, or oak woodland
  - Human disturbances affecting ecological function
  - Site boundary alteration
  - Wildlife of interest
  - Habitat
- If site is forested, map the forested area within the site boundary using the “Forested Buffer Areas” feature in Field Maps. Search for remnant prairie and oak habitat within the site boundary.
  - Map oaks in the forested area.
  - Note prairie indicator species (Appendix A) using the Survey123 form.
  - Map non-native and invasive species of concern (see reference materials).
- Take photos of all key features as they are mapped, especially T&E species.

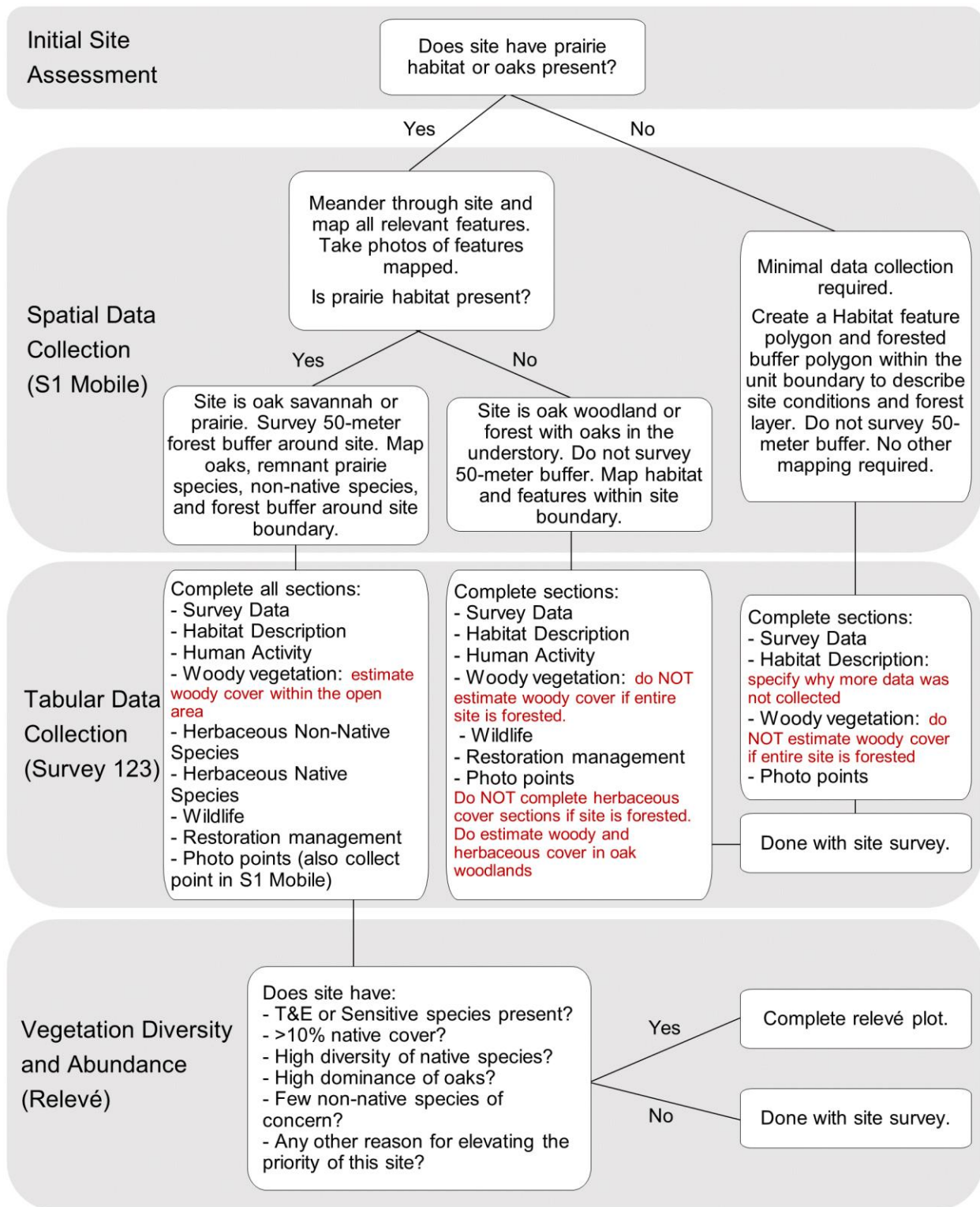


Figure 1. Flowchart of survey tasks for inventory and assessment of prairie and oak ecosystems.

3. DESCRIBE OVERALL HABITAT (TABULAR DATA)

Use Survey123 tabular form to record information about the overall habitat.

- Record basic survey data: date, surveyors, unit ID, common name of site, TRS, and directions.
- Describe the overall habitat, record: slope, aspect, elevation (use the field office map to approximate elevation), habitat type (prairie, woodland, savanna, conifer forest, etc.)
- If surveying an open prairie, assess what is keeping the site open. If surveying a forest, leave blank.
  - Describe the factors contributing to keeping the site open, for example soil depth, hydrology, evidence of fire, reproductive condition of bordering trees, etc.
  - Make note of rocky outcroppings, wet areas, signs of past management, recent fire, evidence of grazing, high elevation, and anything else that could keep trees and other woody plants from establishing.
- Assess human activity. Is there evidence of human disturbance? If so, describe the type of activity and the level of impact (light, moderate, heavy).

#### 4. ASSESS WOODY VEGETATION

- Describe woody vegetation at the site using Survey123. Is the site forested? Does the site have an open prairie surrounded by forest?
  - If the site is mostly open and surrounded by forest, survey a 50-meter buffer around the open habitat for remnant oaks and prairie oak understory species.
  - List the dominant and co-dominant woody species at the site. If site is open, then specifically describe those woody species establishing in the forested buffer. If the site is forested, then note the species that make up the forest within the site boundary.
  - Is the forest second growth or old growth?
  - List remnant prairie and oak species observed in forested areas.
  - How many species greater than 40 inches DBH were mapped at the site?
    1. Record the species and average Van Pelt score (APPENDIX A: REFERENCE LISTS).
- If a site has open prairie or oak woodland habitat, estimate overall woody cover within the open area (using the forest drip edge as the open area boundary). **Only estimate woody cover for an open site. If site is forested these data will not be collected.**
  - Imagine a polygon around the open area where the conifer drip line is most distinct from the prairie and oak habitat. Woody cover includes native and non-native shrubs and trees within open oak prairie or oak woodland habitat. It does not include woody cover within the forest buffer zone. Use an aerial image to estimate woody cover from a bird's eye view and compare that with what you are seeing in the field.
- Divide the overall woody cover estimate into categories:
  - Determine what proportion of live woody cover is trees versus shrubs. For example, if the overall woody cover for the site is 50%, consider how much of that is due to tree cover as opposed to shrub cover. If that amount is largely dominated by trees, estimate the proportion of cover for each category (i.e.

80/20, 60/40, etc.). If 80% is due to trees, then the live tree cover for the site is 40% (50% x 0.8), and shrubs are 10% (50% x 0.2).

- What proportion of the overall woody cover is from live trees?
  1. What proportion of the live tree cover is from native trees?
  2. What proportion of the live native tree cover is from oaks?
  3. What proportion of the live tree cover is from non-native trees?
- What proportion of the overall woody cover is from live native shrubs?
- What proportion of the overall woody cover is from live non-native shrubs?
- Standing dead woody cover: estimate the cover of standing dead trees.
  - Standing dead trees are NOT included in the overall woody cover estimate because they are not competing for resources such as water or soil nutrients; however, they may serve as a barrier to entry in terms of occupied space, or may provide habitat for wildlife.
- List woody species of management concern that exceed 5% cover (APPENDIX A: REFERENCE LISTS).
- List dominant woody species encroaching on the open prairie or oak woodland habitat.
- Would encroaching woody species need to be removed from the site: yes or no (i.e., if conifers need to be removed from the meadow to release oaks, answer yes).

#### 5. ASSESS HERBACEOUS COVER IN OPEN HABITAT

- Describe herbaceous vegetation at the site using Survey123. Estimate native versus non-native herbaceous cover (does not include shrubs, moss, or trees) within the open area. The combined total of native and non-native herbaceous cover should equal 100%. **Only estimate herbaceous cover for an open site. If site is forested, these data will not be collected.**
- What are the most prevalent species at the site?
  - Non-native species
    1. List the most common non-native species observed including any non-native species of concern (APPENDIX A: REFERENCE LISTS).
    2. Add notes about the non-native species layer that is not captured from above.
  - Native species
    1. List the most common native species at the site.
    2. Record native species with seed collection potential (large population or abundant flowers/reproduction).
    3. Threatened and endangered species:
      - a. Record species.
      - b. Estimate population size (either a count or area estimate depending on the size and species).
      - c. Population health (unhealthy, healthy, or very healthy)
      - d. Estimate proportion of population life stages (combined total should equal 100%; for example, if you have a population that is flowering and has also gone to seed, estimate the proportion of the population that is flowering (i.e., 50%) versus gone to seed (i.e. 50%)

- i. Seedling
      - ii. Vegetative
      - iii. Flowering
      - iv. Fruiting
      - v. Budding
    - e. Take photos of the T&E population.
  4. Add any notes about the native species layer that is not captured from above or with the relevé plot.
6. ASSESS WILDLIFE
  - List wildlife of interest found within the site boundary and forest buffer (if applicable) using Survey123. Refer to APPENDIX A: REFERENCE LISTS for wildlife of interest.
7. ASSESS RESTORATION POTENTIAL AND MAKE MANAGEMENT RECOMMENDATIONS
  - Assess overall site ranking (high, moderate, or low) for restoration potential using Survey123 according to the following criteria:
    - High: Presence of prairie and oak habitat with high abundance and diversity of native plants. Relevé plot completed. Presence of T&E or sensitive species. Low abundance of non-native plants relative to other sites. Low abundance of noxious weeds or non-native species of management concern such that eradication is possible. Site is relatively large or in close proximity to other prairie and oak habitat and easy to access. Potential for partnership with neighboring landowners.
    - Moderate: Presence of prairie or oak habitat with a moderate abundance and diversity of native plants. Criteria for completing a relevé plot may or may not be met. No T&E or sensitive species present. Moderate to high abundance of noxious weeds and non-native species. Site may or may not be smaller, in proximity to other prairie and oak habitat, be accessible, or have the potential to have partnerships created if chosen for work.
    - Low: Site is severely degraded or does not have prairie and oak habitat. Little abundance or diversity of native plant species. High abundance of noxious weeds and other non-native species. Site is isolated, small, difficult to access, and/or has little potential for partnerships with neighboring landowners.
    - A rubric containing the above criteria was developed in 2022 to provide consistent rationale for ranking restoration potential (**Figure 2**). The criteria are derived from the Modified Prairie Habitat Quality Summary (USFWS 2010) and considerations of general site conditions and features.

Restoration Potential Ranking Rubric

Score:	Restoration Potential Rank
<2	Low
2-3	Moderate
4+	High

Site contains oaks	+1
Site contains significant oak population and/or old growth oaks (>15" dbh)	+1
Meadow contains >10% native herbaceous cover	+1
Meadow contains 3+ native meadow bunchgrasses	+1
Native meadow community is diverse (>10 forb species)	+1
Site is easily accessible	+1
Habitat area is large (>2 acres continuous habitat)	+1
Site contains TES species	+10
Site has >15% non-oak woody cover	-1
Herbaceous community has >50% single non-native species	-1
Site has woody species of management concern at >5% cover (rate per species)	-1
Habitat area is small (<1 acre continuous habitat)	-1
Habitat is heavily impacted by human activity	-1

Figure 2. Rubric for assigning restoration potential ranking to sites surveyed.

- Make preliminary recommendations for restoration work:
  - Short-term work tends to be structural in nature (woody species removal), removing conifers, and spot treatment of key weed species.
  - Long-term generally involves a multi-year approach to changing the herbaceous plant community through re-establishment of disturbance regimes, several years of weed treatments, and re-vegetation of disturbed areas.
- Access and terrain limitations for restoration treatments. Think about carrying equipment, driving mowers, planting plugs, etc.

## 8. TAKE PHOTOS

- Establish a photopoint within the site that is representative of the prairie and or oak habitat. Record the photo location using the “Photo point” layer in Field Maps.
  - Take landscape photos looking North, East, South, and West from that point.
- Take at least one photo of the overall site that includes defining features such as a big oak in the middle of the meadow or a large rock outcrop.
- Take photos of rare and sensitive plants (take detailed pictures of key identifying features).
- Take photos of key features mapped.
- Take photos of the relevé plot if applicable (see step 9).

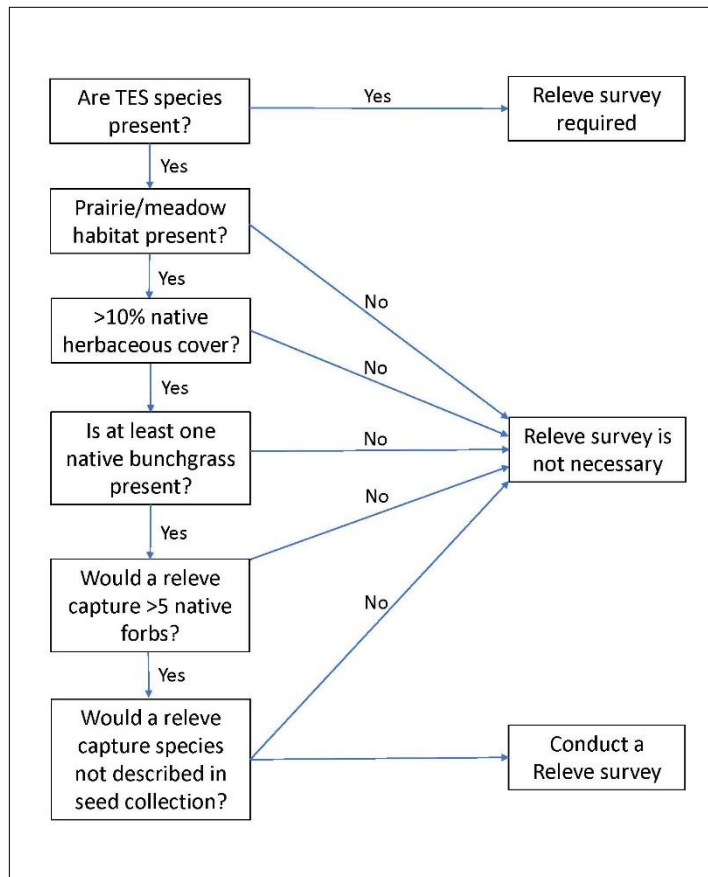
## 9. ASSESS VEGETATION DIVERSITY AND ABUNDANCE (RELEVÉ PLOTS)

Relevé plots are a monitoring technique used to assess vegetation diversity and abundance (MDNR 2013). Relevé plots are used in this survey to provide an in-depth picture of the plant community at a site.

- Once mapping and the overall site assessment are complete, reconvene to decide whether to set up a relevé plot (Figure 3). A relevé plot is required if one or more of the following criteria are met:
  - T&E or Bureau Sensitive species are present;
  - At least 10% of herbaceous vegetation is native;
  - There is a high diversity of native species;
  - There is a high dominance of oaks;
  - There are few non-native species of concern; or
  - There is another reason for elevating the priority of this site.
- If a cluster of sites have comparable vegetative communities, it is not necessary to conduct a relevé plot at every site unless one is very different or has T&E species. Instead, record the site number where you established a relevé plot in the Survey123 tabular form under “General Notes”.
- It is not necessary to conduct a relevé plot if the existing species are well-represented in the Seed Collection and Non-Native spatial layers in Field Maps.
- Decide where to place the relevé plot and the number of plots necessary. Place the relevé plot in an area that has the greatest diversity and is most representative of prairie and oak habitat, do not include areas dominated by conifer forests. In general, only survey one relevé plot per site unless a site has areas with different herbaceous vegetative communities, where an additional plot would capture significantly more species. The benchmark for diversity in the *Recovery Plan* is 10 native species, with at least one native bunchgrass (USFWS 2010). Things to look for when deciding whether to survey more than one relevé plot:
  - Wet vs. upland areas
  - Different slopes or aspects
  - Open vs. closed canopy (i.e. meadow vs. oak woodland, if understory species are different)
- Establish a 5-meter x 5-meter relevé plot in an area that fits the criteria listed above.
- Record the NW plot corner in Field Maps using the “NW Relevé Corner” feature.



- Take photos of the relevé plot.
- Record data using the datasheet in APPENDIX B: RELEVÉ PLOT DATASHEET
  - Record all species found within the relevé plot and their Braun-Blanquet score.
  - List woody species of management concern and non-native species of concern that have greater than five percent cover.
  - List non-native species with greater than 50 percent cover.
  - List any voucher specimens collected for identification.



**Figure 3.** Flowchart for determining the need for a relevé plot.

### Site priority ranking

As identified by Celis et al. (2019) and requested by field office staff during review of pilot season reports, a critical next step for achieving the goals and objectives of this project is to prioritize sites visited and develop a list of high priority sites for restoration activities. Table 1 outlines initial site prioritization criteria. This criteria groups sites into three general categories: Priority 1, Priority 2, and not a priority.

**Table 1.** Criteria used to group project sites into priority levels.

Priority level	Criteria
1	<ul style="list-style-type: none"> <li>● A relevé plot was established: this means that the site was elevated for a more thorough site assessment due to the high quality of habitat:                             <ul style="list-style-type: none"> <li>○ T&amp;E or Bureau Sensitive species are present at the site;</li> <li>○ At least 10% of the vegetation is native;</li> <li>○ There is a high diversity of native species at the site;</li> <li>○ There is a high dominance of oaks;</li> <li>○ There are few non-native species of concern; or</li> <li>○ There is another reason for elevating the priority of this site.</li> </ul> </li> </ul>
2	<ul style="list-style-type: none"> <li>● Contains prairie or oak habitat characteristics</li> </ul>
Not a priority	<ul style="list-style-type: none"> <li>● Site does not contain prairie or oak habitat</li> </ul>

## RESULTS

From May 10 to July 13, 2022, IAE visited and assessed 40 target sites: 7 sites from the 2018 target list and 33 sites from the 2022 target list (see APPENDIX D: SITE REPORT KEY through APPENDIX H: UPPER WILLAMETTE FIELD OFFICE SITE REPORTS for a site report key and site reports by field office). Of these 40 sites, 6 (CAS\_151-155 and UPW\_065) were merged with other sites (CAS\_150 and UPW\_064, respectively) due to their proximity, resulting in a total of 34 sites or site complexes. Approximately 592 acres were surveyed: 212 acres were within site boundaries and the remaining 380 acres were in the 50-meter forested buffer areas. A quantitative summary of 2022 tabular field data is provided in Table 2 below. These data are not meant to be compared between field offices given the varying number of sites visited, varying site conditions, habitat types, etc. Instead, we make comparisons between this summary table and the one provided in Celis et al. (2019) and highlight general observations for key findings.

Most surveys took place within the Upper Willamette Valley Field Office (20 out of the 34 in 2022). In 2022, 90% of sites visited were considered prairie and/or oak habitat. Specific data for each site are included in Table 3.

**Table 2.** Summary of 2022 survey results by field office. Average woody cover does not include forested sections of sites or the buffer area for open sites. The number of sites with oaks present was derived from tabular and spatial data. 40 sites were visited, 6 sites were merged.

Field Office	Total sites visited	Average herbaceous native cover (%)(# of sites averaged)	Average herbaceous non-native cover (%)(# of sites averaged)	Average woody cover (%)(# of sites averaged)	Number of sites with oaks present	Number of sites with oaks >15 in DBH	Number of sites with prairie and oak habitat	Average native species richness (# of relevé plots averaged)	Total acres surveyed
Cascades	7	63	37	27	2	0	6	18 (3)	54.76
Marys Peak	2	55	45	5	0	0	1	0	11.16
Siuslaw	6	31	69	41	5	3	4	0	142.54
Upper Willamette	19	21	79	27	16	10	19	14 (6)	384.17

**Table 3.** Summary of 2022 survey results by site. The number of oaks with greater than 15 inches diameter at breast height (DBH) and total acres surveyed were derived from spatial data, all other fields were populated from tabular data. Estimated cover of native, non-native, and woody species were only collected if a site had prairie/oak habitat. “NA” used where data were not collected or not available.

Site Name	Survey Year	Herbaceous native cover (%)	Herbaceous non-native cover (%)	Woody species cover (%)	Oaks present? (# >15 in DBH)	Prairie and/or oak habitat present?	Native species richness (from relevé)	Total acres surveyed	Restoration potential	Priority ranking for restoration
<b>Cascades Field Office</b>										
CAS_029	2022	85	15	70	Yes (0)	Yes	12	16.82	Moderate	1
CAS_042	2022	8	92	10	No	Yes	No data	4.17	Low	2
CAS_146	2022	85	15	10	No	Yes	23	6.54	Moderate	1
CAS_147	2022	75	25	15.1	No	Yes	0	4.03	Low	2
CAS_148	2022	75	25	5	No	Yes	No data	3.26	Low	2
CAS_149	2022	90	10	70	No	No	No data	3.7	Low	Not a priority

Site Name	Survey Year	Herbaceous native cover (%)	Herbaceous non-native cover (%)	Woody species cover (%)	Oaks present? (# >15 in DBH)	Prairie and/or oak habitat present?	Native species richness (from relevé)	Total acres surveyed	Restoration potential	Priority ranking for restoration
CAS_150	2022	25	75	7	Yes (0)	Yes	18	16.24	High	1
<b>Marys Peak Field Office</b>										
MP_013	2022	55	45	5	No	Yes	No data	9.65	Moderate	2
MP_057	2022	NA	NA	NA	No	No	No data	1.51	NA	Not a priority
<b>Siuslaw Field Office</b>										
SIU_013	2022	No data	No data	No data	No	No	No data	52.41	NA	Not a priority
SIU_014	2022	8	92	8	Yes (1)	Yes	No data	19.4	Moderate	2
SIU_021	2022	80	20	90	Yes (0)	Yes	No data	19.03	Moderate	2
SIU_022	2022	5	95	25	Yes (54)	Yes	No data	5.66	Moderate	2
SIU_023	2022	No data	No data	No data	Yes (8)	Yes	No data	5.74	NA	Not a priority
SIU_038	2022	No data	No data	No data	Yes (0)	No	No data	40.3	NA	Not a priority
<b>Upper Willamette Field Office</b>										
UPW_019	2022	20	80	4	Yes (10)	Yes	No data	40.65	High	2
UPW_022	2022	5	95	70	Yes (0)	Yes	No data	9.86	Low	2
UPW_023	2022	90	10	6	Yes (0)	Yes	10	9.94	High	1
UPW_032	2022	35	65	95	Yes (21)	Yes	No data	17.31	Low	2
UPW_045	2022	10	90	20	Yes (10)	Yes	10	10.38	High	1
UPW_046	2022	6	94	6	Yes (3)	Yes	14	11.04	High	1
UPW_047	2022	15	85	20	Yes (5)	Yes	10	12.47	High	1
UPW_052	2022	25	75	10	Yes (2)	Yes	No data	11.19	Moderate	2
UPW_053	2022	20	80	25	Yes (2)	Yes	20	20.89	High	1
UPW_054	2022	2	98	95	Yes (0)	Yes	No data	4.8	Low	2
UPW_061	2022	18	82	60	Yes (22)	Yes	No data	12.92	Moderate	2
UPW_064	2022	7	93	40	Yes (0)	Yes	No data	21.25	Moderate	2

UPW_067	2022	10	90	9	Yes (17)	Yes	13	56.56	High	1
UPW_068	2022	20	80	5	Yes (0)	Yes	19	26.91	Moderate	1
UPW_069	2022	15	85	20	No	Yes	No data	14.6	Moderate	2
UPW_070	2022	42	58	1	No	Yes	No data	6.69	Moderate	2
UPW_071	2022	3	97	10	No	Yes	No data	18.25	Low	2
UPW_088	2022	7	93	5	Yes (5)	Yes	No data	39.48	High	2
UPW_089	2022	50	50	15	Yes (0)	Yes	No data	38.98	High	2

## DISCUSSION

Broad management and restoration recommendations are described for sites with prairie and oak habitat (see individual site reports; APPENDIX E: CASCADES FIELD OFFICE SITE REPORTS through APPENDIX H: UPPER WILLAMETTE FIELD OFFICE SITE REPORTS) Generally, short-term recommendations involve the removal of encroaching woody species to expand or connect prairie and oak habitat(s) and release oaks suppressed by conifer establishment. Additionally, listed noxious weeds or species of concern identified in the *Recovery Plan* should be considered high priority targets for invasive species removal. Long-term management recommendations focus on reestablishing disturbance regimes and augmenting the plant community with native plant material.

A coarse prioritization ranking was developed to help land managers plan for future restoration work and make the most of limited conservation and restoration resources. As time and resources allow, the broad "Priority 2" category should be further divided using a more complex ranking system that accounts for the restoration potential assessed during field surveys, cover of native, non-native, and woody species, prevalence of large oaks trees, size of a site, proximity to other prairie and oak habitat, and the potential for creating partnerships with neighboring landowners.

We recommend focusing restoration on the seven sites that are listed as Priority 1 with high restoration potential:

1. **UPW\_023:** Of all the Priority 1 sites, this had the highest cover of native herbaceous species (90%). There is high native species richness (10) within the oak prairie habitat, and two wildlife species of interest were observed (acorn woodpecker, purple finch). Restoration would involve Scotch broom removal and management of false brome.
2. **UPW\_045:** The numerous old-growth oaks (10), paired with high native forb (7) and bunchgrass (2) richness make this a high-priority site for conservation. Future restoration efforts could build off of the previous plantings done at the site, while also managing woody species encroachment.
3. **UPW\_046:** Pairing restoration work here with work done at UPW\_045 would enhance both habitats, as this site has high native forb (9) and bunchgrass (3) richness. Removing encroaching shrubs and conifers that separate the sites would result in a large, diverse oak prairie habitat.
4. **UPW\_047:** The third oak prairie habitat in a complex of high-quality habitat, this site has several old growth oaks (5) and high native species richness (10). Woody shrub and conifer removal done at UPW\_045 and UPW\_046 could be expanded into this site as well.
5. **UPW\_053:** This site has high native species richness (20), with old-growth oak in the woodland (2). Restoration would involve removing poison oak and treating non-native grasses.
6. **CAS\_150:** This site has two large oak prairies, high in both native forb (12) and bunchgrass (4) richness. Only one woody species of management concern is found on the site (poison oak).

[Inventory and Assessment of Prairie and Oak Ecosystems in the BLM Northwest Oregon District - 2022 Report](#)  
Restoration would involve conifer removal and management of non-native grasses.

7. **UPW\_067:** The BLM sensitive species shaggy horkelia is present on this site, as are many old-growth oaks (17). There is high forb (10) and bunchgrass (3) richness, and two wildlife species of interest were observed (purple martin, wrentit). Continuing the ongoing restoration work of this site is recommended.

## RECOMMENDED NEXT STEPS

Should the BLM elect to continue work for this project, we propose that next steps include the following components:

- Conduct field surveys of remaining sites from the 2018 target list;
- Further develop and apply restoration prioritization strategy based on data collected;
- Prepare habitat restoration plans for priority 1 sites;
- Implement habitat restoration plans; and
- Monitor and adaptively manage ecological outcomes.

## LITERATURE CITED

- Alverson, Ed. 2005. Preserving prairies and savannas in a sea of forest: A conservation challenge in the Pacific Northwest. *Plant Talk* 40: 23-27.
- Alverson, Ed. 2010. Inventory and Assessment of Prairie/Oak/Pine Areas of Critical Environmental Concern Eugene District, Bureau of Land Management. Final Report. The Nature Conservancy.
- Celis, J., R. Currin, and M. Bahm. 2019. Inventory and assessment of fire-dependent ecosystems in the BLM's Northwest Oregon District. Report to the U.S. Bureau of Land Management. Institute for Applied Ecology, Corvallis, Oregon. 381 pages including detached appendices.
- Hemstrom, M. A., S. E. Logan, W. Pavlat. 1987. Plant association and management guide, Willamette National Forest. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Region; R6-Ecol 257-B-86. 312 p.
- Minnesota Department of Natural Resources (MDNR). 2013. A handbook for collecting vegetation plot data in Minnesota: The relevé method. 2nd ed. Minnesota Biological Survey, Minnesota Natural Heritage and Nongame Research Program, and Ecological Land Classification Program. Biological Report 92. St. Paul: Minnesota Department of Natural Resources.
- Mueller-Dombois, Dieter and Heinz Ellenburg. 2002. Aims and methods of vegetation ecology. Blackburn Press, Caldwell, NJ.
- Noss, R. F., E. T. LaRoe III, and J. M. Scott. 1995. Endangered ecosystems of the United States: A preliminary assessment of loss and degradation. National Biological Service, Biological Report 28.
- Oregon Department of Agriculture: Noxious weed policy and classification system 2018.  
<https://www.oregon.gov/ODA/shared/Documents/Publications/Weeds/NoxiousWeedPolicyClassification.pdf>
- Oregon Statewide Imagery Program (OSIP). 2018. 2018 OSIP Imagery.  
<https://www.oregon.gov/geo/Pages/imagery.aspx>. Accessed August 1, 2021.
- U.S. Fish and Wildlife Service (USFWS). 2010. Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington. U.S. Fish and Wildlife Service, Portland, Oregon. Xi + 241 pp.
- Van Pelt, R. 2007. Identifying Mature and Old Forests in Western Washington. Washington State, Department of Natural Resources.



## APPENDIX A: REFERENCE LISTS

### Habitat types

List Type	Habitat type	Definition of habitat type
Generic habitat types	Prairie	An open area dominated by herbaceous graminoids and forbs.
	Rock meadow	An open area with bedrock close to the surface or protruding from vegetation.
	Oak savanna	Oak dominated plant community with well-spaced trees and expanses of prairie in between oaks.
	Oak woodland	Oak dominated plant community with oaks growing at higher densities than an oak savanna.
	Douglas-fir forest	A conifer forest dominated by Douglas-fir trees.
	Mixed conifer forest	A conifer forest of mixed species of conifers.
	Mixed hardwood/conifer forest	A forest of equally abundant hardwood and conifer species.
	Hardwood forest	A hardwood dominated forest.
	Wetland	An area where water covers the soil or is present at or near the surface of the soil for varying periods of time during the year, including the growing season.
	Cliff	Vertical or nearly vertical rock exposure
Bureau Designated Special Habitat (Hemstrom <i>et al.</i> 1987)	Shrubland	An area where the plant community is dominated by shrubs.
	Pond	A small body of water.
	Cave CV	True cavern or cave-like overhangs with historic, current or potential wildlife habitat and accompanying environmental characteristics. Abandoned mine-shafts may qualify if they provide habitat for cave-dwelling species.
	Cliff CL	No BLM designated definition, see generic definition for cliff above.
	Rock Outcrop RO	Rock outcrops are of two types: monoliths, which emerge from the surrounding canopy, and rock piles, which do not. Both are dry with little plant cover. Monoliths are potential habitat for many types of raptors; the rock itself and some surrounding mature forest, which can provide cover and perches, are probably necessary for wildlife habitat.

List Type	Habitat type	Definition of habitat type
Rock Garden	RG	These are broken into dry and moist: (1) Dry are often found on southerly-facing slopes with shallow soil. Plant species are adapted to dry soil conditions. (2) moist rock gardens are found on steep slopes with wet seepy conditions through mid-July. Plant species include those which require both hydric and xeric conditions, depending on the microenvironment. The canopy usually shades a large percentage of these areas.
Talus	TA	Scattered plants of this community occur on dry talus slopes. Because flowing water is deep or absent, flowering plant diversity is low. There may be a diverse assemblage of moss and lichens. The emergence of subsurface water at the base of these slopes may allow development of a forest cover and mossy growth. Adjacent forest cover and hydrology are important for wildlife habitat in this part of the site. Wildlife species, particularly amphibians and snakes, may use these areas. Susceptibility to disturbance is low in the talus, but moderate at the toe of the slope.
Shrub Field	SF	No BLM definitions available, see definition for shrubland above.
Dry Meadow	DM	PAMG identifies five dry meadow types. Most are south to southwest facing slopes where water is available only early in the season: (1) <b>Blue wildrye-brome</b> . This plant community is found on dry ridgetops, sheltered by timber. (2) <b>Common vetch – peregrine fleabane – blue wildrye</b> . This plant community is found on south-facing slopes in well-drained soil. These areas are dry by late spring. (3) <b>Thimbleberry/pokeweed fleecflower</b> . This plant community is found at high elevations in dry, exposed areas. (4) <b>Woolly eriophyllum – varileaf phacelia</b> . This plant community is found on severe, south-facing slopes with deep snow packs. These areas are dry by mid-summer. Soil development is minimal. (5) <b>Beargrass – red fescue</b> . This plant community is found in cold, dry areas, usually mountaintops. These areas are prone to erosion due to the properties of pumice and parent rock. Not in the PAMG: (1) <b>Oak-California oatgrass/Blue wildrye</b> (from oak guide)- This dry meadow plant association is most commonly found within the matrix of mixed conifer habitats on the southern end of the Willamette NF. Additional native bunchgrass species include California brome, Roemer’s fescue, camas, wild onion, buttercups. There is often a

List Type	Habitat type	Definition of habitat type
		<p>component of non-native annual grass such as the smooth brome, cheatgrass, dogtail grass among others. (2) <b>Oak-poison oak- California fescue</b> (from oak guide)- This plant association is most commonly found within the matrix of mixed conifer habitats on the southern end of the Willamette NF. It is an open forest/meadow plant association on the northern end of its range. (3) <b>Sand blowouts</b> (not yet identified in the PAMG). This plant association is found on the crest of the Cascades. The substrate is volcanic sand which limits the number of species able to tolerate these sites. Water permeability is high and blowing sand causes continual disturbance. (4) <b>Coneflower – Arrow-leaved groundsel/grass</b> (not yet identified in PAMG) This plant community receives water early in the growing season. Soil is well-drained.</p>
	Mesic Meadow MM	<p>There are two mesic meadow types identified in PAMG and one not identified. These types are wet into mid-summer: <b>Blueberry-alpine spirea/grass</b>, found above 4000' elevation between forests and more moist plant associations surrounding water bodies; <b>False hellebore-common cowparsnip</b>, typically has a water table deeper than 8 inches from the surface; <b>Coneflower-bracken fern</b>, herbaceous layer is composed almost entirely of the 2 co-dominant species and diversity is low.</p>
	Wet Meadow WM	<p>No BLM definition, see definitions above.</p>
	Bog BG	<p>A bog is a permanently wet area dominated by Sphagnum and other acid-tolerant plants including: tofieldia, sedge, bog blueberry, spirea, bog orchid, sundews, and kalmia</p>
	Pond PD	<p>A body of standing water and its associated edge of water-tolerant vegetation; may be seasonal or permanent</p>
	Swamp SW	<p>A permanently wet area, often shaded by the canopy. There are three habitats within this community: Skunk cabbage, swamp, and seep/spring</p>
	Hardwood Patch HP	<p>No BLM definition available see definition for hardwood forest above.</p>

## Non-native species

Generated from the *Recovery plan for the Prairie Species of Northwest Oregon and Southwestern Washington's* list of non-native species of concern and non-native woody species of concern, Ed Alverson's non-native species of concern, and the Upper Willamette Cooperative Weed Management Area's list of new invaders.

Source	Scientific name	Common name
Alverson (2010) ACEC Report	<i>Arrhenatherum elatius</i>	tall oat-grass
	<i>Brachypodium sylvaticum</i>	false brome
	<i>Carduus pycnocephalus</i>	Italian plumeless thistle
	<i>Centaurea xpratensis</i>	meadow knapweed
	<i>Cirsium arvense</i>	Canada thistle
	<i>Cirsium vulgare</i>	bull thistle
	<i>Crataegus monogyna</i>	oneseed hawthorn
	<i>Cytisus scoparius</i>	Scotch broom
	<i>Genista monspessulana</i>	French broom
	<i>Geranium lucidum</i>	shining geranium
	<i>Geranium robertianum</i>	Robert's geranium
	<i>Holcus mollis</i>	velvet grass
	<i>Hypericum perforatum</i>	St. John's wort
	<i>Ilex aquifolium</i>	holly
	<i>Leucanthemum vulgare</i>	oxeye daisy
	<i>Lotus corniculatus</i>	common bird's foot trefoil
	<i>Phalaris arundinacea var. arundinacea</i>	timothy
	<i>Polygonum xbohemicum</i>	bohemian knotweed
	<i>Rosa eglanteria</i>	sweetbriar rose
	<i>Rosa multiflora</i>	multiflora rose
	<i>Rubus bifrons</i>	Himalayan blackberry
	<i>Rubus laciniatus</i>	cutleaf blackberry
	<i>Rubus vestitus</i>	European blackberry
<i>Senecio jacobaea</i>	tansy ragwort	
<i>Taeniatherum caput-medusae</i>	medusahead grass	
Recovery Plan: Woody Species of Management Concern (USFWS 2010)	<i>Crataegus monogyna</i>	oneseed hawthorn
	<i>Crataegus suksdorfii</i>	Suksdorf's hawthorn
	<i>Cytisus spp.</i>	Non-native brooms
	<i>Pyrus communis</i>	feral common pear
	<i>Rosa eglanteria</i>	sweetbriar rose
	<i>Rosa multiflora</i>	multiflora rose
	<i>Rubus armeniacus</i>	Armenian blackberry
	<i>Rubus laciniatus</i>	cutleaf blackberry
<i>Toxicodendron diversilobum</i>	poison oak	
	<i>Arrhenatherum elatius</i>	tall oatgrass

Source	Scientific name	Common name
Recovery Plan: Partial list of invasive non- native plant species	<i>Brachypodium sylvaticum</i>	false-brome
	<i>Centaurea X pratensis</i>	meadow knapweed
	<i>Cytisus scoparius</i>	Scotch broom
	<i>Phalaris arundinacea</i>	reed canary grass
	<i>Pyrus communis</i>	feral common pear
	<i>Rubus armeniacus</i>	Armenian blackberry
Upper Willamette CWMA: New Invaders in the Upper Willamette List	<i>Rubus vestitus</i>	European blackberry
	<i>Alliaria petiolata</i>	garlic mustard
	<i>Cytisus striatus</i>	Portuguese broom
	<i>Carthamus lanatus</i>	distaff thistle
	<i>Centaurea diffusa</i>	diffuse knapweed
	<i>Centaurea solstitialis</i>	yellow starthistle
	<i>Echium plantagineum</i>	Patterson's curse
	<i>Heracleum mantegazzianum</i>	giant hogweed
	<i>Hieracium aurantiacum H. floribundum</i>	hawkweed complex
	<i>Hydrilla verticillata</i>	Hydrilla
	<i>Impatiens capensis</i>	spotted jewelweed
	<i>Isatis tinctoria</i>	dyers woad
	<i>Lamium galeobdolon</i>	yellow archangel
	<i>Ludwigia peploides</i>	water primrose willow
	<i>Nymphoides peltata</i>	yellow floating heart
	<i>Phytolacca americana</i>	pokeweed
	<i>Potentilla recta</i>	sulfur cinquefoil
	<i>Spartium junceum</i>	Spanish broom
	<i>Tribulus terrestris</i>	puncturevine
	<i>Polygonum polystachyum</i>	Himalayan knotweed
<i>Tussilago farfara</i>	coltsfoot	
<i>Ulex europaeus</i>	gorse	

## High to moderate fidelity oak species

From Ed Alverson's 2010 *Inventory and Assessment of Prairie/Oak/Pine Areas of Critical Environmental Concern*, Eugene District, Bureau of Land Management Report.

Scientific name	Fidelity Score*
<i>Bromus carinatus</i>	H
<i>Calochortus tolmiei</i>	H
<i>Camassia leichtlinii</i> var. <i>suksdorfii</i>	H
<i>Cynoglossum grande</i>	H
<i>Danthonia californica</i>	H
<i>Eriophyllum lanatum</i> var. <i>leucophyllum</i>	H
<i>Festuca roemerii</i>	H
<i>Fragaria virginiana</i> var. <i>platypetala</i>	H
<i>Ligusticum apiifolium</i>	H
<i>Pentagramma triangularis</i> ssp. <i>triangularis</i>	H
<i>Perideridia montana</i>	H
<i>Ranunculus occidentalis</i> var. <i>occidentalis</i>	H
<i>Sidalcea virgata</i>	H
<i>Wyethia angustifolia</i>	H
<i>Achillea millefolium</i>	M
<i>Elymus glaucus</i>	M
<i>Eucephalus vialis</i>	M
<i>Eurybia radulina</i>	M
<i>Festuca californica</i> var. <i>californica</i>	M
<i>Fragaria vesca</i> ssp. <i>bracteata</i>	M
<i>Iris tenax</i> var. <i>tenax</i>	M
<i>Juncus occidentalis</i>	M
<i>Juncus patens</i>	M
<i>Lotus micranthus</i>	M
<i>Luzula comosa</i>	M
<i>Mimulus guttatus</i>	M
<i>Oxalis suksdorfii</i>	M
<i>Prunella vulgaris</i> var. <i>lanceolata</i>	M
<i>Rupertia physodes</i>	M
<i>Synthyris reniformis</i> var. <i>reniformis</i>	M
<i>Vicia americana</i> var. <i>americana</i>	M

\*H = High fidelity, M = Moderate fidelity

## Nectar species

Taken from the USFWS Recovery Plan (2010)

<b>Scientific name</b>	<b>Common name</b>
<i>Allium amplexans</i>	Narrowleaf onion
<i>Calochortus tolmiei</i>	Tolmie star-tulip
<i>Camassia quamash</i>	Small camas
<i>Cryptantha intermedia</i>	Clearwater cryptantha
<i>Eriophyllum lanatum</i> Common	woolly sunflower
<i>Lupinus arbustus</i> (= <i>L. laxiflorus</i> )	Longspur lupine
<i>Lupinus oregonus</i> *	Kincaid's lupine*
<i>Sidalcea malviflora</i> ssp. <i>Virgata</i>	Rose checker-mallow

\*ISSSP Threatened species

## Threatened, endangered, and sensitive species

Taken from the Recovery Plan and ISSSSP List of BLM Threatened, Endangered, and Sensitive list with documented occurrences within the Northwest Oregon District.

Latin name	Common Name	Status
<i>Lupinus oreganus</i>	Kincaid's lupine	Threatened
<i>Erigeron decumbens</i>	Willamette Daisy	Endangered
<i>Horkelia congesta</i> spp. <i>congesta</i>	shaggy horkelia	Sensitive
<i>Lomatium bradshawii</i>	Bradshaw's lomatium	NA (recently delisted)
<i>Sidalcea nelsonii</i>	Nelson's checker-mallow	Threatened
<i>Castilleja levisecta</i>	golden paintbrush	Endangered
<i>Delphinium leucophaeum</i>	pale larkspur	Sensitive
<i>Delphinium pavonaceum</i>	peacock larkspur	Sensitive
<i>Aster curtus</i>	white-topped aster	Sensitive
<i>Sisyrinchium hitchcockii</i>	Hitchcock's blue-eyed grass	Sensitive
<i>Agoseris elata</i>	tall agoseris	Sensitive
<i>Agrostis howellii</i>	Howell's bentgrass	Sensitive
<i>Calamagrostis breweri</i>	Brewer's reedgrass	Sensitive
<i>Cardamine pattersonii</i>	Saddle Mountain bittercress	Sensitive
<i>Erythronium elegans</i>	coast range fawn-lily	Sensitive
<i>Eucephalus gormanii</i>	Gorman's aster	Sensitive
<i>Iris tenax</i> var. <i>gormanii</i>	Gorman's iris	Sensitive
<i>Lewisia columbiana</i> var. <i>columbiana</i>	Columbia lewisia	Sensitive
<i>Navarretia willamettensis</i>	Willamette navarretia	Sensitive
<i>Pyrrcoma racemosa</i> <sup>26</sup> var. <i>racemosa</i>	racemose pyrrcoma	Sensitive
<i>Streptopus streptopoides</i>	Kruhsea	Sensitive
<i>Utricularia ochroleuca</i>	Northern bladderwort	Sensitive
<i>Lathyrus holochlorus</i>	thin-leaved peavine	Sensitive
<i>Kalmiopsis fragrans</i>	fragrant kalmiopsis	Sensitive



## Wildlife of interest

Species identified by BLM staff.

### **Species Horned**

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lark Vesper

sparrow

Grasshopper sparrow

Purple martin

Merlin

Olivesided flycatcher

Common nighthawk

Acorn woodpecker

Chipping sparrow

Burrowing owl

White-breasted nuthatch

Lewis's woodpecker

short-eared owl

Western bluebird

Western meadowlark

Western diamond-backed rattlesnake

Rufous hummingbird

Purple finch

Wren-tit

## Van Pelt scoring

Scoring guide for surveyors taken from Robert Van Pelt’s (2007), “Identifying Mature and Old Forests in Western Washington.”

Rating system for determining general age of Douglas-fir legacy trees. Choose one score from each category and sum all scores to determine developmental stage.

<b>Bark Condition, lower one-third of the tree</b>	
0	Hard, bony bark with small fissures
1	Hard bark with deep fissures
2	Hard bark with charcoal present
2	Soft flaky bark with deep fissures
3	Flaky bark with charcoal present
<b>Knot indicators, lower one-third of tree</b>	
0	Branch stubs present
1	Old knot/whorl indicators visible
2	No knot/whorl indicators visible
<b>Lower crown indicators</b>	
0	No epicormic branches
1	Small epicormic branches present
2	Large and/or gnarly epicormic branches present

<b>Van Pelt Score</b>	<b>Developmental Stage</b>	<b>Interpretation</b>
<2	Biomass accumulation/ stem exclusion	35 - 80 years
2-3	Maturation I: Forests originating after Euro-American settlement	70 - 160 years
4-5	Maturation II: Forests originating before Euro-American settlement	140 - 240
>5	Old growth	210+ years

## APPENDIX B: RELEVÉ PLOT DATASHEET

Unit: \_\_\_\_\_ Surveyors: \_\_\_\_\_ Date: \_\_\_\_\_

Species	Plot		Species	Plot		Species	Plot		Species	Plot	
	1	2		1	2		1	2		1	2
Amelanchier alnifolia			Achillea millefolium			Lomatium utriculatum			Bare ground		
Crataegus douglasii			Acmispon parviflorus			Lupinus bicolor			Moss/lichen		
Crataegus monogyna			Allium sp.			Lupinus oregonus			Thatch		
Cytisus scoparius			Bellis perennis			Madia elegans			Rock		
Quercus garryana			Brodiaea coronaria			Madia gracilis					
Pseudotsuga menziesii			Calochortus tolmiei			Medicago lupulina					
Prunus emarginata			Camassia leichlinii			Myosotis discolor					
Rosa eglanteria			Camassia quamash			Nemophila pedunculata					
Rosa gymnocarpa			Carduus pycnocephalus			Plantago lanceolata					
Rosa nutkana			Cerastium glomeratum			Plectritis congesta					
Rubus americanus			Cirsium arvense			Potentilla gracilis					
Symphoricarpos albus			Cirsium vulgare			Prunella vulgaris					
Toxicodendron diversilobum			Clarkia amoena			Ranunculus occidentalis					
			Clarkia purpurea			Ranunculus orthorhynchus					
Achnatherum lemmonii			Crepis capillaris			Rumex crispus					
Aira caryophylla			Crepis setosa			Rumex acetosella					
Alopecurus pratensis			Daucus carota			Sanicula crassicaulis					
Antherantherum elatius			Daucus pusillus			Sherardia arvensis					
Brachypodium sylvaticum			Delphinium menziesii			Sidalcea virgata					
Bromus carinatus			Dichelostemma congesta			Sonchus asper					
Bromus hordeaceus			Epilobium sp.			Sonchus oleraceus					
Bromus diandrus			Eriogonum compositum			Taraxacum officinale					
Bromus sitchensis			Eriogonum nudum			Torilis arvensis					
Bromus sterilis			Eriogonum umbellatum			Toxicoscordion venenosum					
Cynosurus echinatus			Eriophyllum lanatum			Trifolium dubium					
Dactylis glomerata			Erythranthe guttata			Triteleia hyacinthina					
Danthonia californica			Fragaria vesca			Valerianella locusta					
Elymus glaucus			Fragaria virginiana			Veronica arvensis					
Festuca californica			Galium aparine			Vicia americana					
Festuca roemerii			Galium parisiense			Vicia sativa					
Festuca rubra			Geranium dissectum			Vicia tetrasperma					
Holcus lanatus			Geranium lucidum								
Koeleria macrantha			Geranium molle								
Poa pratensis			Hypericum perforatum								
Poa trivialis			Hypochaeris glabra								
Schedonorus arundinaceus			Hypochaeris radicata								
Vulpia bromoides			Iris tenax								
Carex tumulicola			Leptosiphon bicolor			<b>Braun-Blanquet cover/abundance scale</b> R (a) <5% single individual + (a) <5% few (2-20) inds. 1 (a) <5% many individuals 2 (c) 5-25% 3 (c) 25-50% 4 (c) 50-75% 5 (c) 75-100%	<b>Sociability</b> 1 Growing singly, evenly spaced throughout plot 2 Small dense, evenly spaced clumps 3 Small unevenly spaced clumps 4 Large uneven clumps 5 Extensive mat				
Luzula campestris			Leucanthemum vulgare								
Luzula comosa			Linum bienne								
<b>Notes:</b> context of the relevé plot? Any unusual features to explain unusual plants? Any evidence of disturbance?											

Unit: \_\_\_\_\_

**Species of concern:** List species that meet the following criteria. For each species, also list the percent cover. For criteria 1 and 2, the qualifying species are the following:

- 1) **Woody species of management concern:** *Crataegus monogyna*, *Crataegus suksdorfii*, *Cytisus* spp., *Pyrus communis*, *Rosa rubiginosa*, *Rosa multiflora*, *Rubus bifrons*, *Rubus laciniatus*, *Toxicodendron diversilobum*
- 2) **Non-natives of particular concern:** *Arrhenatherum elatius*, *Brachypodium sylvaticum*, *Centaurea X moncktonii*, *Cytisus scoparius*, *Phalaris arundinacea*, *Rubus vestitus*

Criteria:	
1) Woody species of management concern, >5% cover	
2) Non-natives of particular concern, >5% cover	
3) Non-natives, >50% cover	

List all unknowns or voucher specimens collected:

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## APPENDIX C: SPATIAL DATA MAPPING PROTOCOL

Updated 8/22/2022

- The goal of spatial data collection is to 1) paint a picture of a site at one point in time and 2) give restoration ecologists information for making restoration recommendations.
- Key features of interest are mapped using S1 Mobile, each feature is its own layer.
- Features were mapped using the geographic coordinate system: GCS\_WGS\_1984.
- Depending on the size and walkability of the site, data can be collected in a couple of different ways. Surveyors can walk a defined area of the site mapping all features they come across within that area or features can be delegated such that one surveyor is responsible for mapping “oaks” and “seed collection” features while someone else might be responsible for mapping the “buffer” and “habitat” features. Whichever method is chosen, communication about who is mapping what and where is key. Each feature should only be mapped once per site.
- Features of interest are listed below with instructions on when to collect data.

### Non-native species

Map non-native and invasive plants.

- General guidance on whether to map an invasive species or not:
  - If a species listed below is a high priority or new invader, it should be mapped.
  - Not all species listed need to be mapped every time they are observed. For instance, if there are only a few St. Johns wort at a site it should not necessarily be mapped just because it is on the list. Especially if there are other higher priority invaders. However, if a site is relatively free of non-native plants and St. Johns wort is one of the main non-natives, then it should be mapped.
  - If a non-native plant is dominant or clearly infringing on T&E species or oaks, it should be mapped.
  - The list below is not exhaustive.

#### Non-native species (multiple)

- *Agrostis gigantea* (redtop) - Perennial grass
- *Agrostis stolonifera* (creeping bentgrass) - Perennial grass, map if widespread
- *Aira caryophyllea* (silver hairgrass) - Annual grass, generally widespread across the site. Create a polygon that includes the whole site and list with other non-native annual grasses that are present across the site.
- *Alliaria petiolata* (garlic mustard) - New invader, always map.
- *Anthoxanthum odoratum* (annual vernalgrass) - Annual grass.
- *Arrhenatherum elatius* (tall oatgrass) - Perennial grass.
- *Brachypodium sylvaticum* (false brome) - High priority, always map.
- *Bromus diandrus* (ripgut brome) - Annual grass, generally widespread across the site. Create a polygon that includes the whole site and list with other non-native annual grasses that are present across the site.
- *Bromus hordeaceus* (soft brome) - Annual grass, generally widespread across the site. Create a polygon that includes the whole site and list with other non-native annual grasses that are present across the site.

- *Bromus tectorum* (cheat grass) - Annual grass, generally widespread across the site. Create a polygon that includes the whole site and list with other non-native annual grasses that are present across the site.
- *Carduus pycnocephalus* (Italian plumeless thistle) - High priority, map if found.
- *Carthamus lanatus* (distaff thistle) - New invader, always map.
- *Centaurea × pratensis* (meadow knapweed) - High priority, map if found.
- *Centaurea diffusa* (diffuse knapweed) - New invader, always map.
- *Centaurea moncktonii* (meadow knapweed) - High priority, map if found.
- *Centaurea solstitialis* (yellow star thistle) - New invader, always map.
- *Centaureum erythraea* (European centaury) - Biennial forb.
- *Cirsium arvense* (Canada thistle) - High priority, map if found.
- *Cirsium vulgare* (bull thistle) - If it appears to be taking over the site.
- *Cotoneaster franchetii* (orange cotoneaster) - Woody evergreen shrub.
- *Crataegus monogyna* (oneseed hawthorn) - Woody, high priority, map if found.
- *Crataegus suksdorfii* (Suksdorf's hawthorn) - Woody, map if found.
- *Crepis capillaris* (smooth hawksbeard) - Annual forb.
- *Crepis setosa* (bristly hawksbeard) - Annual forb.
- *Cynosurus echinatus* (bristly dogstail grass) - Annual grass, generally widespread across the site. Create a polygon that includes the whole site and list with other non-native annual grasses that are present across the site.
- *Cytisus scoparius* (Scotch broom) - High priority, map if found.
- *Cytisus striatus* (Portuguese broom) - New invader, always map.
- *Dactylis glomerata* (orchard grass) - Perennial grass.
- *Daucus carota* (Queen Anne's lace) - Map if taking over a site.
- *Digitalis purpurea* (foxglove) - Map if taking over a site.
- *Echium plantagineum* (Patterson's curse) - New invader, always map.
- *Festuca rubra* (red fescue) - perennial grass.
- *Genista monspessulana* (French broom) - Map if found.
- *Geranium dissectum* (cutleaf geranium) - Annual forb.
- *Geranium lucidum* (shining geranium) - Map if a primary invader at a shaded site. If only along edges of a meadow then it is not critical to map this species.
- *Geranium molle* (dovefoot geranium) - Biannual forb.
- *Geranium pusillum* (small geranium) - Annual forb.
- *Geranium robertianum* (Robert's geranium) - Map if a primary invader at a site. If only along edges of a meadow then it is not critical to map this species.
- *Heracleum mantegazzianum* (giant hogweed) - New invader, always map.
- *Hieracium aurantiacum* (orange hawkweed) - New invader, always map.
- *Hieracium floribundum* (hawkweed) - New invader, always map.
- *Holcus lanatus* (velvet grass) - Perennial grass. Potentially note in tabular data as present at the site. Map if dominant in whole or part of a site.
- *Hydrilla verticillata* (water thyme) - New invader, always map.
- *Hypericum perforatum* (St. John's wort) - Perennial forb.
- *Hypochaeris glabra* (smooth cat's ear) - Annual forb.
- *Hypochaeris radicata* (hairy cat's ear) - Perennial forb.
- *Ilex aquifolium* (English holly) - High priority, always map if found.
- *Impatiens capensis* (spotted jewelweed) - New invader, always map.
- *Isatis tinctoria* (dyers woad) - New invader, always map.
- *Lactuca serriola* (prickly lettuce) - Biannual forb.

- *Lamiaeastrum galeobdolon* (yellow archangel) - New invader, always map.
- *Lapsana communis* (common nipplewort) - Annual forb.
- *Leucanthemum vulgare* (oxeye daisy) - High priority, map if taking over a site.
- *Linum bienne* (pale blue flax) – Biannual forb.
- *Lolium multiflorum* (Italian ryegrass) - Biannual grass.
- *Lotus corniculatus* (common bird's foot trefoil) – Perennial forb.
- *Ludwigia peploides* (water primrose willow) - New invader, always map.
- *Medicago lupulina* (black medic) - Annual forb.
- *Melilotus officinalis* (sweetclover) - Biannual forb.
- *Mycelis muralis* (wall lettuce) - Perennial forb.
- *Myosotis discolor* (forget-me-not) - Annual forb.
- *Nymphoides peltata* (yellow floating heart) - New invader, always map.
- *Phalaris arundinacea* var. *arundinacea* (timothy) - High priority, perennial grass.
- *Phleum pratense* (timothy) - Perennial grass.
- *Phytolacca americana* (pokeweed) - New invader, always map.
- *Plantago lanceolata* (narrowleaf plantain) - perennial forb.
- *Plantago major* (common plantain) - perennial forb.
- *Poa* sp. (bluegrass) – Annual/ perennial grasses.
- *Polygonum xbohemicum* (bohemian knotweed) - High priority, map if found.
- *Polygonum polystachyum* (Himalayan knotweed) - New invader, always map.
- *Potentilla recta* (sulfur cinquefoil) - New invader, always map.
- *Pyrus communis* (feral common pear) – Woody, map if found.
- *Rosa multiflora* (multiflora rose) – Woody, high priority, map if found
- *Rosa rubiginosa* (sweetbriar rose) - Woody, high priority, map if found
- *Rubus bifrons* (Himalayan blackberry) – Woody, high priority, map if found
- *Rubus laciniatus* (cutleaf blackberry) - Woody, high priority, map if found
- *Rubus vestitus* (European blackberry) - Woody, high priority, map if found
- *Schedonorus arundinaceus* (tall fescue) - Perennial grass.
- *Senecio jacobaea* (tansy ragwort) – Map if taking over site. Look for biological control evidence (cinnabar moth) and make note if seen
- *Spartium junceum* (Spanish broom) - New invader, always map.
- *Taeniatherum caput-medusae* (medusahead grass) - Annual grass, generally widespread across the site. Create a polygon that includes the whole site and list with other non-native annual grasses that are present across the site.
- *Torilis arvensis* (spreading hedge parsley) - Annual forb.
- *Tribulus terrestris* (puncturevine) - New invader, always map.
- *Tussilago farfara* (coltsfoot) - New invader, always map.
- *Ulex europaeus* (gorse) - New invader, always map.
- *Vicia hirsuta* (tiny vetch) - Annual forb.
- *Vicia sativa* (common vetch) - Annual forb.
- *Vulpia* sp. (annual fescue) - Annual grass.

### **Other species (text)**

#### **Non-native species distribution (single choice)**

In general, describe how a species is distributed within the mapped polygon. However, if you find a small, isolated patch of a non-native species, instead of drawing a small polygon and then calling it “ubiquitous”, list it as “isolated.”

- Ubiquitous/Uniform (covering the entire area evenly)
- Patchy (forming clumps)
- Random (unpredictable distribution)
- Isolated (only a small patch or two)

**Non-native species notes (text)**

Further describe the population of non-native species mapped and note any treatments observed, biological, chemical, etc.

## Oaks

Map oaks whenever they are observed, even if there is only one seedling.

**Oaks (single choice)**

- Oregon white oak (*Quercus garryana* (default))
- Black oak (*Quercus kelloggii*)
- Brewer's oak (*Quercus garryana* var. *breweri*)
- Other

**Other oak species (text)**

Write in oak species if not in list above.

**Quantity (integer)**

Total quantity of oaks in a polygon. May be estimated for sites with hundreds of oaks. If estimated, write "Quantity estimated" in the notes section.

- One strategy is to count oaks within a subsection, then approximate how many of those "subsections" would fit into the entire polygon and multiply the oak count by the number of subsections. For example, 20 oaks are counted in approximately one quarter of a polygon, therefore the estimated "Quantity" will be 80 (20\*4). If the estimated 80 is clearly more or less than what is observed on the ground, the estimate should be modified to reflect that.

**Creeping growth form (integer)**

Number of oaks with a "creeping" growth form. The combined total of all growth forms should equal the total quantity above. For large populations, estimate the proportion of oaks within a polygon that have this growth form and multiply it by the total quantity. For example, if 10 % of an estimated 80 total oaks have a creeping growth form, then 8 oaks in the polygon have this growth form.

**Multi-stem growth form (integer)**

Number of oaks with a "multi-stem" growth form. The combined total of all growth forms should equal the total quantity above.

**Single-stem growth form (integer)**

Number of oaks with a "single-stem" growth form. The combined total of all growth forms should equal the total quantity above.

**Other growth form (text)**



**Size class (single)**

Select size classes for oaks observed. No need to estimate quantities.

- Seedling/saplings
- Young
- Mature
- Old growth

**Estimated DBH (inches) (decimal)**

Estimate the average DBH of oaks within a polygon.

- If a polygon only has seedlings, the DBH should be recorded as 0.

**Number oaks greater than 15" DBH (Integer)**

Record the quantity of oaks with 15 inches or greater DBH within the polygon.

**Oaks suppressed?**

Are there conifer trees that are overtopping the oaks present at the site? Do the oaks look unhealthy or "smothered" by the vegetation growing around them? If so, select "yes." If the oak(s) is out in the open with few trees, especially conifers, surrounding them, then select "no." If oak(s) within the polygon drawn are along the edge of a conifer forest, or conifers have begun to grow up around the tree in an open meadow then select "partially."

- Yes
- No
- Partially

**Oak layer notes (text)**

Record notes about the oak population that were not captured by previous fields.

## Pines

Map pine trees whenever they are observed.

**Pine species (single)**

- Ponderosa pine (*Pinus ponderosa*)
- Jeffrey pine (*Pinus jeffreyi*)
- Pinus* sp. (Unknown)

**Other pine species (text)**

If "Pinus sp. (Unknown)" was selected above, write in the species name or describe characteristics of the species, color and pattern of bark, number and length of needles in fascicles, and description of cones if available.

**No. of pines (integer)**

Record the number of pines that are within the polygon.

**Estimated DBH (inches) (decimal)**

Estimate the average DBH of pine(s) within the polygon.

**Number of pines with greater than 20" DBH: (Integer)**

Record the quantity of pines with 20 inches or greater DBH within the polygon.

**Pine layer notes: (text)**

Record notes about the pines that were not captured by previous fields.

## Threatened, endangered, and sensitive (TES) vascular species

Map any TES species observed. Finding TES species is an automatic trigger to survey a relevé plot.

**Species (single choice)**

Populated with the most current threatened, endangered, and sensitive species according to the ISSSP list. Choose from the list or select "other" if a species is not on the list.

**Other species (text)**

Write out the name of the TES species if not on the previous list.

**Plant population count (integer)**

Count number of individuals if feasible, otherwise leave blank and use the following field.

**Plant population acres (decimal)**

If individuals were counted, then leave this field blank. For large or rhizomatous populations, record the area in acres after drawing a polygon in S1 Mobile.

**Health (single choice)**

Record the overall population health:

- Unhealthy: small, wilting, eaten, diseased or otherwise very unhealthy looking.
- Healthy: good sized population, plants look green and turgid.
- Very healthy: same as healthy, but has a very large population and is reproducing, etc.

**Seedlings (%) (Integer)**

Estimate the population percent in the seedling life stage (combined total of all life stages should equal 100%).

**Vegetative (%) (integer)**

Estimate the population percent in the vegetative life stage.

**Flowering (%) (integer)**

Estimate the population percent that is flowering.

**Fruiting (%) (integer)**

Estimate the population percent that is fruiting.

**Threats to population? (multiple) Limit to 3**

A threat to the population is anything that is likely to disrupt its ability to propagate, thrive, reproduce, etc. Select from the list below:

- Human activities
- Ungulate herbivory or trampling
- Insect herbivory
- Disease
- Unknown
- Encroachment by woody species
- Non-native species
- None

**Other T&E population notes (text)**

Additional notes on the TES population that are not captured in the field above.

## Seed collection

A general goal for many restoration projects is to increase the diversity and abundance of the native plant community. Map the native species that have a large flowering population.

**Species (multiple)**

Below is a list of species generated from Alverson's list of high/moderate oak/prairie species fidelity list and from those commonly mapped in previous field seasons.

- Common yarrow (*Achillea millefolium* (M))
- Lemmon's needlegrass (*Achnatherum lemmonii*)
- Smallflower bird's foot trefoil (*Acmispon parviflorus*)
- Olympic onion (*Allium crenulatum*)
- Mexican whorled milkweed (*Asclepias fascicularis*)
- Deltoid balsamroot (*Balsamorhiza deltoidea*)
- California brome (*Bromus carinatus* (H))
- Tolmie star tulip (*Calochortus tolmiei* (H))
- Suksdorf's large camas (*Camassia leichtlinii* var. *suksdorfii* (H))
- Small camas (*Camassia quamash*)
- Farewell to spring (*Clarkia amoena*)
- Pacific hound's tongue (*Cynoglossum grande* (H))
- California oatgrass (*Danthonia californica* (H))
- American wild carrot (*Daucus pusillus*)
- Nuttall's larkspur (*Delphinium nuttallii*)
- Blue wild rye (*Elymus glaucus* (M))
- Arrowleaf buckwheat (*Eriogonum compositum*)
- Naked buckwheat (*Eriogonum nudum*)
- Sulphur-flower buckwheat (*Eriogonum umbellatum*)
- Oregon sunshine (*Eriophyllum lanatum* var. *leucophyllum* (H))
- Wayside aster (*Eucephalus vialis* (M))
- Roughleaf aster (*Eurybia radulina* (M))
- California fescue (*Festuca californica* var. *californica* (M))
- Roemer's fescue (*Festuca roemerii* (H))
- Woodland strawberry (*Fragaria vesca* ssp. *bracteata* (M))

- Virginia strawberry (*Fragaria virginiana* var. *platypetala* (H))
- Bluehead gilia (*Gilia capitata*)
- Crevice alumroot (*Heuchera micrantha*)
- Toughleaf iris (*Iris tenax* ssp. *tenax* (M))
- Western rush (*Juncus occidentalis* (M))
- Spreading rush (*Juncus patens* (M))
- Prairie junegrass (*Koeleria macrantha*)
- Celery leaf licorice root (*Ligusticum apiifolium* (H))
- Cascade desert parsley (*Lomatium martindalei*)
- Common lomatium (*Lomatium utriculatum*)
- Desert deervetch (*Lotus micranthus* (M))
- Pacific woodrush (*Luzula comosa* (M))
- Common madia (*Madia elegans*)
- Grassy tarweed (*Madia gracilis*)
- Coastal manroot (*Marah oreganus*)
- Seep monkeyflower (*Mimulus guttatus* (M))
- Skunkbush (*Navarretia squarrosa*)
- Suksdorf woodsorrel (*Oxalis suksdorfii* (M))
- Goldback fern (*Pentagramma triangularis* ssp. *triangularis* (H))
- Common yampah (*Perideridia montana* (H))
- Yampah (*Perideridia* sp.)
- Shortspur seablush (*Plectritis congesta*)
- Lance self-heal (*Prunella vulgaris* var. *lanceolata* (M))
- Corn buttercup (*Ranunculus arvensis*)
- Western buttercup (*Ranunculus occidentalis* var. *occidentalis* (H))
- Forest scurfpea (*Rupertia physodes* (M))
- Northern sanicle (*Sanicula graveolens*)
- Dwarf checkermallow (*Sidalcea virgata* (H))
- Snowqueen (*Synthyris reniformis* var. *reniformis* (M))
- Death camas (*Toxicoscordion venenosus*)
- Smallhead clover (*Trifolium microcephalum*)
- Tomcat clover (*Trifolium willdenovii*)
- American vetch (*Vicia americana* var. *americana* (M))
- Narrow leaf mule-ears (*Wyethia angustifolia* (H))

**Other species (text)**

Write in seed collection species not pre-populated in the field above.

**Seed collection notes (text)**

Describe observations about species presence, abundance, reproduction, etc. For example, if a polygon has three different species for seed collection, indicate that one species had loads of flowers and is more important for seed collection.

## Forested buffer areas

If surveying an open site, use this layer to map a 50-meter buffer around the open area. If site is forested, complete a forested buffer polygon to describe the unit as well as a habitat layer. When adjacent sites have overlapping buffers, forest buffer polygons should be drawn so that they do not

overlap. If forest buffer compositions are similar for both units, split the buffer difference between the two sites. If forest compositions for each unit are different, include the overlapping forest buffer area in the buffer polygon for the unit that shares those characteristics.

**Plant community (single)**

What type of forest are you mapping?

- conifer forest
- mixed conifer forest
- mixed conifer/hardwood forest
- hardwood forest

**Dominant species (single)**

What is the dominant species in the forested area?

- Pacific silver fir (*Abies amabilis*)
- Grand fir (*Abies grandis*)
- Noble fir (*Abies procera*)
- Bigleaf maple (*Acer macrophyllum*)
- Alder (*Alnus* sp.)
- Madrone (*Arbutus menziesii*)
- Incense cedar (*Calocedrus decurrens*)
- Douglas-fir (*Pseudotsuga menziesii*)
- Oregon white oak (*Quercus garryana*)
- Black oak (*Quercus kelloggii*)
- Western red cedar (*Thuja plicata*)
- Western hemlock (*Tsuga heterophylla*)
- Mountain hemlock (*Tsuga mertensiana*)
- Other

**Other dominant species (text)**

Add other species if the dominant species observed is not on the pre-populated list. Or use this space to list a second species if two species are equally dominant at a site.

**Co-dominant species (single)**

What is the dominant species in this forested area, if any? Some areas will have only one dominant species, leave this space blank if that is the case.

- Pacific silver fir (*Abies amabilis*)
- Grand fir (*Abies grandis*)
- Noble fir (*Abies procera*)
- Bigleaf maple (*Acer macrophyllum*)
- Alder (*Alnus* sp.)
- Madrone (*Arbutus menziesii*)
- Incense cedar (*Calocedrus decurrens*)
- Douglas-fir (*Pseudotsuga menziesii*)
- Oregon white oak (*Quercus garryana*)
- Black oak (*Quercus kelloggii*)
- Western red cedar (*Thuja plicata*)
- Western hemlock (*Tsuga heterophylla*)
- Mountain hemlock (*Tsuga mertensiana*)

- Other

**Other co-dominant species (text)**

List other species if co-dominant species is not on the dropdown list or two species are equally co-dominant.

**Estimated DBH (integer)**

Estimate the average DBH for trees in the polygon.

**Estimated Canopy Cover (integer)**

Estimate average canopy cover (percent) within the polygon. Use a densiometer during training to calibrate as a team, then estimate visually.

**Understory Description Category**

Select the understory description below that most accurately reflects what you are observing.

- Open - Sparse understory.
- Closed – Dense, closed understory, generally hard to walk through.
- Variable - Patches of open and closed understory.

**Remnant oak/prairie indicators (single choice)**

Select yes if oak or prairie species (see reference lists) are present in the buffer, otherwise select no.

- Yes
- No

**Need wood hauling treatment (single choice)**

Select yes if indicators of prairie and oak habitat are in an area dominated by conifer forest and restoration would require hauling conifer trees off site. Otherwise select no.

- Yes
- No

**Buffer notes (text)**

Write a summary description of the buffer area and include any details not covered by the sections above.

## Human activity

Map evidence of recent human disturbance. Do not map human disturbance from the distant past such as old stumps from a logging operation. Evidence of survey work, such as tree paint, flagging, plot/transect markers should be noted and mapped.

### **Type of disturbance (multiple)**

Indicate the type of disturbance/activity observed:

- Off road vehicle use
- Tire tracks
- Old roadbed
- Campsite
- Firepit
- Flagging
- Tree paint
- Survey markers
- Trash dump
- New road
- Shot gun casings
- Tire pile

### **Other human activity if not listed (text)**

Describe additional human activity at the site.

### **Disturbance level (single)**

For each polygon, indicate the level of disturbance:

- Light (beer cans, evidence of foot traffic, flagging, survey markers)
- Moderate (signs of camping (TP) and firepit)
- High (OHV use, recent logging, old roadbed)

### **Human activity notes (text)**

Record notes about human disturbance that were not captured by previous fields.

## Potential cut off point for human activity:

Draw a polygon to indicate where a barrier could cut off access to the site to limit human disturbance; this is especially important if human activities involve OHV use, camping within natural meadows, and large scale dumping.

### **Method of blocking access (text)**

Describe the proposed method to limit human disturbance.

## Wildlife

Take a point where a bird or snake of particular concern was observed.

### **Species (single)**

- Acorn woodpecker
- Burrowing owl

- Chipping sparrow
- Common nighthawk
- Grasshopper sparrow
- Horned lark
- Lewis's woodpecker
- Merlin
- Olive sided flycatcher
- Purple finch
- Purple martin
- Rufous hummingbird
- Short-eared owl
- Vesper sparrow
- Western bluebird
- Western diamond-backed rattlesnake
- Western meadowlark
- White-breasted nuthatch
- Wren-tit

## New polygon boundary

Draw a new site boundary if oak and prairie habitat extend beyond or is significantly smaller than the current site boundary. Use oaks within the buffer to guide the extent to which a site should be extended. Do not use this feature if a site does not have prairie and oak habitat.

### **Boundary alteration explanation (Text)**

Justify the suggested change to the site boundary.

### **Needs wood hauling treatment (Single)**

Select yes if prairie and oak habitat exists in the polygon and the boundary was extended into a largely forested area, otherwise select no.

- Yes
- No

## Encroachment

Map areas with trees and/or shrubs that are encroaching into prairie or oak habitat. This layer is typically used when surveying an open area or oak woodland. At forested sites, there may be an oak with recently established trees around it and it would be appropriate to use this layer to map that encroachment. If you observe young conifers in an otherwise open prairie or area dominated by oaks, then this is considered encroachment given the recent establishment of these species. Shrubs are trickier as they can make up a part (albeit small) of the natural community of a prairie or oak woodland. If shrubs appear to be overtaking a prairie or inhibiting an oak from growing and reproducing, then draw a polygon to document this.

### **Encroachment species (multiple)**

Indicate which species are encroaching on the prairie-oak habitat:

- Pacific silver fir (*Abies amabilis*)
- Grand fir (*Abies grandis*)
- Noble fir (*Abies procera*)



- Bigleaf maple (*Acer macrophyllum*)
- Red alder (*Alnus rubra*)
- Alder (*Alnus* sp.)
- Serviceberry (*Amelanchier alnifolia*)
- Madrone (*Arbutus menziesii*)
- Incense cedar (*Calocedrus decurrens*)
- Oneseed hawthorn (*Crataegus monogyna*)
- Suksdorf's hawthorn (*Crataegus suksdorfii*)
- Scotch broom (*Cytisus scoparius*)
- Non-native brooms (*Cytisus* sp.)
- Oregon ash (*Fraxinus latifolia*)
- Oceanspray (*Holodiscus discolor*)
- Pacific ninebark (*Physocarpa capitatus*)
- Cottonwood (*Populus* sp.)
- Douglas-fir (*Pseudotsuga menziesii*)
- Bracken fern (*Pteridium aquilinum*)
- Common pear (*Pyrus communis*)
- Multiflora rose (*Rosa multiflora*)
- Nootka rose (*Rosa nutkana*)
- Sweetbriar rose (*Rosa rubiginosa*)
- Himalayan blackberry (*Rubus bifrons*)
- Cutleaf blackberry (*Rubus laciniatus*)
- Thimbleberry (*Rubus parviflorus*)
- Spirea (*Spiraea* sp.)
- Western red cedar (*Thuja plicata*)
- Poison oak (*Toxicodendron diversilobum*)
- Western hemlock (*Tsuga heterophylla*)
- Mountain hemlock (*Tsuga mertensiana*)
- Huckleberry (*Vaccinium* sp.)

**Other encroaching species (text)**

List species not available in the pre-populated list.

**Needs wood hauling treatment (single)**

Select yes if the polygon encompasses a large quantity of woody material (i.e., large amount of conifers), otherwise select no.

- Yes
- No

**Encroachment notes (text)**

Record notes about encroachment that were not captured by previous fields.

## Habitat

Map habitats within the site boundary. If surveying an open site with a buffer, use this layer to describe the open area. However, if the buffer and the open area are the same then you can expand the habitat layer to cover them both. If there are multiple habitat types within a site, then draw a polygon around each distinct habitat type. If a site is forested, draw a polygon in the “forested buffer areas” layer and the habitat layer.

### **General habitat (single)**

Definitions of each habitat type are located in the reference materials.

- Douglas-fir forest
- hardwood forest
- mixed conifer forest
- mixed hardwood/conifer forest
- oak savanna
- oak woodland
- prairie
- rock meadow
- shrubland
- wetland
- cliff
- disturbed
- pond
- other

### **Other habitat (text)**

Write a different habitat type if not available in the pre-populated list.

### **Special habitat (if applicable) (single)**

Select special habitats observed. Definitions of each habitat type are located in the reference materials.

- Cave - CV
- Cliff - CL
- Bog – BG
- Dry Meadow - DM
- Hardwood Patch – HP
- Mesic Meadow - MM
- Pond - PD
- Rock Garden - RG
- Rock Outcrop - RO
- Shrub Field - SF
- Swamp - SW
- Talus - TA
- Wet Meadow - WM

### **Habitat notes (text)**

Record notes about the habitat that were not captured by previous fields.

## Large Trees

Map trees larger than 40" in diameter.

### **Species (single choice)**

Select the species of large tree.

- Grand fir (*Abies grandis*)
- Pacific silver fir (*Abies amabilis*)
- Noble fir (*Abies procera*)
- Bigleaf maple (*Acer macrophyllum*)
- Alder (*Alnus* sp.)
- Madrone (*Arbutus menziesii*)
- Incense cedar (*Calocedrus decurrens*)
- Douglas-fir (*Pseudotsuga menziesii*)
- Western red cedar (*Thuja plicata*)
- Western hemlock (*Tsuga heterophylla*)
- Mountain hemlock (*Tsuga mertensiana*)
- Other

### **Other species (text)**

If the species is not listed in the table above, then write the species here.

### **Number Large Trees (integer)**

Record the number of large trees within the polygon.

### **Estimated DBH (in) (decimal)**

Estimate (not measured using a DBH tape) the average DBH in inches for large trees in the polygon.

### **Van Pelt Score (integer)**

Record the average Van Pelt score for large trees in the polygon. See reference material for scoring card.

### **Large tree notes [text]**

Include any information not covered by previous fields.

## Photopoint

Establish a photopoint within the site that is representative of the whole site. Take photos looking N, E, S, and W from that point using Survey123. Map a point where the photopoint was collected.

## NW relevé corner

Map a point in the northwest corner for each relevé plot.

## APPENDIX D: SITE REPORT KEY

## Unit ID

General site information	
Date surveyed	Date of site assessment
Observers (affiliation)	Names of personnel involved in collecting the survey data with institutional affiliation listed in parentheses.
Unit ID	Shorthand of Field Office_Unique identification number (e.g. "CAS_001" for Cascades Field Office, site 001).
Site name	Listed in shapefile or given to IAE by field office staff. If not provided, field staff directed IAE to use the nearest road or creek as the alternative name.
BLM Field Office	Name of BLM field office in which the site is located
County	Name of county in which site is located
Township, Range, Section	The Township, Range, and Section of the site surveyed.
Recovery zone (USFWS 2010)	The recovery zone the unit is in, according to the <i>Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington</i> (USFWS 2010)
Land ownership	BLM, Northwest Oregon District
Contact person and contact information	Field office specialist whose contact name and job title was provided by BLM district staff. Phone number and email address of said contact.
Directions	Directions for how to access the site if it is only accessible from one route or otherwise differs from the evident route on the district map on S1 mobile.
Photopoint coordinates	Coordinates where photopoint was taken inside the unit.
Type of site	Indication of whether the site was an open area surrounded by forested buffer or was largely forested with minimal or no opening. This determined whether "open area" or "forested" was selected when filling out the Survey123 form for the site.

Habitat overview	
Buffer or forested area description	This field provides a general description of the buffer zone or the forested area including forest condition, dominant species, and any codominant species if applicable.
Slope (degrees)	An estimate in degrees of the steepness of the site.
Aspect	Directional aspect averaged across the site. If slope was 0, this was recorded as "NA."
Elevation (feet)	Field office maps were used to estimate elevation at the center of the site.

Habitat type	A general description of the primary habitat that occupies the unit and buffer zone. Choose from: Douglas-fir forest, hardwood forest, mixed conifer forest, mixed hardwood/conifer forest, oak savanna, oak woodland, prairie, rock meadow, shrubland, wetland, cliff, disturbed, pond, other.
Habitat type (special habitat)	A general description of the secondary habitat type that occupies the unit and buffer zone. If applicable, special habitat from the list provided by BLM: cave, cliff, rock outcrop, rock garden, talus, shrub field, dry meadow, mesic meadow, wet meadow, bog, pond, swamp, or hardwood patch.
What maintains site openness?	An educated guess as to why the unit has remained open habitat. Field omitted if the site contained no open habitat.
Prairie and/or oak habitat present?	Yes
Habitat type notes	If there is a need to clarify the above field, then notes were taken and will be included here. Field omitted if no notes were taken.
Evidence of human disturbance	If human disturbance was observed, then this will be answered "Yes." If not, this will be answered "No." Generally requires some level of environmental impact for listing.
Type of human disturbance	General type of human disturbance. Types include land management (e.g., logging), camping, old roadbed, active road, etc. Location and description of disturbance is included in provided geodatabase. Field omitted if no human disturbance was observed.
Level of human disturbance	The degree to which the human disturbance is impacting the plant community/ecological function of the site. Field omitted if no human disturbance was observed.
Human disturbance notes	If further description of the human disturbance was noted in the field, that information is provided here. Field omitted if no notes were taken.
Do remnant oak or prairie species exist in the buffer or forested areas?	If any oaks or other prairie-oak indicator species (see APPENDIX A: REFERENCE LISTS)
Remnant oak or prairie species observed (Alverson 2010)	If oaks or prairie-oak indicator species were found in the buffer or forested areas, species are listed here. Omitted if no remnant prairie-oak indicator species were found.
Number oaks >15 DBH	Number of oaks estimated to be greater than 15 inches in DBH.
Number of large trees (>40 in DBH)	Number of trees estimated to have DBH greater than 40 inches.
Species of large trees	Species of tree(s) greater than 40 inches DBH in the site.
Average Van Pelt Score	Average Van Pelt Score of conifers greater than 40 inches DBH in the site or buffer as described in Van Pelt 2007.

<b>Woody cover within the site</b>			
Overall live woody cover (%)	Sum of live native tree, live non-native tree, live native shrub, and live non-native shrub cover values. Standing dead woody cover is not included in the total. Woody cover is estimated for the primary open habitat area. Estimates do not include woody cover within the site polygon that is contiguous with the surrounding forest, nor do they include the buffer.		
Live native tree cover (%)	An estimate of the native live tree cover. A proportion of the overall woody cover.	Live non-native tree cover (%)	An estimate of the non-native live tree cover. A proportion of the overall woody cover.
Live oak cover (%)	Oak cover is a portion of live native tree cover.	Standing dead woody cover (%)	An estimate of standing dead woody cover.
Live native shrub cover (%)	An estimate of the native live shrub cover. A proportion of the overall woody cover.	Live non-native shrub cover (%)	An estimate of the non-native live shrub cover. A proportion of the overall woody cover.
Woody species encroaching on prairie habitat? *+	If there were woody species encroaching into open areas, those species are listed here. If the species is of management concern, it was followed by an asterisk (*). If it is of management concern and covers more than 5% of the site, it was followed by a superscript plus-sign (+). Omitted if there was no encroachment.		
Would removal of encroaching species result in the need for wood to be hauled off-site?	Generally, “yes” for significant amounts of mature conifer encroachment, “no” for seedlings and shrubs. Omitted if there was no encroachment.		
Woody species notes	If any additional observations or notes were made, that information was included here. Omitted if there was no encroachment.		

\*Woody species of management concern from the Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington (USFWS 2010).

+ Woody species of management concern that exceed 5% cover of the site.

<b>Herbaceous non-native (invasive) species</b>	
Herbaceous non-native cover (%)	Non-native percent cover is an estimate of non-native herbaceous (forb and graminoid) relative cover in open areas of polygon. Total herbaceous native and non-native % cover sums to 100%. Does not include forested areas.
Most common non-native species	This field is populated with a list of the most common non-native species observed at the site in the open habitat. This field was generated after a full walk-through of the site.
Herbaceous non-native species notes	If needed, this section explains any additional notes regarding non-native species at this site. This field is omitted if no notes were made.

<b>Herbaceous native species</b>	
Herbaceous native cover (%)	Native percent cover is an estimate of native herbaceous (forb and graminoid) relative cover in open areas of polygon. Total herbaceous native and non-native % cover sums to 100%. Does not include buffer area.
Most common native species	This field is populated with a list of the most common native species observed at the site in the open habitat. This field was generated after a full walk-through of the site.
Relevé survey?	“Yes” or “No”. This field indicates whether a relevé plot was established or not. If a relevé plot was established at a neighboring site with similar species composition, that site is listed here as a proxy and data from that site is used in the Modified Prairie Habitat Quality Summary below. The Relevé plot data table used as a proxy will be cross-referenced here. See field survey protocol for the criteria used to decide when to establish a relevé plot.
T&E species present?	If T&E species are present, the surveyor will list the species, the population size, health, and phenology, as listed below.
Seed collection potential?	This field is populated with species present on site in sufficient quantities to support seed collection without negatively impacting the future viability of the population of the collected species. Field is marked “N/A” if surveys were done later in the season when herbaceous layer had dried.
Seed collection notes	This field is completed if there is anything special to highlight about seed collection
Herbaceous native species notes	If needed, this section explains any additional notes regarding native species at this site. This field is omitted if no notes were made.

<b>T&amp;E Species</b>	
Population size	If population size is small, individuals are counted. If population size is large, a percent cover is estimated.
Population health	Unhealthy populations are almost dead, small, wilting, eaten, or otherwise unhealthy looking; healthy populations are a good size and look green and turgid; very healthy populations are a good size, look green and turgid, and are also reproducing well.
Phenology	Estimates are made for what percent of the population is in the seedling, vegetative, flowering, fruiting, and budding stages.

<b>Wildlife</b>	
Wildlife species of interest observed	Species listed if observed. Species of interest list provided by BLM: acorn woodpecker, burrowing owl, chipping sparrow, common



	nighthawk, grasshopper sparrow, horned lark, Lewis's woodpecker, merlin, olive sided flycatcher, purple finch, purple martin, Rufous hummingbird, short-eared owl, vesper sparrow, Western bluebird, Western diamond-backed rattlesnake, Western meadowlark, white-breasted nuthatch, wrenit.
Wildlife species notes	If other notes were made about wildlife, that information is included here. This field is omitted if no notes were made.

**Preliminary habitat restoration/management recommendations**

Overall ranking as a priority for restoration (high, moderate, or low)	<p>General prioritization of the site for restoration based on field observations. Ranking considered the quality of prairie or oak habitat, the relative abundance of native and non-native species at the site, site accessibility, site size, and proximity to other moderate- or high-priority sites.</p> <p>High: Presence of oak and prairie habitat with a relatively high abundance and diversity of native plant species. Criteria for completing a relevé plot is usually met. Presence of T&amp;E or sensitive (TES) species automatically causes high ranking. Low abundance of non-native relative to other sites. Noxious weeds or non-native species of management concern are in low enough abundance that it is possible to eradicate. The site is relatively large. The site is in close proximity to other oak and prairie habitat. There may be potential for partnership with neighboring landowners with prairie and oak habitat. Site is relatively easy to access.</p> <p>Moderate: Presence of oak or prairie habitat with a moderate abundance and diversity of native plant species. Criteria for completing a relevé plot may or may not be met. No T&amp;E or sensitive species present. Moderate to high abundance of noxious weeds and non-native species. Site may or may not be smaller, in proximity to other oak or prairie habitat, accessible and/or have the potential to have partnerships created if chosen for work.</p> <p>Low: Site either has severely degraded or extremely minimal oak or prairie habitat. Little abundance or diversity of native plant species. High abundance of noxious weeds and other non-native species. Site is isolated and small and has little likelihood of creating partnerships with neighboring landowners. Site is difficult to access.</p>
Short-term recommended actions	Only recorded if project site contains prairie-oak or potential prairie-oak habitat. The short-term actions generally consist of recommendations that will improve the structure of the habitat (e.g., tree removal) or address immediate threats (e.g. early infestations of noxious weeds or non-native species).
Long-term recommended actions	Only recorded if project site contains prairie-oak or potential prairie-oak habitat. This section describes actions that generally have to do with altering the plant community and require more

	long-term planning and effort (e.g., reseeding native species, treating non-native grasses, etc.).
Site accessibility issues	Issues with access regarding limitations to the types of restoration activities that could take place due to difficult terrain or other factors. Field omitted if no notes were made.
Restoration action notes	Additional notes about restoration potential and restoration actions. Field omitted if no notes were made.

**Modified prairie habitat quality summary (USFWS 2010)**

Oak Habitat Criteria		Data	Objective	Meets objectives?
Oaks present?		Yes or No	Yes	“Yes” if even one was present at a site. “No” if no oaks were observed.
Number of oaks greater than 15 inches DBH?		Number of oaks or 0	≥1	“Yes” if at least 1 oak greater than 15” DBH.
Prairie Habitat Criteria		Data	Recovery Plan threshold	Meets Recovery Plan objectives?
Native herbaceous species cover (%)		From woody species table above	50% min	“Yes” if it is estimated that native species cover more than 50% of the herbaceous layer in the site.
Woody species cover (%)		From woody species table above	15% max	“Yes” if overall woody cover is estimated to be less than 15%.
Does any one woody species of management concern exceed 5% cover?		Yes or No	No	“No” if at least one woody species of management concern covers more than 5% of the site
Prairie diversity:	Native forb richness	From relevé plot data if a plot was established. “No data” if no relevé plot was established.	7	“Yes” if at least 7 native forb species occurred in the relevé plot. “NA” if no relevé plot was established.
	Native bunchgrass richness	From relevé plot data if a plot was established. “No data” if no relevé plot was established.	1	“Yes” if at least 1 native bunchgrass occurred in the relevé plot. “NA” if no relevé plot was established.
	Total native herbaceous species richness	From relevé plot data if a plot was established. “No data” if no relevé plot was established.	>10	“Yes” if more than 10 native herbaceous species occurred in the relevé plot. “NA” if no relevé plot was established.

Do any non-native species exceed 50% cover within the relevé plot?	“Yes” or “No”. From relevé plot data if a plot was established. “No data” if no relevé plot was established.	No	“Yes” if no non-native species covered more than 50% of the plot. “NA” if no relevé plot was established.
Do any non-native species of particular concern exceed 5% cover?	“Yes” or “No”. From relevé plot data if a plot was established. “No data” if no relevé plot was established.	No	“Yes” if no non-native species of concern were greater than 5% of the plot. “NA” if no relevé plot was established.

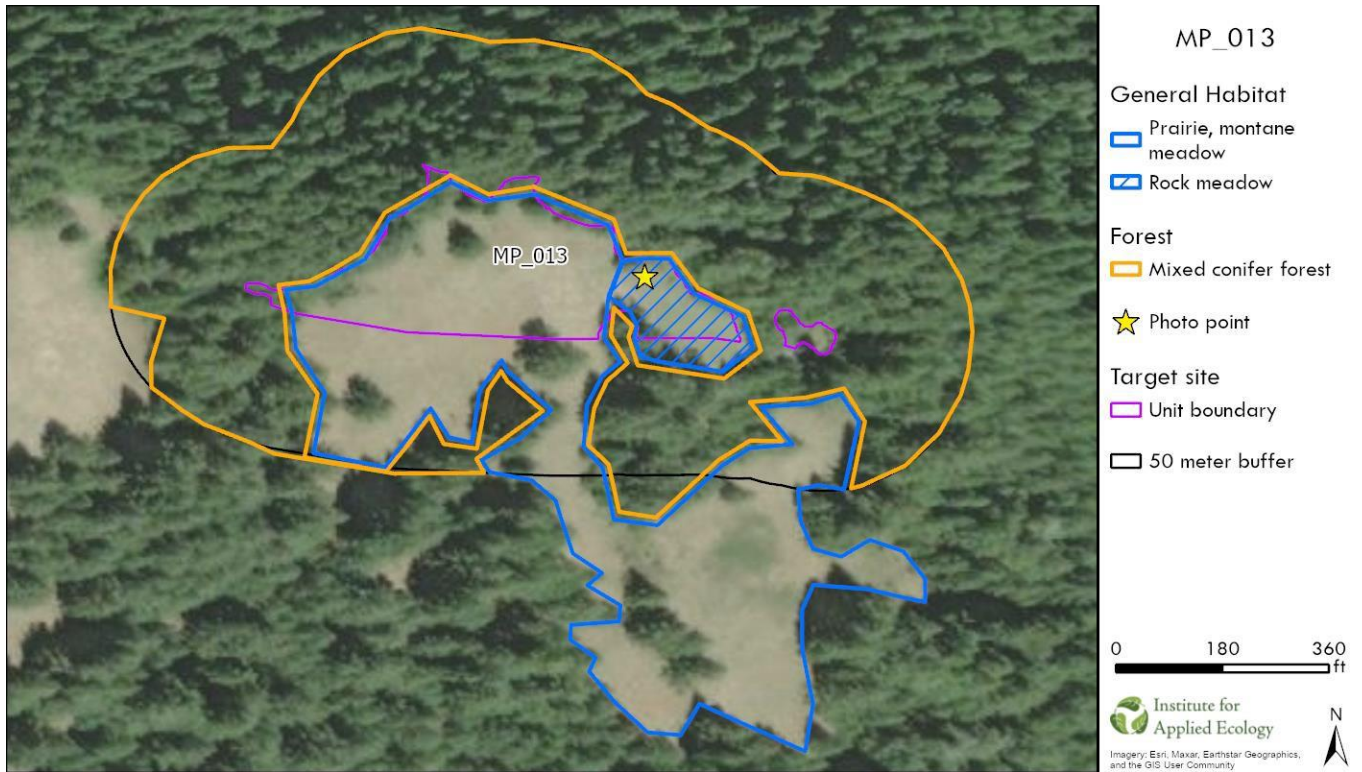
If a relevé plot was established then the table below would be populated with the species encountered in the 25m<sup>2</sup> relevé plot. Location of plot was chosen subjectively in a place where we expected there to be high species diversity representative of the site. For all species observed within the plot we recorded the scientific name and Braun-Blanquet cover/abundance scale (Mueller-Dombois and Ellenberg 2002).

**Table 4.** Relevé survey data. Braun-Blanquet cover scale: R = <5% and single individual, + = <5% and 2-20 individuals, 1 = <5% many individuals, 2 = 5-25%, 3 = 25-50%, 4 = 50-75%, 5 = 75-100%. The origin was listed as “unknown” for plants that were not identified to species and that have both native and non-native species in their genus.

Relevé data for Unit_ID			
Scientific name	Common name	Origin	Braun-Blanquet cover score

Relevé substrate (%)			
Bare	Moss/Lichen	Rock	Thatch



**Figure D-1.** Overview of MP\_013 and 50-meter buffer including habitat, forested buffer areas, photopoint, and relevé plot location, if applicable.



**Figure D-2.** Oaks, large trees, pines, and wildlife observed, if applicable.

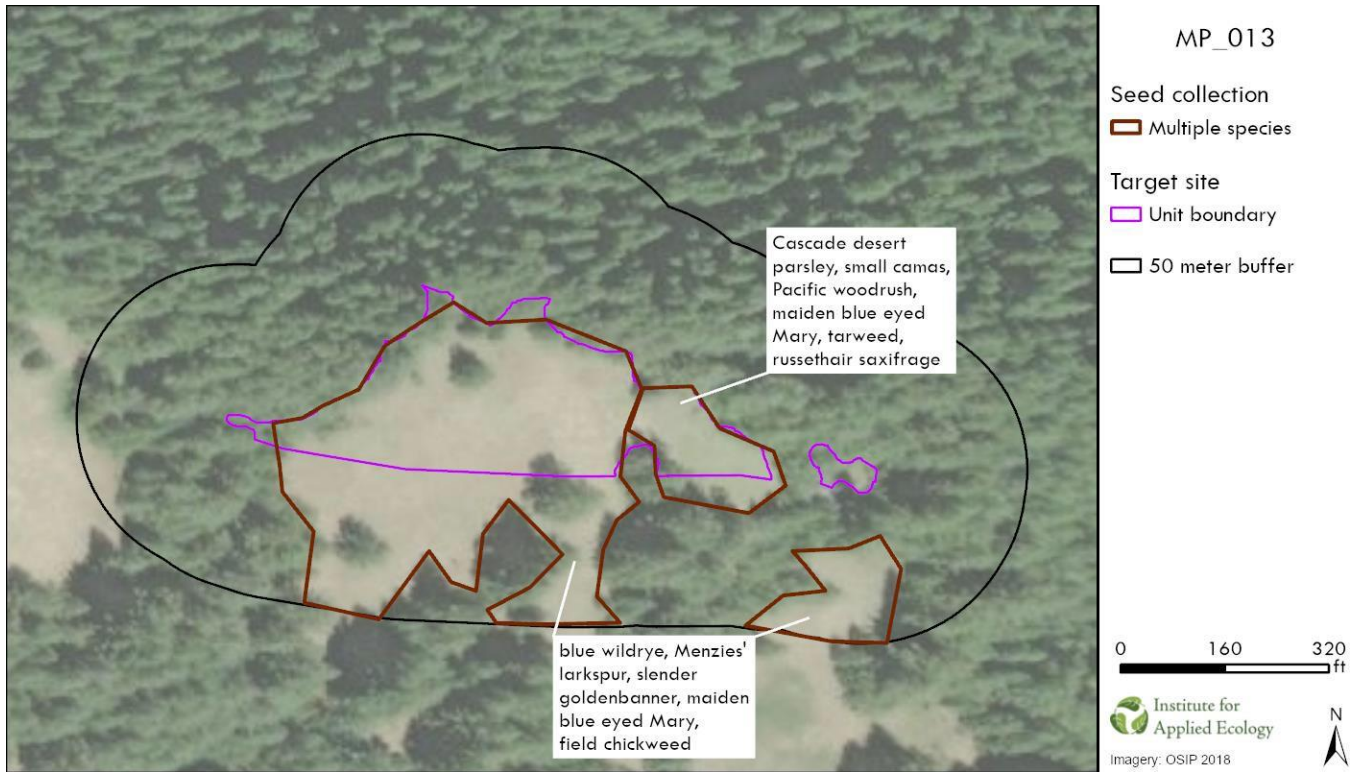


Figure D-3. Seed collection species observed.

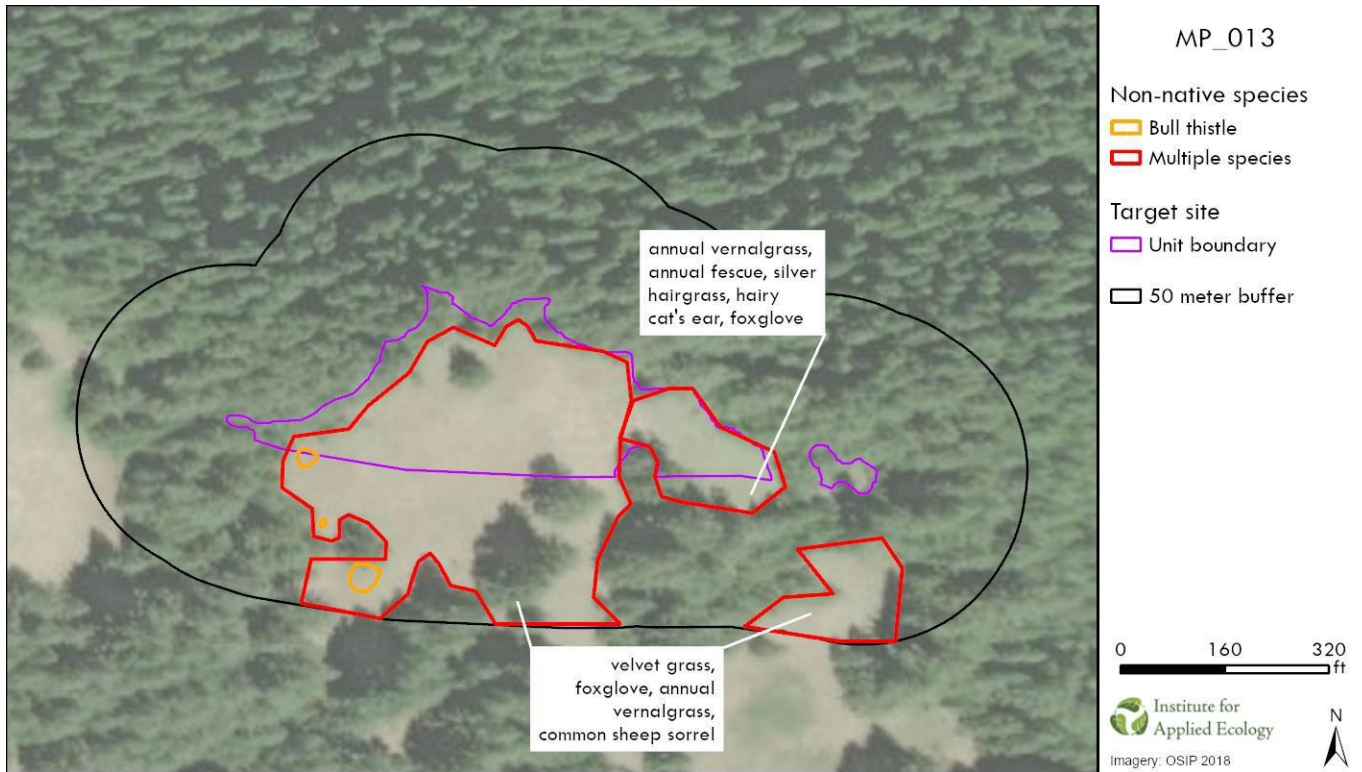


Figure D-4. Non-native species observed.



**Figure D-5.** Woody encroachment and human activity observed. Woody species of management concern observed in 2021 were poison oak, Himalayan blackberry, oneseed hawthorn, cutleaf blackberry, Scotch broom, sweetbriar rose, French broom.



**Figure D-6.** Recommended changes to the unit boundary based on habitat and/or oaks present.

North:



East:



South:



West:



**Figure D-7.** MP\_013 photopoints taken at -123.584935, 44.739562.

## APPENDIX E: CASCADES FIELD OFFICE SITE REPORTS



## BEAVER CREEK

### CAS\_146

General site information	
Date surveyed	6/29/2022
Observers (affiliation)	Annamarie Pfeifer, Annie Lamas, Zade Clark-Henry (IAE)
Unit ID	CAS_146
Site name	Beaver Creek
BLM Field Office	Cascades
County	Linn
Township, Range, Section	T11S, R01E, Sec35
Recovery zone (USFWS 2010)	Salem East
Land ownership	BLM, Northwest Oregon District
Contact person and contact information	Cody Lesniak clesniak@blm.gov, 503-375-3635 (office) Cameron Minson cminson@blm.gov, 541-324-8890 (office)
Directions	Park on Hammond I (11-1E-26.0) and walk west through the forest to the site.
Photopoint coordinates	-122.660958, 44.573779

Habitat overview	
Unit area (acres)	0.91
Prairie and/or oak habitat present?	Yes
Habitat type (special habitat)	Prairie (dry meadow, mesic meadow)
Habitat type notes	No oaks were observed at this site. The habitat varies between dry and mesic.
Slope (degrees)	4
Aspect	S
Elevation (feet)	1850
What maintains site openness?	Soils, hydrology
Evidence of human disturbance	No
Human disturbance notes	There is an old, rusty car parked in the meadow. There is evidence of the vehicle being used for shooting practice.
Type of site	Open area surrounded by forest
Buffer or forested area description	Buffer is a second growth forest dominated by western hemlock ( <i>Tsuga heterophylla</i> ) and co-dominated by bigleaf maple ( <i>Acer macrophyllum</i> ).
Do remnant oak or prairie species exist in the buffer or forested areas?	Yes
Remnant oak or prairie species observed (Alverson 2010)	Snowqueen ( <i>Synthyris reniformis</i> )

Woody species			
Overall live woody cover (%)	10		
Live native tree cover (%)	0	Live non-native tree cover (%)	0

Live native shrub cover (%)	10	Live non-native shrub cover (%)	0
Live tree cover from oaks (%)	0	Standing dead woody cover (%)	0
Number oaks >15 in DBH	0		
Number of large trees (>40 in DBH)	0		
Woody species encroaching on prairie habitat**	Oceanspray ( <i>Holodiscus discolor</i> ), poison oak ( <i>Toxicodendron diversilobum</i> )*		
Would removal of encroaching woody species result in the need for wood to be hauled off-site?	No		

\*Woody species of management concern from the *Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington* (USFWS 2010).

+Woody species of management concern that exceed 5% cover of the site.

**Herbaceous non-native species**

Herbaceous non-native cover (%)	15
Most common non-native species	Soft brome ( <i>Bromus hordeaceus</i> ), bristly dogstail grass ( <i>Cynosurus echinatus</i> ), cutleaf geranium ( <i>Geranium dissectum</i> ), common velvetgrass ( <i>Holcus lanatus</i> )

**Herbaceous native species**

Herbaceous native cover (%)	85
Most common native species	Small camas ( <i>Camassia quamash</i> ), shortspur seablush ( <i>Plectritis congesta</i> ), Menzies' larkspur ( <i>Delphinium menziesii</i> ), smallhead clover ( <i>Trifolium microcephalum</i> ), common woolly sunflower ( <i>Eriophyllum lanatum</i> )
Relevé survey?	Yes (see <a href="#">Table E-1</a> )
T&E species present?	No
Seed collection potential?	Menzies' larkspur ( <i>Delphinium menziesii</i> ), California oatgrass ( <i>Danthonia californica</i> ), California brome ( <i>Bromus carinatus</i> ), harsh Indian paintbrush ( <i>Castilleja hispida</i> ), American wild carrot ( <i>Daucus pusillus</i> ), common woolly sunflower ( <i>Eriophyllum lanatum</i> ), shortspur seablush ( <i>Plectritis congesta</i> ), Suksdorf's large camas ( <i>Camassia leichtlinii</i> var. <i>suksdorfii</i> ), small camas ( <i>Camassia quamash</i> ), blue wildrye ( <i>Elymus glaucus</i> ), maiden blue eyed Mary ( <i>Collinsia parviflora</i> ), winecup clarkia ( <i>Clarkia purpurea</i> ), bird's foot trefoil ( <i>Acmispon parviflorus</i> ), seep monkeyflower ( <i>Mimulus guttatus</i> ), true babystars ( <i>Leptosiphon bicolor</i> ), Oregon yampah ( <i>Perideridia oregana</i> ), common selfheal ( <i>Prunella vulgaris</i> ), white brodiaea ( <i>Triteleia hyacinthina</i> ), whitetip clover ( <i>Trifolium variegatum</i> ), smallhead clover ( <i>Trifolium microcephalum</i> ), tomcat clover ( <i>Trifolium willdenovii</i> )

**Wildlife**

Wildlife species of interest observed	None
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**Preliminary habitat restoration/management recommendations**

Overall ranking as a priority for restoration (high, moderate, or low)	Moderate
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Short-term recommended actions	Cut oceanspray ( <i>Holodiscus discolor</i> ) and pull poison oak patches encroaching into the meadow. Consider removing the old car from the center of the meadow.
Long-term recommended actions	Treat annual non-native grasses and oxeye daisy. Amplify native bunchgrasses by dispersing seed from the local population. Consider expanding meadow habitat by cutting away the shrubs at the edges of the meadow habitat.
Site accessibility issues	Access to this site requires a long hike through the woods from the east. There is a private timber road to the west, but access has not been determined from that direction.
Restoration action notes	This site is in relatively good condition. It should be preserved to maintain the existing meadow community.

**Modified prairie habitat quality summary (USFWS 2010)**

Oak habitat criteria		Data	Objective	Meets objectives?
Oaks present?		No	Yes	No
Number of oaks greater than 15 inches DBH?		0	≥1	No
Prairie habitat criteria		Data	Recovery Plan threshold	Meets threshold?
Native herbaceous species cover (%)		85	50% min	Yes
Woody species cover		10	15% max	Yes
Does any one woody species of management concern exceed 5% cover?		No	5% max	Yes
Prairie diversity	Native forb richness	20	7	Yes
	Native bunchgrass richness	2	1	Yes
	Total native herbaceous species richness	22	>10	Yes
Do any non-native species exceed 50% cover within the relevé plot?		No	50%	No
Do any non-native species of particular concern exceed 5% cover?		No	5%	No

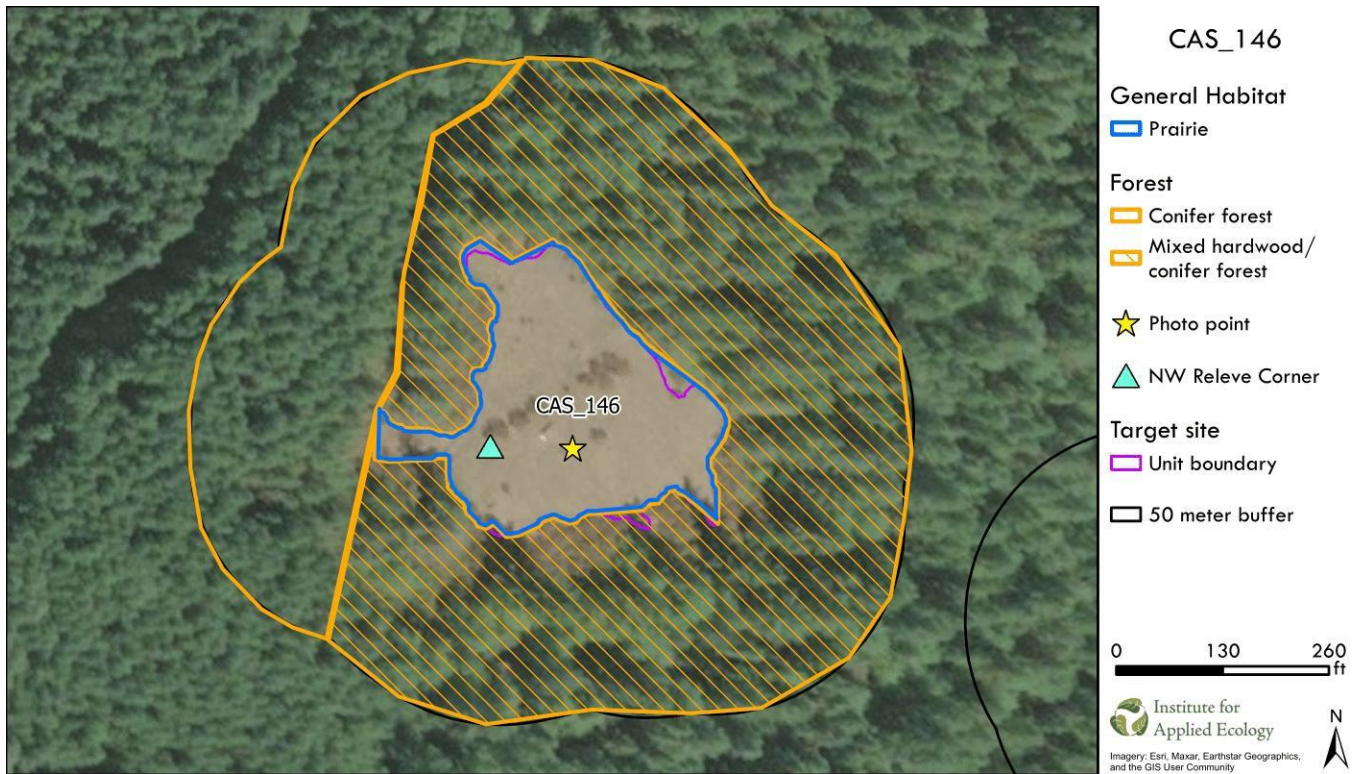
**Table E-1.** Relevé survey data. Braun-Blanquet cover scale: R = <5% and single individual, + = <5% and 2-20 individuals, 1 = <5% many individuals, 2 = 5-25%, 3 = 25-50%, 4 = 50-75%, 5 = 75-100%. The origin was listed as “unknown” for plants that were not identified to species and that have both native and non-native species in their genus.

**Relevé data for CAS\_146**

Scientific name	Common name	Origin	Braun-Blanquet cover score
<i>Aira caryophyllea</i>	silver hairgrass	Invasive	1
<i>Bromus hordeaceus</i>	soft brome	Invasive	1
<i>Cynosurus echinatus</i>	bristly dogtail grass	Invasive	1
<i>Danthonia californica</i>	California oatgrass	Native	+
<i>Elymus glaucus</i>	blue wildrye	Native	+
<i>Holcus lanatus</i>	common velvetgrass	Invasive	1
<i>Acmispon parviflorus</i>	bird's foot trefoil	Native	1
<i>Allium sp.</i>	wild onion	Unknown	1

Relevé data for CAS_146			
Scientific name	Common name	Origin	Braun-Blanquet cover score
<i>Camassia leichtlinii</i>	large camas	Native	+
<i>Camassia quamash</i>	small camas	Native	3
<i>Clarkia purpurea</i>	winecup clarkia	Native	1
<i>Delphinium menziesii</i>	Menzies' larkspur	Native	2
<i>Daucus pusillus</i>	American wild carrot	Native	1
<i>Eriophyllum lanatum</i>	common woolly sunflower	Native	2
<i>Mimulus guttatus</i>	seep monkeyflower	Native	1
<i>Geranium dissectum</i>	cutleaf geranium	Invasive	1
<i>Hypochaeris glabra</i>	smooth cat's ear	Invasive	1
<i>Hypochaeris radicata</i>	hairy cat's ear	Invasive	1
<i>Leptosiphon bicolor</i>	true babystars	Native	1
<i>Leucanthemum vulgare</i>	oxeye daisy	Invasive	1
<i>Plectritis congesta</i>	shortspur seablush	Native	1
<i>Prunella vulgaris</i>	common selfheal	Native	2
<i>Sherardia arvensis</i>	blue fieldmadder	Invasive	1
<i>Triteleia hyacinthina</i>	white brodiaea	Native	1
<i>Veronica arvensis</i>	corn speedwell	Invasive	1
<i>Vicia sativa</i>	garden vetch	Invasive	1
<i>Vicia tetrasperma</i>	lentil vetch	Invasive	+
<i>Holodiscus discolor</i>	oceanspray	Native	R
<i>Trifolium microcephalum</i>	smallhead clover	Native	2
<i>Trifolium willdenovii</i>	tomcat clover	Native	1
<i>Collinsia parviflora</i>	maiden blue eyed Mary	Native	1
<i>Castilleja hispida</i>	harsh indian paintbrush	Native	+
<i>Trifolium variegatum</i>	whitetip clover	Native	+
<i>Drymocallis glandulosa</i>	sticky cinquefoil	Native	+
<i>Microsteris gracilis</i>	slender phlox	Native	+
<i>Perideridia oregana</i>	Oregon yampah	Native	+
<i>Festuca rubra</i>	red fescue	Invasive	+

Relevé substrate (%)			
Bare	Moss/Lichen	Rock	Thatch
0.1	0.3	0	5



**Figure E-1.** Overview of CAS\_146 with habitat, forested buffer areas, photopoint, and relevé plot location.



**Figure E-2.** Seed collection species observed.

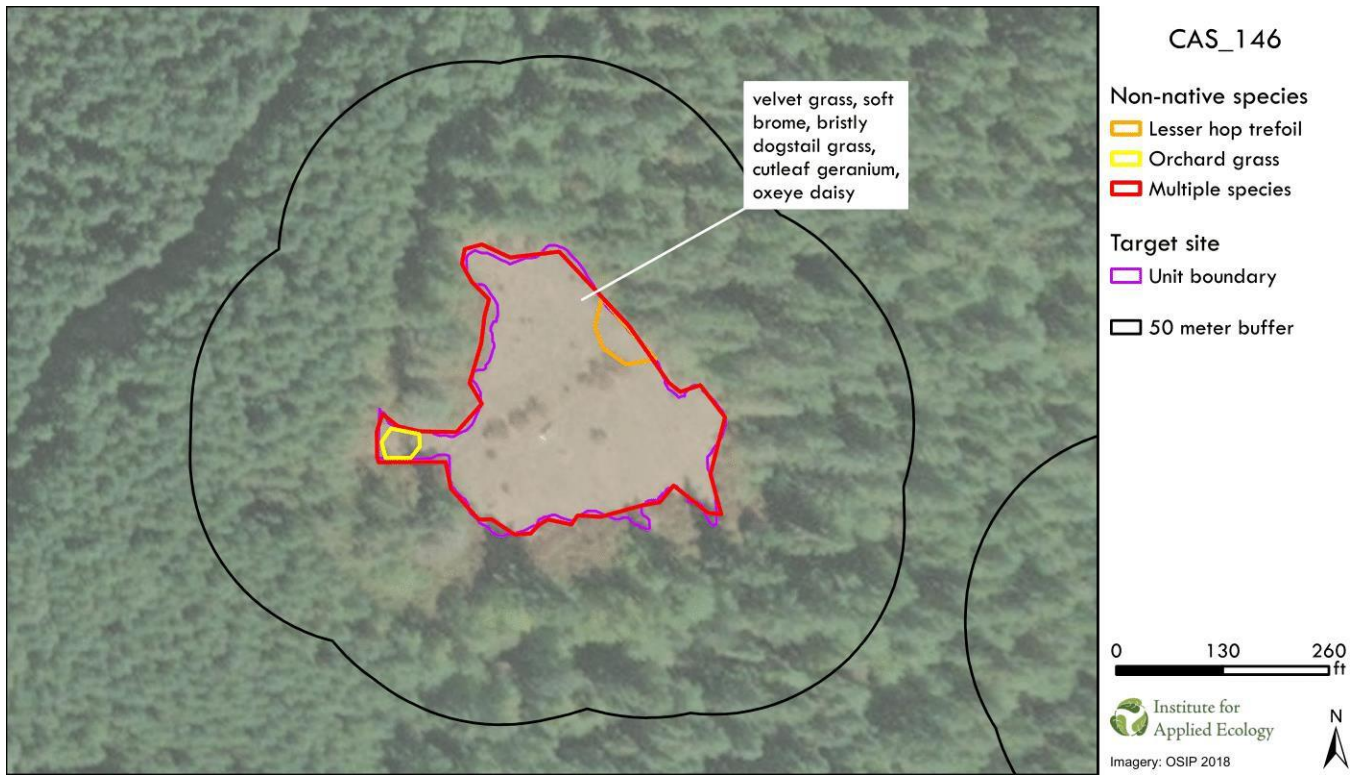


Figure E-3. Non-native species observed.

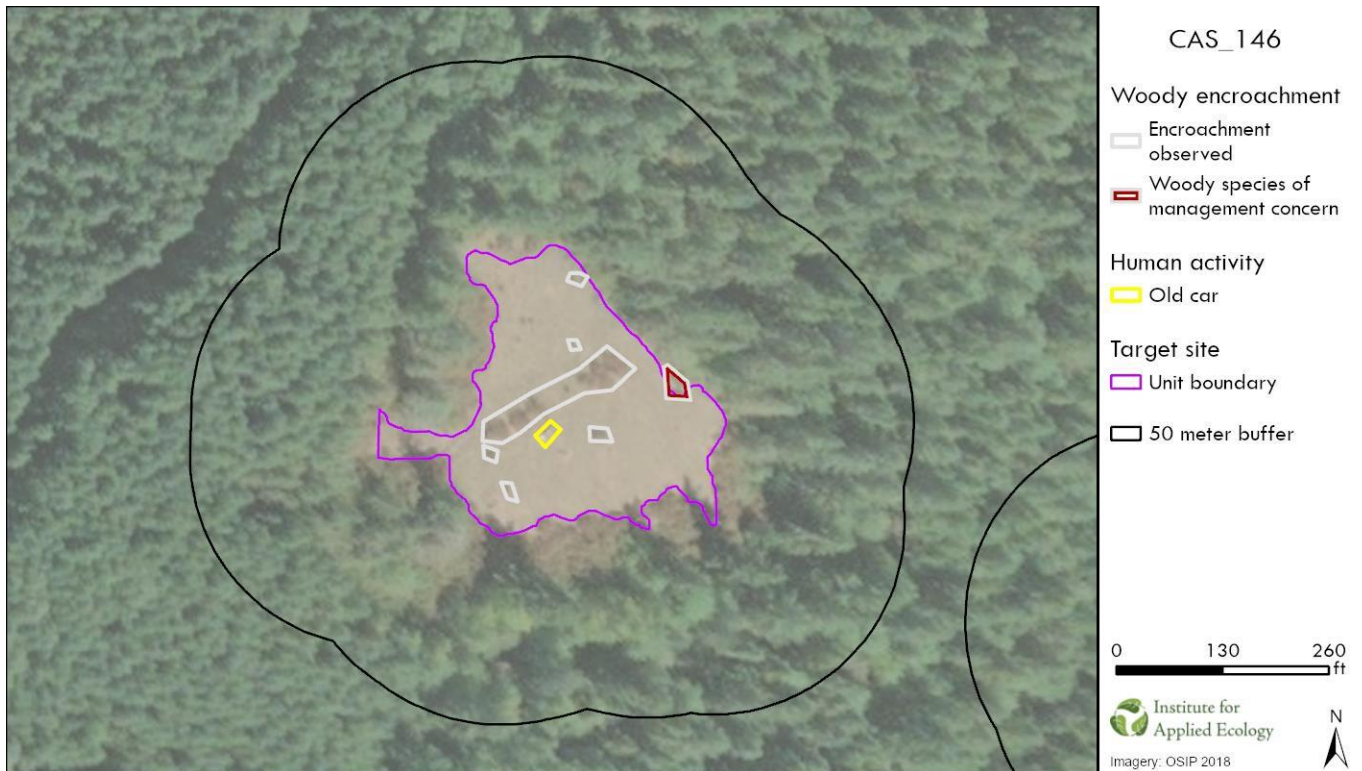


Figure E-4. Woody encroachment and human activity observed. Woody species of management concern observed was poison oak (*Toxicodendron diversilobum*).

North:



East:



South:



West:



Figure E-5. CAS\_146 photopoints taken at -122.660958, 44.573779.

**CAS\_147**

<b>General site information</b>	
Date surveyed	6/29/2022
Observers (affiliation)	Annamarie Pfeifer, Annie Lamas, Zade Clark-Henry (IAE)
Unit ID	CAS_147
Site name	Beaver Creek
BLM Field Office	Cascades
County	Linn
Township, Range, Section	T11S, R01E, Sec35
Recovery zone (USFWS 2010)	Salem East
Land ownership	BLM, Northwest Oregon District
Contact person and contact information	Cody Lesniak clesniak@blm.gov, 503-375-3635 (office) Cameron Minson cminson@blm.gov, 541-324-8890 (office)
Directions	Park on Hammond I (11-1E-26.0) and walk west through the forest to the site.
Photopoint coordinates	-122.657438, 44.573056

<b>Habitat overview</b>	
Unit area (acres)	0.20
Prairie and/or oak habitat present?	Yes
Habitat type (special habitat)	Meadow (mesic meadow)
Habitat type notes	This site is comprised of a small, moist meadow dominated by camas and shortspur seablush. No oaks were observed. The site is likely seasonally moist.
Slope (degrees)	7
Aspect	WSW
Elevation (feet)	1800
What maintains site openness?	Hydrology, soils
Evidence of human disturbance	No
Type of site	Open area surrounded by forest
Buffer or forested area description	Buffer is a second growth forest dominated by Douglas-fir ( <i>Pseudotsuga menziesii</i> ) and co-dominated by bigleaf maple ( <i>Acer macrophyllum</i> ).
Do remnant oak or prairie species exist in the buffer or forested areas?	Yes
Remnant oak or prairie species observed (Alverson 2010)	Woodland strawberry ( <i>Fragaria vesca</i> )

<b>Woody species</b>			
Overall live woody cover (%)	15.1		
Live native tree cover (%)	0.1	Live non-native tree cover (%)	0
Live native shrub cover (%)	15	Live non-native shrub cover (%)	0
Live tree cover from oaks (%)	0	Standing dead woody cover (%)	0.5
Number oaks >15 in DBH	0		



Number of large trees (>40 in DBH)	0
Woody species encroaching on prairie habitat*+	Oceanspray ( <i>Holodiscus discolor</i> ), Douglas-fir ( <i>Pseudotsuga menziesii</i> )
Would removal of encroaching woody species result in the need for wood to be hauled off-site?	No

\*Woody species of management concern from the *Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington* (USFWS 2010).

+Woody species of management concern that exceed 5% cover of the site.

**Herbaceous non-native species**

Herbaceous non-native cover (%)	25
Most common non-native species	Soft brome ( <i>Bromus hordeaceus</i> ), smooth hawksbeard ( <i>Crepis capillaris</i> ), common velvetgrass ( <i>Holcus lanatus</i> ), Robert's geranium ( <i>Geranium robertianum</i> ), smooth cat's ear ( <i>Hypochaeris glabra</i> )

**Herbaceous native species**

Herbaceous native cover (%)	75
Most common native species	Small camas ( <i>Camassia quamash</i> ), seep monkeyflower ( <i>Mimulus guttatus</i> ), shortspur seablush ( <i>Plectritis congesta</i> ), smallhead clover ( <i>Trifolium microcephalum</i> ), common selfheal ( <i>Prunella vulgaris</i> )
Relevé survey?	No
T&E species present?	No
Seed collection potential?	Shortspur seablush ( <i>Plectritis congesta</i> ), smallhead clover ( <i>Trifolium microcephalum</i> ), seep monkeyflower ( <i>Mimulus guttatus</i> ), small camas ( <i>Camassia quamash</i> ), common selfheal ( <i>Prunella vulgaris</i> ), American wild carrot ( <i>Daucus pusillus</i> ), whitetip clover ( <i>Trifolium variegatum</i> ), blue wildrye ( <i>Elymus glaucus</i> ), California brome ( <i>Bromus carinatus</i> ), Pacific woodrush ( <i>Luzula comosa</i> ), California oatgrass ( <i>Danthonia californica</i> ), maiden blue eyed Mary ( <i>Collinsia parviflora</i> ), tomcat clover ( <i>Trifolium willdenovii</i> )

**Wildlife**

Wildlife species of interest observed	None
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**Preliminary habitat restoration/management recommendations**

Overall ranking as a priority for restoration (high, moderate, or low)	Low
Short-term recommended actions	Cut out encroaching oceanspray ( <i>Holodiscus discolor</i> ) and conifer saplings.
Long-term recommended actions	Treat non-native grasses. Treat non-native asters. Augment the meadow with additional native bunchgrasses. Consider connecting CAS_147 to CAS_148 by removing the large patch of oceanspray ( <i>Holodiscus discolor</i> ) separating the meadow habitats.
Site accessibility issues	Access requires a short hike downhill through the woods.
Restoration action notes	This site would require significant effort to connect the habitat and expand the meadow. For this reason, it was ranked as having low restoration potential.

<b>Modified prairie habitat quality summary (USFWS 2010)</b>				
<b>Oak habitat criteria</b>		<b>Data</b>	<b>Objective</b>	<b>Meets objectives?</b>
Oaks present?		No	Yes	No
Number of oaks greater than 15 inches DBH?		0	≥1	No
<b>Prairie habitat criteria</b>		<b>Data</b>	<b>Recovery Plan threshold</b>	<b>Meets threshold?</b>
Native herbaceous species cover (%)		75	50% min	Yes
Woody species cover		15.1	15% max	No
Does any one woody species of management concern exceed 5% cover?		No	5% max	Yes
Prairie diversity	Native forb richness	N/A	7	No data
	Native bunchgrass richness	N/A	1	No data
	Total native herbaceous species richness	N/A	>10	No data
Do any non-native species exceed 50% cover within the relevé plot?		N/A	50%	No data
Do any non-native species of particular concern exceed 5% cover?		N/A	5%	No data



Figure E-6. Overview of CAS\_147 with habitat, forested buffer areas and photopoint location.

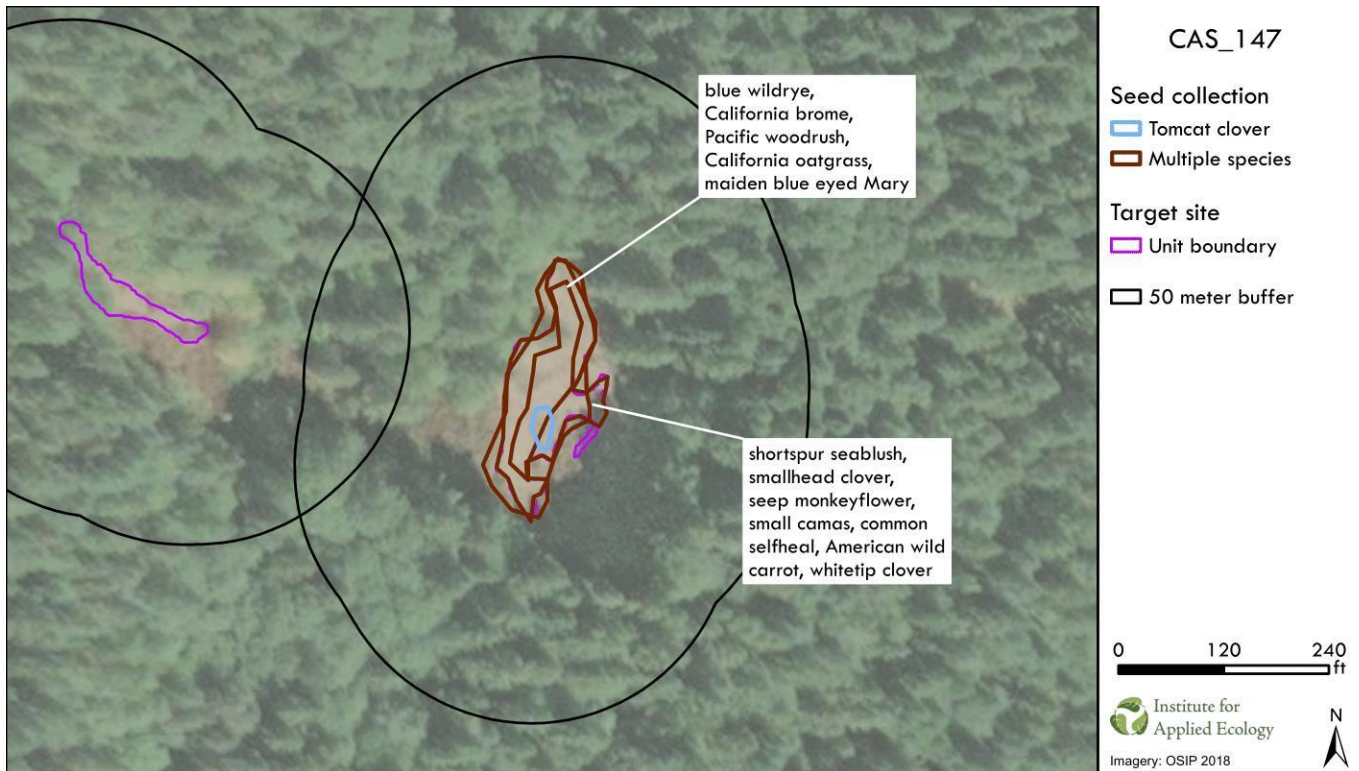


Figure E-7. Seed collection species observed.



Figure E-8. Non-native species observed.



Figure E-9. Woody encroachment and human activity observed.

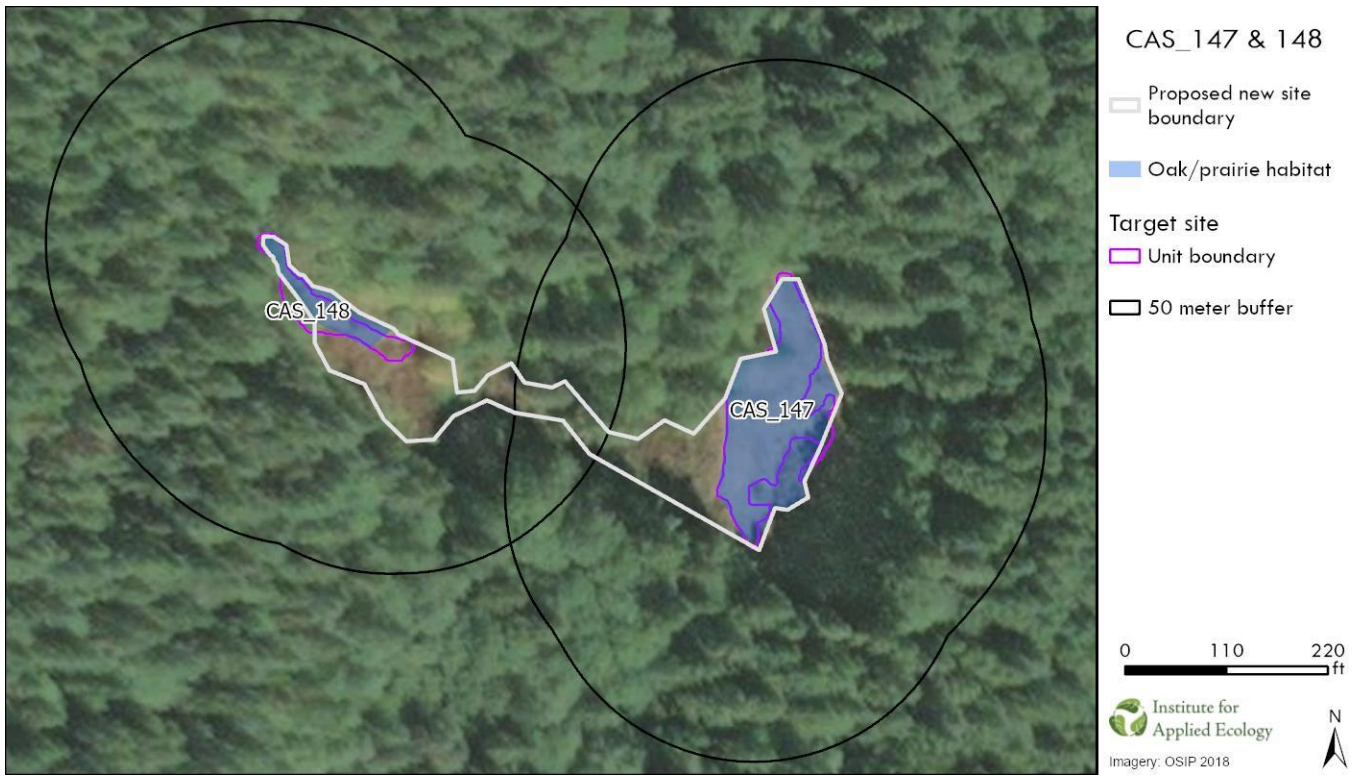


Figure E-10. Recommended changes to the unit boundary based on habitat and/or oaks present.

North:



East:



South:



West:



**Figure E-11.** CAS\_147 photopoints taken at -122.657438, 44.573056.

**CAS\_148**

<b>General site information</b>	
Date surveyed	6/29/2022
Observers (affiliation)	Annamarie Pfeifer, Annie Lamas, Zade Clark-Henry (IAE)
Unit ID	CAS_148
Site name	Beaver Creek
BLM Field Office	Cascades
County	Linn
Township, Range, Section	T11S, R01E, Sec35
Recovery zone (USFWS 2010)	Salem East
Land ownership	BLM, Northwest Oregon District
Contact person and contact information	Cody Lesniak clesniak@blm.gov, 503-375-3635 (office) Cameron Minson cminson@blm.gov, 541-324-8890 (office)
Directions	Park on Hammond I (11-1E-26.0) and walk west through the forest to the site.
Photopoint coordinates	-122.658785, 44.573200

<b>Habitat overview</b>	
Unit area (acres)	0.05
Prairie and/or oak habitat present?	Yes
Habitat type (special habitat)	Shrubland, meadow (mesic meadow)
Habitat type notes	Small, moist meadow opening dominated by shortspur seablush ( <i>Plectritis congesta</i> ) and seep monkeyflower ( <i>Mimulus guttatus</i> ). The meadow area is surrounded and encroached by a dense layer of oceanspray ( <i>Holodiscus discolor</i> ) and other woody species.
Slope (degrees)	15
Aspect	E
Elevation (feet)	1740
What maintains site openness?	Hydrology
Evidence of human disturbance	No
Type of site	Open area surrounded by forest
Buffer or forested area description	Buffer is a second growth forest dominated by western hemlock ( <i>Tsuga heterophylla</i> ) and co-dominated by bigleaf maple ( <i>Acer macrophyllum</i> ).
Do remnant oak or prairie species exist in the buffer or forested areas?	No

<b>Woody species</b>			
Overall live woody cover (%)	5		
Live native tree cover (%)	1	Live non-native tree cover (%)	0
Live native shrub cover (%)	4	Live non-native shrub cover (%)	0
Live tree cover from oaks (%)	0	Standing dead woody cover (%)	0
Number oaks >15 in DBH	0		
Number of large trees (>40 in DBH)	0		

Woody species encroaching on prairie habitat*+	Oceanspray ( <i>Holodiscus discolor</i> ), Oregon ash ( <i>Fraxinus latifolia</i> ), Pacific ninebark ( <i>Physocarpus capitatus</i> )
Would removal of encroaching woody species result in the need for wood to be hauled off-site?	No
Woody species notes	Common snowberry ( <i>Symphoricarpos albus</i> ) and vine maple ( <i>Acer circinatum</i> ) are also encroaching. Dense shrubland surrounds and divides the small meadow.

\*Woody species of management concern from the *Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington* (USFWS 2010).

+Woody species of management concern that exceed 5% cover of the site.

**Herbaceous non-native species**

Herbaceous non-native cover (%)	25
Most common non-native species	Bristly dogstail grass ( <i>Cynosurus echinatus</i> ), common velvetgrass ( <i>Holcus lanatus</i> ), soft brome ( <i>Bromus hordeaceus</i> ), cutleaf geranium ( <i>Geranium dissectum</i> ), smooth hawksbeard ( <i>Crepis capillaris</i> )

**Herbaceous native species**

Herbaceous native cover (%)	75
Most common native species	Shortspur seablush ( <i>Plectritis congesta</i> ), seep monkeyflower ( <i>Mimulus guttatus</i> ), smallhead clover ( <i>Trifolium microcephalum</i> ), common selfheal ( <i>Prunella vulgaris</i> ), maiden blue eyed Mary ( <i>Collinsia parviflora</i> ), whitetip clover ( <i>Trifolium variegatum</i> )
Relevé survey?	No
T&E species present?	No
Seed collection potential?	Shortspur seablush ( <i>Plectritis congesta</i> ), seep monkeyflower ( <i>Mimulus guttatus</i> ), grassy tarweed ( <i>Madia gracilis</i> ), blue wildrye ( <i>Elymus glaucus</i> ), maiden blue eyed Mary ( <i>Collinsia parviflora</i> ), smallhead clover ( <i>Trifolium microcephalum</i> ), American wild carrot ( <i>Daucus pusillus</i> ), whitetip clover ( <i>Trifolium variegatum</i> )

**Wildlife**

Wildlife species of interest observed	None
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**Preliminary habitat restoration/management recommendations**

Overall ranking as a priority for restoration (high, moderate, or low)	Low
Short-term recommended actions	Remove oceanspray ( <i>Holodiscus discolor</i> ) encroaching into the meadow.
Long-term recommended actions	Cut back shrubs to open meadow habitat. Treat non-native grasses. Consider connecting CAS_147 and CAS_148 by removing shrubland separating the sites.
Site accessibility issues	Access requires a short hike downhill through the woods.
Restoration action notes	Significant effort would be required to connect this site to CAS_147 to expand the meadow area. For this reason it was ranked as having low restoration potential.



<b>Modified prairie habitat quality summary (USFWS 2010)</b>				
<b>Oak habitat criteria</b>		<b>Data</b>	<b>Objective</b>	<b>Meets objectives?</b>
Oaks present?		No	Yes	No
Number of oaks greater than 15 inches DBH?		0	≥1	No
<b>Prairie habitat criteria</b>		<b>Data</b>	<b>Recovery Plan threshold</b>	<b>Meets threshold?</b>
Native herbaceous species cover (%)		75	50% min	Yes
Woody species cover		5	15% max	Yes
Does any one woody species of management concern exceed 5% cover?		No	5% max	Yes
Prairie diversity	Native forb richness	N/A	7	No data
	Native bunchgrass richness	N/A	1	No data
	Total native herbaceous species richness	N/A	>10	No data
Do any non-native species exceed 50% cover within the relevé plot?		N/A	50%	No data
Do any non-native species of particular concern exceed 5% cover?		N/A	5%	No data



**Figure E-12.** Overview of CAS\_148 with habitat, forested buffer areas, and photopoint location.



**Figure E-13.** Seed collection species observed.

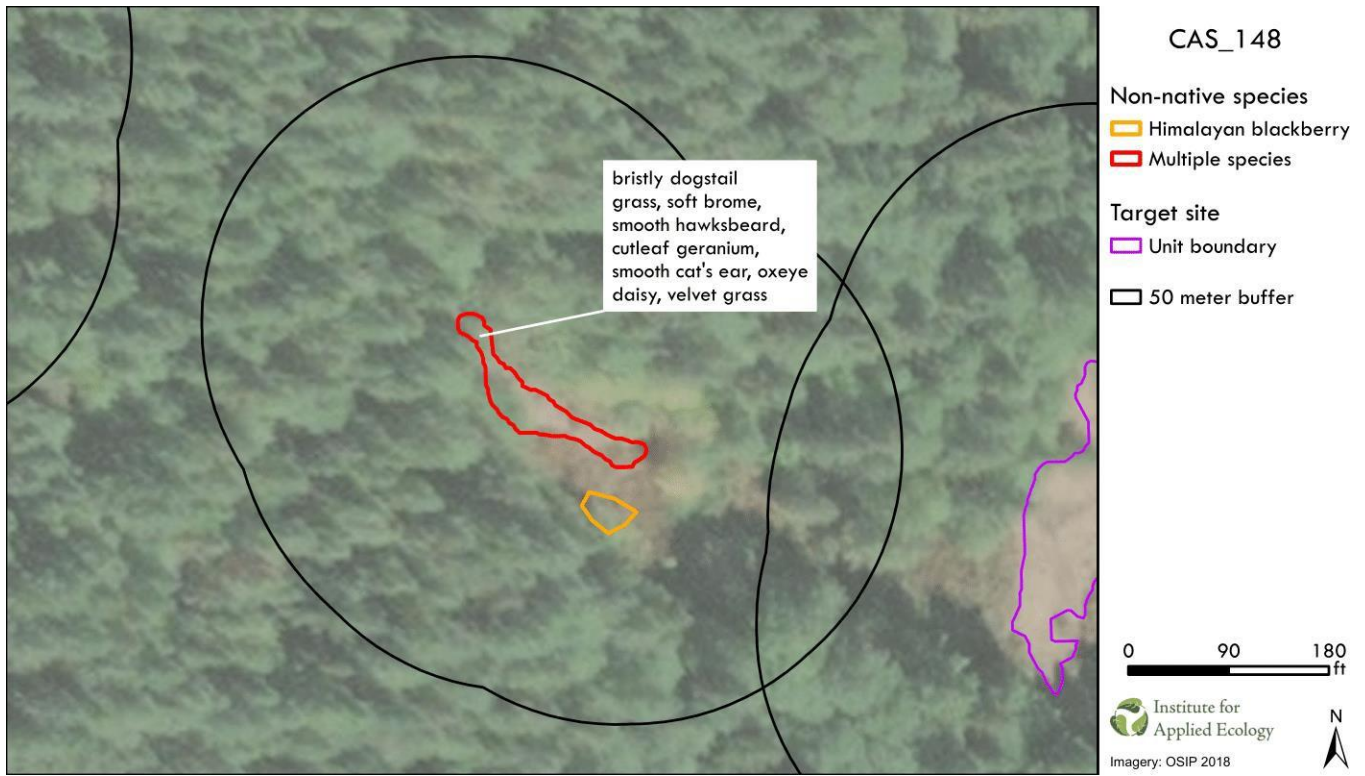


Figure E-14. Non-native species observed.



Figure E-15. Woody encroachment and human activity observed.

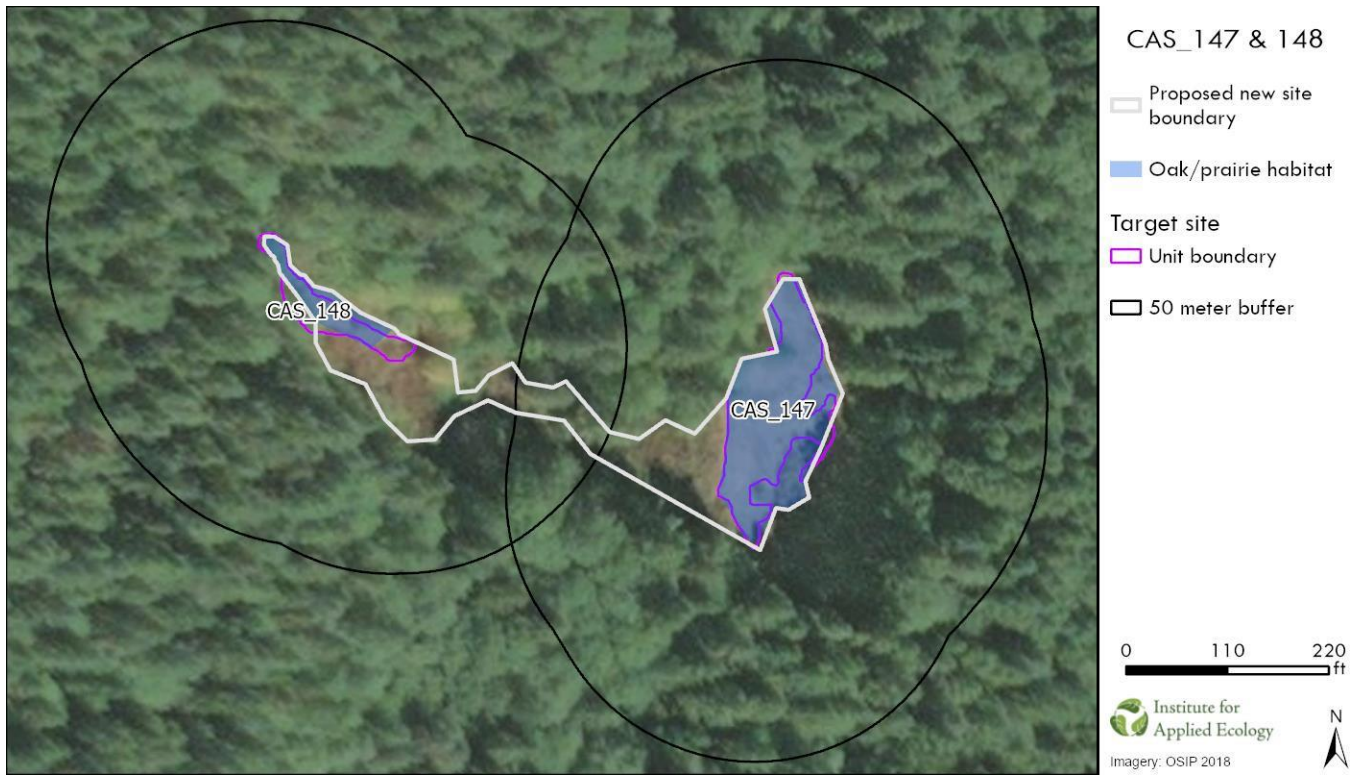


Figure E-16. Recommended changes to the unit boundary based on habitat and/or oaks present.

North:



East:



South:



West:



**Figure E-17.** CAS\_148 photopoints taken at -122.658784, 44.573200.

## CAS\_149

General site information	
Date surveyed	6/28/2022
Observers (affiliation)	Annamarie Pfeifer, Annie Lamas, Zade Clark-Henry (IAE)
Unit ID	CAS_149
Site name	Beaver Creek
BLM Field Office	Cascades
County	Linn
Township, Range, Section	T11S, R01E, Sec35
Recovery zone (USFWS 2010)	Salem East
Land ownership	BLM, Northwest Oregon District
Contact person and contact information	Cody Lesniak clesniak@blm.gov, 503-375-3635 (office) Cameron Minson cminson@blm.gov, 541-324-8890 (office)
Directions	Park on Hammond I (11-1E-26.0) and walk east through the forest to the site.
Photopoint coordinates	-122.653281, 44.574086

Habitat overview	
Unit area (acres)	0.10
Prairie and/or oak habitat present?	No
Habitat type (special habitat)	Shrubland (mesic meadow)
Habitat type notes	This is a very small mesic meadow dominated by native forbs and surrounded by dense oceanspray ( <i>Holodiscus discolor</i> ) shrubland.
Slope (degrees)	1
Aspect	S
Elevation (feet)	2090
What maintains site openness?	Hydrology
Evidence of human disturbance	No
Type of site	Open area surrounded by forest
Buffer or forested area description	Buffer is a second growth forest dominated by western hemlock ( <i>Tsuga heterophylla</i> ) and co-dominated by bigleaf maple ( <i>Acer macrophyllum</i> ).
Do remnant oak or prairie species exist in the buffer or forested areas?	Yes
Remnant oak or prairie species observed (Alverson 2010)	Woodland strawberry ( <i>Fragaria vesca</i> )
General notes	

Woody species			
Overall live woody cover (%)	70		
Live native tree cover (%)	0	Live non-native tree cover (%)	0
Live native shrub cover (%)	70	Live non-native shrub cover (%)	0
Live tree cover from oaks (%)	0	Standing dead woody cover (%)	0
Number oaks >15 in DBH	0		

Number of large trees (>40 in DBH)	0
Would removal of encroaching woody species result in the need for wood to be hauled off-site?	Not Applicable
Woody species notes	Oceanspray ( <i>Holodiscus discolor</i> ) is the dominant woody species within the open habitat area.

\*Woody species of management concern from the *Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington* (USFWS 2010).

+Woody species of management concern that exceed 5% cover of the site.

**Herbaceous non-native species**

Herbaceous non-native cover (%)	10
Most common non-native species	Bristly dogstail grass ( <i>Cynosurus echinatus</i> ), soft brome ( <i>Bromus hordeaceus</i> ), silver hairgrass ( <i>Aira caryophyllea</i> ), cutleaf geranium ( <i>Geranium dissectum</i> ), common velvetgrass ( <i>Holcus lanatus</i> ), oxeye daisy ( <i>Leucanthemum vulgare</i> )

**Herbaceous native species**

Herbaceous native cover (%)	90
Most common native species	Small camas ( <i>Camassia quamash</i> ), Suksdorf's large camas ( <i>Camassia leichtlinii</i> var. <i>suksdorfii</i> ), blue wildrye ( <i>Elymus glaucus</i> ), American wild carrot ( <i>Daucus pusillus</i> ), tomcat clover ( <i>Trifolium willdenovii</i> ), common selfheal ( <i>Prunella vulgaris</i> ), shortspur seablush ( <i>Plectritis congesta</i> ), seep monkeyflower ( <i>Mimulus guttatus</i> )
Relevé survey?	No
T&E species present?	No
Seed collection potential?	Common selfheal ( <i>Prunella vulgaris</i> ), tomcat clover ( <i>Trifolium willdenovii</i> ), small camas ( <i>Camassia quamash</i> ), seep monkeyflower ( <i>Mimulus guttatus</i> ), blue wildrye ( <i>Elymus glaucus</i> ), white brodiaea ( <i>Triteleia hyacinthina</i> ), large camas ( <i>Camassia leichtlinii</i> ), sticky cinquefoil ( <i>Drymocallis glandulosa</i> ), American wild carrot ( <i>Daucus pusillus</i> )

**Wildlife**

Wildlife species of interest observed	None
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**Preliminary habitat restoration/management recommendations**

Overall ranking as a priority for restoration (high, moderate, or low)	Low
Long-term recommended actions	Treat non-native grasses.
Site accessibility issues	Site access requires a short hike through dense, shrubby understory.
Restoration action notes	This site is very small and does not contain oaks. The herbaceous community is primarily comprised of native species, and there is little restoration work to be done.
Restoration management notes	This site is in relatively good condition with high native diversity and abundance. Consider this site for seed collection.

<b>Modified prairie habitat quality summary (USFWS 2010)</b>				
<b>Oak habitat criteria</b>		<b>Data</b>	<b>Objective</b>	<b>Meets objectives?</b>
Oaks present?		No	Yes	No
Number of oaks greater than 15 inches DBH?		0	≥1	No
<b>Prairie habitat criteria</b>		<b>Data</b>	<b>Recovery Plan threshold</b>	<b>Meets threshold?</b>
Native herbaceous species cover (%)		90	50% min	Yes
Woody species cover		70	15% max	No
Does any one woody species of management concern exceed 5% cover?		No	5% max	Yes
Prairie diversity	Native forb richness	N/A	7	No data
	Native bunchgrass richness	N/A	1	No data
	Total native herbaceous species richness	N/A	>10	No data
Do any non-native species exceed 50% cover within the relevé plot?		N/A	50%	No data
Do any non-native species of particular concern exceed 5% cover?		N/A	5%	No data





Figure E-18. Overview of CAS\_149 with habitat, forested buffer areas, and photopoint location.



Figure E-19. Seed collection species observed.



Figure E-20. Non-native species observed.

North:



East:



South:



West:



**Figure E-21.** CAS\_149 photopoints taken at -122.653281, 44.574086.

## KEEL MOUNTAIN

### CAS\_029

General site information	
Date surveyed	6/23/2022
Observers (affiliation)	Annamarie Pfeifer, Annie Lamas, Zade Clark-Henry (IAE)
Unit ID	CAS_029
Site name	Keel Mountain
BLM Field Office	Cascades
County	Linn
Township, Range, Section	T11S, R02E, Sec10
Recovery zone (USFWS 2010)	Salem East
Land ownership	BLM, Northwest Oregon District
Contact person and contact information	Cody Lesniak clesniak@blm.gov, 503-375-3635 (office) Cameron Minson cminson@blm.gov, 541-324-8890 (office)
Directions	Park on Snow Peak Rd. and hike north up the road to the southeast of the site. Access may be possible from the north but was not determined at the time of visit.
Photopoint coordinates	-122.545420, 44.614608

Habitat overview	
Unit area (acres)	2.36
Prairie and/or oak habitat present?	Yes
Habitat type (special habitat)	Rock meadow, shrubland, disturbed, oak woodland (dry meadow, talus, rock outcrop)
Habitat type notes	The habitat is variable throughout the site. A large rock outcrop runs north-south through the middle of the site, dividing it roughly into two habitat areas. Much of the open habitat is dominated by dense manzanita and vine maple shrubland.
Slope (degrees)	55
Aspect	S
Elevation (feet)	3000
What maintains site openness?	Soils, fire disturbance, hydrology
Evidence of human disturbance	Yes
Level of human disturbance	Moderate
Type of human disturbance	Land management
Human disturbance notes	An old rock quarry is located in the east portion of the site.
Type of site	Open area surrounded by forest
Buffer or forested area description	Buffer is a second growth forest dominated by western hemlock ( <i>Tsuga heterophylla</i> ) and co-dominated by Douglas-fir ( <i>Pseudotsuga menziesii</i> ).
Do remnant oak or prairie species exist in the buffer or forested areas?	No

Woody species			
Overall live woody cover (%)	70		
Live native tree cover (%)	15	Live non-native tree cover (%)	0
Live native shrub cover (%)	55	Live non-native shrub cover (%)	0
Live tree cover from oaks (%)	1	Standing dead woody cover (%)	0
Number oaks >15 in DBH	0		
Number of large trees (>40 in DBH)	0		
Woody species encroaching on prairie habitat*+	Oceanspray ( <i>Holodiscus discolor</i> ), vine maple ( <i>Acer circinatum</i> )		
Would removal of encroaching woody species result in the need for wood to be hauled off-site?	No		

\*Woody species of management concern from the *Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington* (USFWS 2010).

+Woody species of management concern that exceed 5% cover of the site.

Herbaceous non-native species	
Herbaceous non-native cover (%)	15
Most common non-native species	Silver hairgrass ( <i>Aira caryophylla</i> ), bristly dogstail grass ( <i>Cynosurus echinatus</i> ), St. John's wort ( <i>Hypericum perforatum</i> ), hairy cat's ear ( <i>Hypochaeris radicata</i> ), annual fescue ( <i>Vulpia sp.</i> )
Herbaceous non-native species notes	Non-native species occur patchily throughout the site.

Herbaceous native species	
Herbaceous native cover (%)	85
Most common native species	Small camas ( <i>Camassia quamash</i> ), seep monkeyflower ( <i>Mimulus guttatus</i> ), common woolly sunflower ( <i>Eriophyllum lanatum</i> ), Cascade desert parsley ( <i>Lomatium martindalei</i> ), subalpine mariposa lily ( <i>Calochortus subalpinus</i> ), maiden blue eyed Mary ( <i>Collinsia parviflora</i> )
Relevé survey?	Yes (see <a href="#">Table E-2</a> )
T&E species present?	No
Seed collection potential?	Small camas ( <i>Camassia quamash</i> ), Suksdorf's large camas ( <i>Camassia leichtlinii</i> var. <i>suksdorfii</i> ), common woolly sunflower ( <i>Eriophyllum lanatum</i> ), seep monkeyflower ( <i>Mimulus guttatus</i> ), stinky cinquefoil ( <i>Drymocallis glandulosa</i> ), subalpine mariposa lily ( <i>Calochortus subalpinus</i> ), maiden blue eyed Mary ( <i>Collinsia parviflora</i> ), white brodiaea ( <i>Triteleia hyacinthina</i> ), Cascade desert parsley ( <i>Lomatium martindalei</i> )

Wildlife	
Wildlife species of interest observed	None

Preliminary habitat restoration/management recommendations	
Overall ranking as a priority for restoration (high, moderate, or low)	Moderate
Short-term recommended actions	Cut encroaching conifers, vine maple, and oceanspray out of the open meadow.
Long-term recommended actions	Conserve the site for dry, rock meadow habitat.

Site accessibility issues	The site was accessed from the southeast. There is a Weyerhaeuser gate at the property boundary, but there is no BLM lock on the gate. The site may be accessible from the north, but access was not determined at the time of the survey.
Restoration action notes	The site is steep, rocky, and difficult to traverse, which may make restoration actions difficult or infeasible. The plant community is in relatively good condition, which may require little effort to maintain.
Restoration management notes	This site is in overall good condition. Very few restoration actions are recommended.

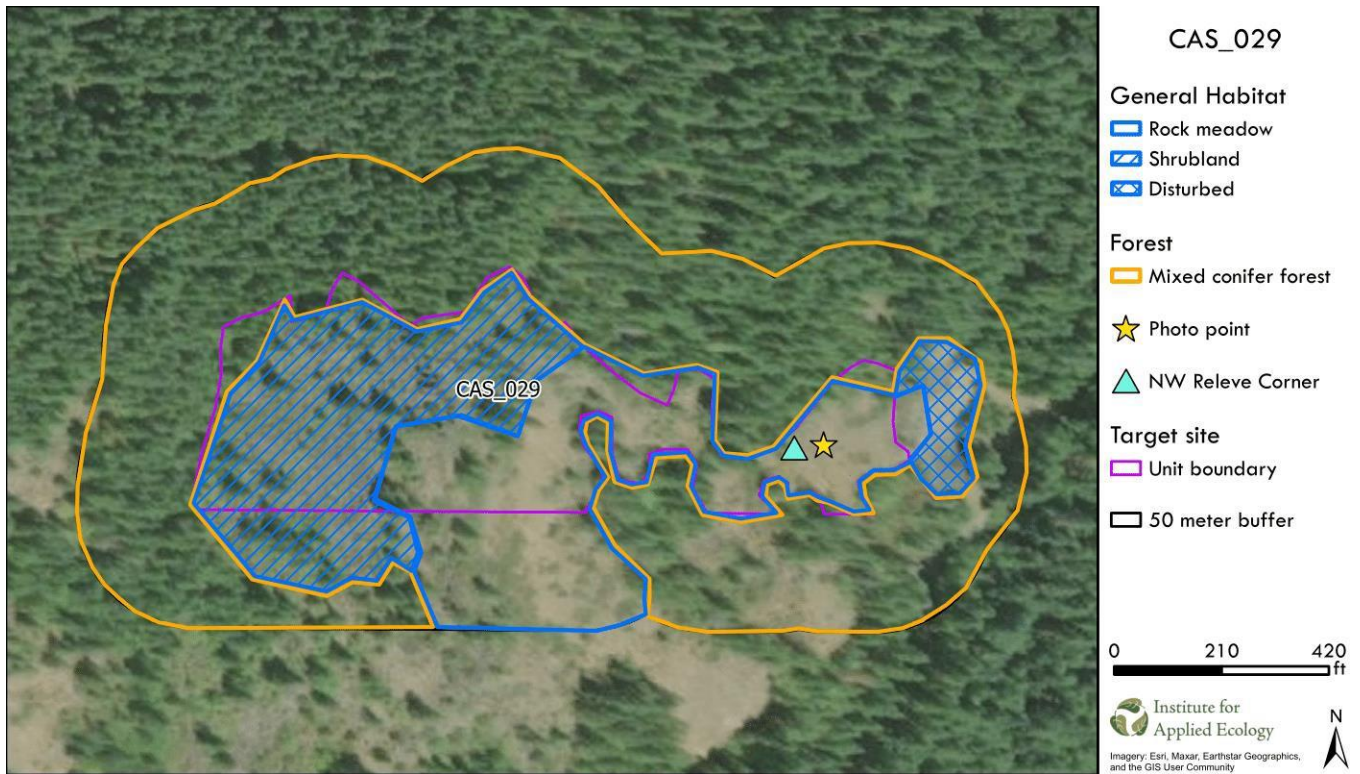
Modified prairie habitat quality summary (USFWS 2010)			
Oak habitat criteria	Data	Objective	Meets objectives?
Oaks present?	Yes	Yes	Yes
Number of oaks greater than 15 inches DBH?	0	≥1	No
Prairie habitat criteria	Data	Recovery Plan threshold	Meets threshold?
Native herbaceous species cover (%)	85	50% min	Yes
Woody species cover	70	15% max	No
Does any one woody species of management concern exceed 5% cover?	No	5% max	Yes
Prairie diversity	Native forb richness	7	Yes
	Native bunchgrass richness	1	No
	Total native herbaceous species richness	>10	Yes
Do any non-native species exceed 50% cover within the relevé plot?	No	50%	No
Do any non-native species of particular concern exceed 5% cover?	No	5%	No

**Table E-2.** Relevé survey data. Braun-Blanquet cover scale: R = <5% and single individual, + = <5% and 2-20 individuals, 1 = <5% many individuals, 2 = 5-25%, 3 = 25-50%, 4 = 50-75%, 5 = 75-100%. The origin was listed as “unknown” for plants that were not identified to species and that have both native and non-native species in their genus.

Relevé data for CAS_029			
Scientific name	Common name	Origin	Braun-Blanquet cover score
<i>Aira caryophylla</i>	silver hairgrass	Invasive	1
<i>Cynosurus echinatus</i>	bristly dogtail grass	Invasive	1
<i>Allium</i> sp.	wild onion	Unknown	1
<i>Camassia quamash</i>	small camas	Native	3
<i>Camassia leichtlinii</i>	large camas	Native	1
<i>Epilobium</i> sp.	willowherb	Unknown	1
<i>Eriophyllum lanatum</i>	common woolly sunflower	Native	1
<i>Mimulus guttatus</i>	seep monkeyflower	Native	2
<i>Hypochaeris radicata</i>	hairy cat's ear	Invasive	+
<i>Lomatium utriculatum</i>	common lomatium	Native	1
<i>Triteleia hyacinthina</i>	white brodiaea	Native	1

Relevé data for CAS_029			
Scientific name	Common name	Origin	Braun-Blanquet cover score
<i>Calochortus subalpinus</i>	subalpine mariposa lily	Native	1
<i>Festuca rubra</i>	red fescue	Invasive	+
<i>Erythranthe alsinoides</i>	wingstem monkeyflower	Native	1
<i>Micranthes sp.</i>	saxifrage	Native	1
<i>Cryptogramma acrostichoides</i>	American rockbrake	Native	2
<i>Collinsia parviflora</i>	maiden blue eyed Mary	Native	1
<i>Drymocallis glandulosa</i>	sticky cinquefoil	Native	+
<i>Galium triflorum</i>	fragrant bedstraw	Native	+

Relevé substrate (%)			
Bare	Moss/Lichen	Rock	Thatch
0.5	4	4	0.5



**Figure E-22.** Overview of CAS\_029 with habitat, forested buffer areas, photopoint, and relevé plot location.



**Figure E-23.** Oaks, large trees, pines, and wildlife observed, if applicable.



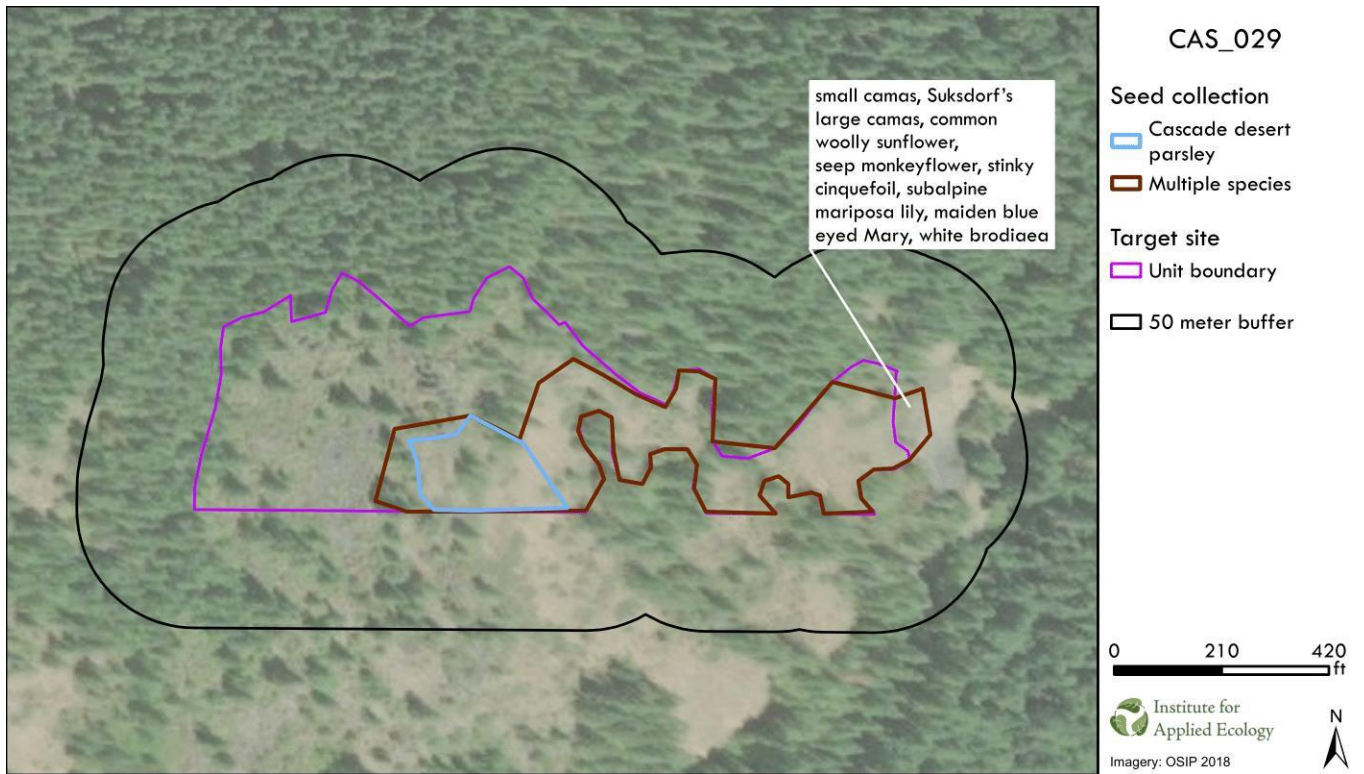


Figure E-24. Seed collection species observed.

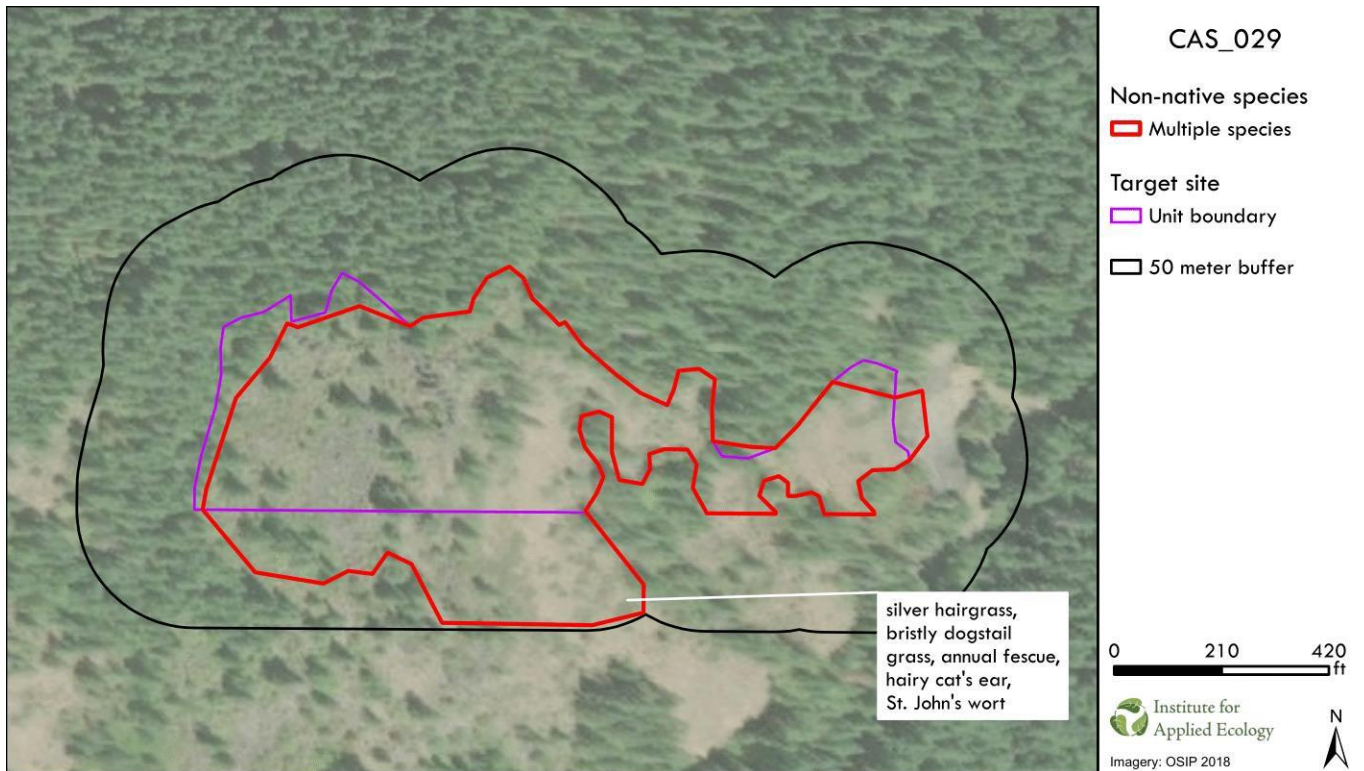


Figure E-25. Non-native species observed.



Figure E-26. Woody encroachment and human activity observed..

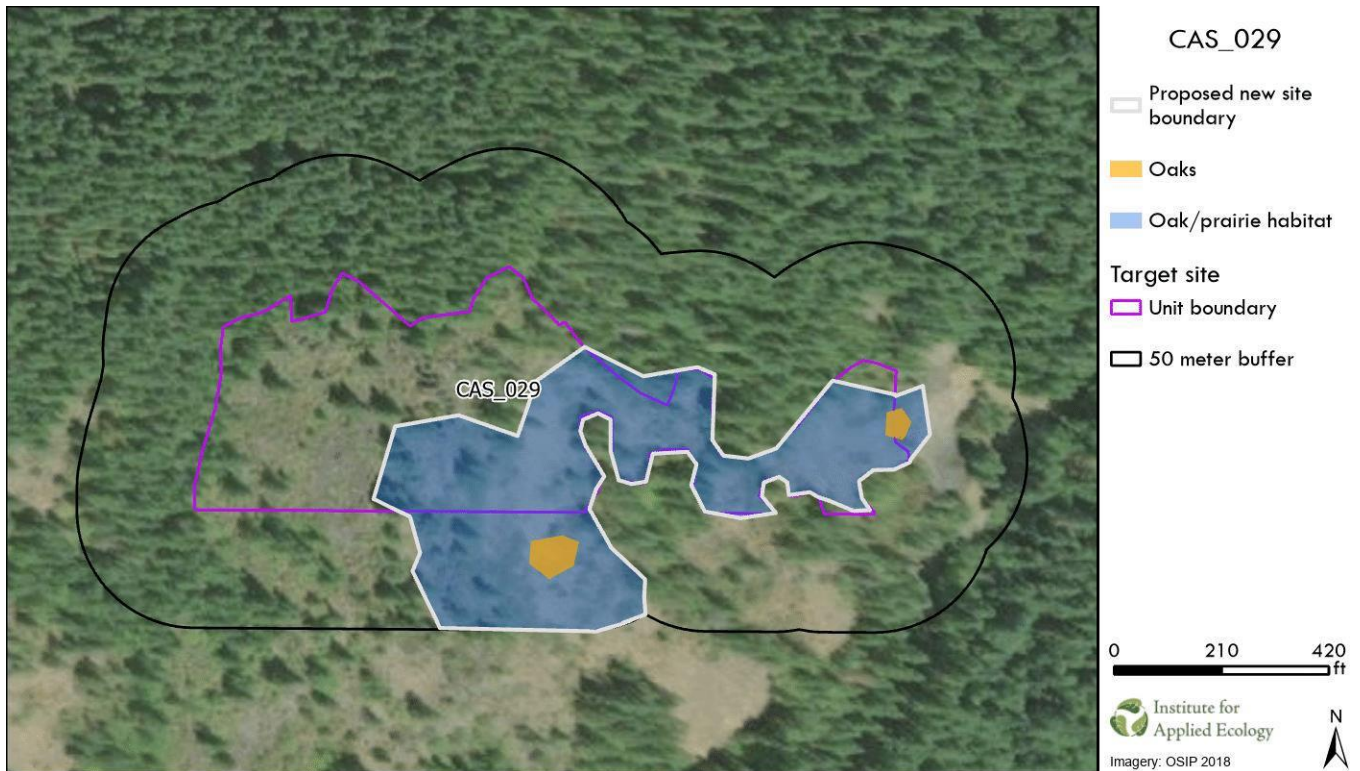


Figure E-27. Recommended changes to the unit boundary based on habitat and/or oaks present.

North:



East:



South:



West:



**Figure E-28.** CAS\_029 photopoints taken at -122.545420, 44.614607.

## LACOMB

### CAS\_042

General site information	
Date surveyed	6/28/2022
Observers (affiliation)	Annamarie Pfeifer, Annie Lamas, Zade Clark-Henry (IAE)
Unit ID	CAS_042
Site name	Lacomb
BLM Field Office	Cascades
County	Linn
Township, Range, Section	T12S, R01E, Sec13
Recovery zone (USFWS 2010)	Salem East
Land ownership	BLM, Northwest Oregon District
Contact person and contact information	Cody Lesniak clesniak@blm.gov, 503-375-3635 (office) Cameron Minson cminson@blm.gov, 541-324-8890 (office)
Directions	Follow Hammond Mainline (11-1E-21.0) to the logging roads east of the site. No access was identified from within the BLM-owned parcel. Park at the top of the logging switchback just to the northeast of the site.
Photopoint coordinates	-122.621980, 44.533186

Habitat overview	
Unit area (acres)	0.21
Prairie and/or oak habitat present?	Yes
Habitat type (special habitat)	Prairie (dry meadow)
Habitat type notes	Habitat continues onto private property to the east.
Slope (degrees)	25
Aspect	S
Elevation (feet)	2650
What maintains site openness?	Fire disturbance, hydrology, soils
Evidence of human disturbance	No
Type of site	Open area surrounded by forest
Buffer or forested area description	Buffer is a second growth forest dominated by Douglas-fir ( <i>Pseudotsuga menziesii</i> ).
Do remnant oak or prairie species exist in the buffer or forested areas?	Yes
Remnant oak or prairie species observed (Alverson 2010)	Toughleaf iris ( <i>Iris tenax</i> ), seep monkeyflower ( <i>Mimulus guttatus</i> )

Woody species			
Overall live woody cover (%)	10		
Live native tree cover (%)	1	Live non-native tree cover (%)	0
Live native shrub cover (%)	9	Live non-native shrub cover (%)	0

Live tree cover from oaks (%)	0	Standing dead woody cover (%)	0
Number oaks >15 in DBH	0		
Number of large trees (>40 in DBH)	0		
Woody species encroaching on prairie habitat**	Oceanspray ( <i>Holodiscus discolor</i> ), common snowberry ( <i>Symphoricarpos albus</i> )		
Would removal of encroaching woody species result in the need for wood to be hauled off-site?	No		

\*Woody species of management concern from the *Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington* (USFWS 2010).

+Woody species of management concern that exceed 5% cover of the site.

**Herbaceous non-native species**

Herbaceous non-native cover (%)	92
Most common non-native species	Bristly dogstail grass ( <i>Cynosurus echinatus</i> ), soft brome ( <i>Bromus hordeaceus</i> ), annual fescue ( <i>Vulpia sp.</i> ), pale flax ( <i>Linum bienne</i> ), smooth hawkbeard ( <i>Crepis capillaris</i> ), lesser hop trefoil ( <i>Trifolium dubium</i> )

**Herbaceous native species**

Herbaceous native cover (%)	8
Most common native species	Blue wildrye ( <i>Elymus glaucus</i> ), smallhead clover ( <i>Trifolium microcephalum</i> ), seep monkeyflower ( <i>Mimulus guttatus</i> ), dwarf checkermallow ( <i>Sidalcea virgata</i> ), shortspur seablush ( <i>Plectritis congesta</i> )
Relevé survey?	No
T&E species present?	No
Seed collection potential?	Shortspur seablush ( <i>Plectritis congesta</i> ), dwarf checkermallow ( <i>Sidalcea virgata</i> ), seep monkeyflower ( <i>Mimulus guttatus</i> ), blue wildrye ( <i>Elymus glaucus</i> ), smallhead clover ( <i>Trifolium microcephalum</i> ), whitetip clover ( <i>Trifolium variegatum</i> ), California oatgrass ( <i>Danthonia californica</i> ), California brome ( <i>Bromus carinatus</i> )

**Wildlife**

Wildlife species of interest observed	None
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**Preliminary habitat restoration/management recommendations**

Overall ranking as a priority for restoration (high, moderate, or low)	Low
Short-term recommended actions	Cut and remove woody species from within the site. Consider cutting conifers on the edge of the forest to increase habitat area.
Long-term recommended actions	Treat annual grasses. Augment meadow with additional native grasses and forbs.
Site accessibility issues	The site is along a clearcut on private timberland. There are no current access points from BLM property. The site requires either a steep hike uphill or downhill through the forest.

Restoration management notes	There is little to recommend for restoration at this site. The site is primarily dominated by non-native grasses, with some native forbs and bunchgrasses present. No oaks were present at the site.
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Modified prairie habitat quality summary (USFWS 2010)				
Oak habitat criteria		Data	Objective	Meets objectives?
Oaks present?		No	Yes	No
Number of oaks greater than 15 inches DBH?		0	≥1	No
Prairie habitat criteria		Data	Recovery Plan threshold	Meets threshold?
Native herbaceous species cover (%)		8	50% min	No
Woody species cover		10	15% max	Yes
Does any one woody species of management concern exceed 5% cover?		No	5% max	Yes
Prairie diversity	Native forb richness	N/A	7	No data
	Native bunchgrass richness	N/A	1	No data
	Total native herbaceous species richness	N/A	>10	No data
Do any non-native species exceed 50% cover within the relevé plot?		N/A	50%	No data
Do any non-native species of particular concern exceed 5% cover?		N/A	5%	No data



Figure E-29. Overview of CAS\_042 with habitat, forested buffer areas, and photopoint location.

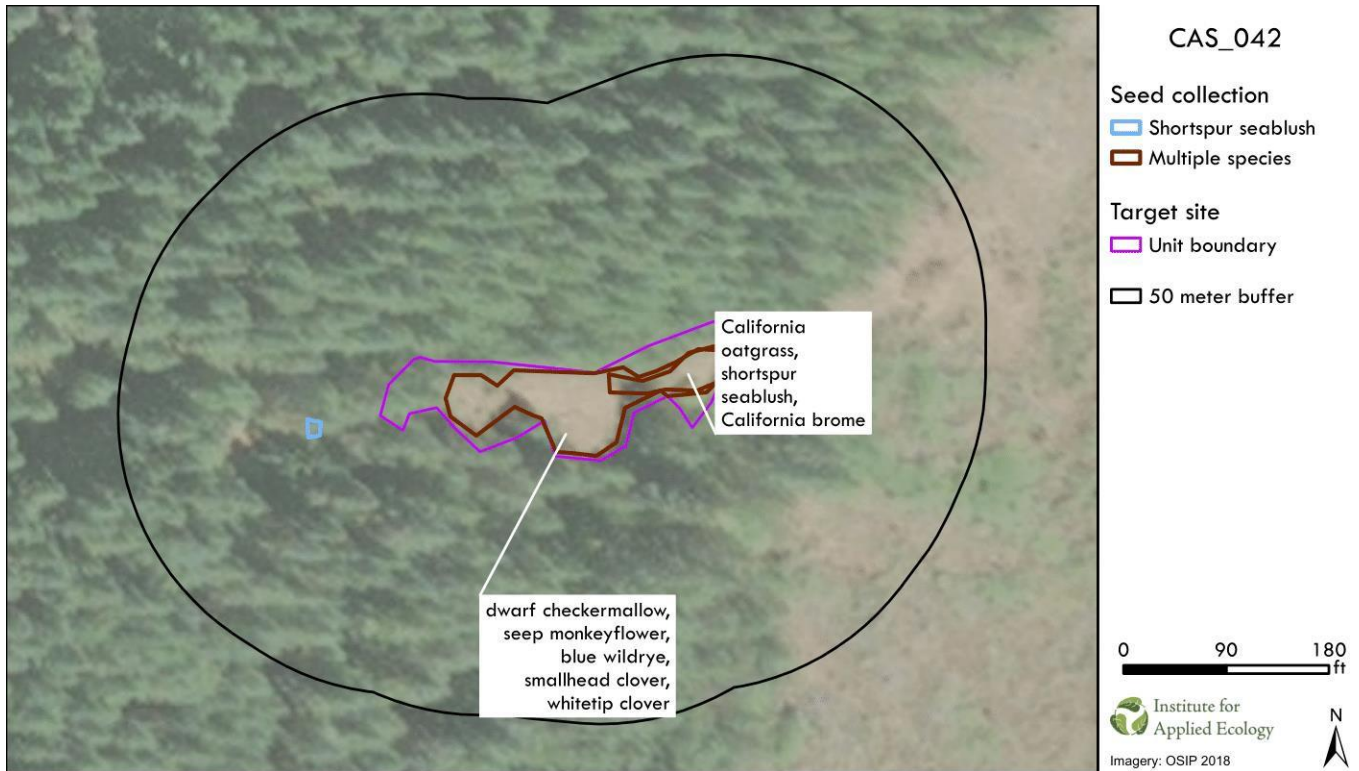


Figure E-30. Seed collection species observed.

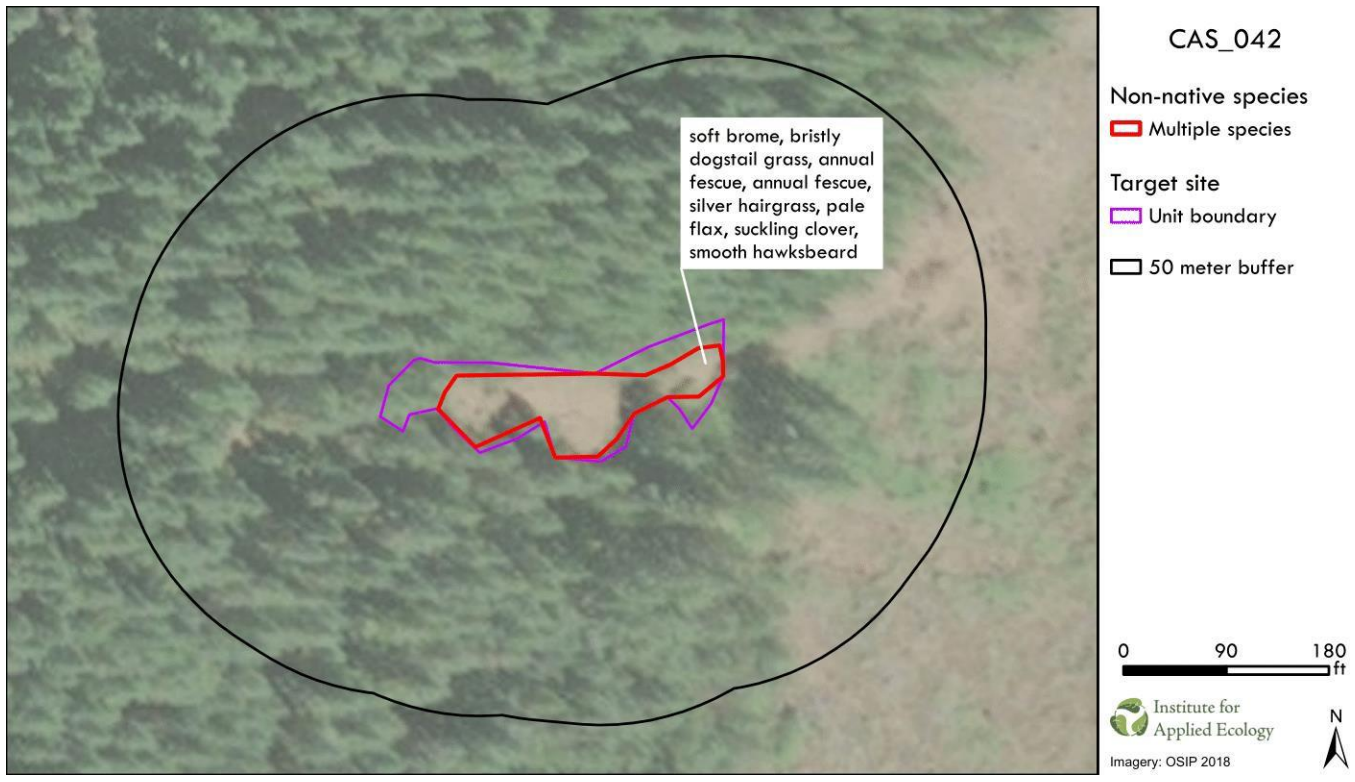


Figure E-31. Non-native species observed.



Figure E-32. Woody encroachment and human activity observed.



North:



East:



South:



West:



**Figure E-33.** CAS\_042 photopoints taken at -122.621980, 44.533186.

## CAS\_150

General site information	
Date surveyed	6/27/2022
Observers (affiliation)	Annamarie Pfeifer, Annie Lamas, Zade Clark-Henry (IAE)
Unit ID	CAS_150
Site name	Lacomb
BLM Field Office	Cascades
County	Linn
Township, Range, Section	T12S, R01E, Sec01
Recovery zone (USFWS 2010)	Salem East
Land ownership	BLM, Northwest Oregon District
Contact person and contact information	Cody Lesniak clesniak@blm.gov, 503-375-3635 (office) Cameron Minson cminson@blm.gov, 541-324-8890 (office)
Directions	Follow 210 Rd. (11-1E-36.0) through Weyerhaeuser land to the northeast of the site. Park on BLM 12-1E-1.2. Hike southwest along an old roadbed to the site.
Photopoint coordinates	-122.639472, 44.551100

Habitat overview	
Unit area (acres)	2.18
Prairie and/or oak habitat present?	Yes
Habitat type (special habitat)	Oak savanna (dry meadow)
Slope (degrees)	50
Aspect	S
Elevation (feet)	2040
What maintains site openness?	Hydrology, soils
Evidence of human disturbance	No
Type of site	Open area surrounded by forest
Buffer or forested area description	Buffer is a second growth forest dominated by Douglas-fir ( <i>Pseudotsuga menziesii</i> ).
Do remnant oak or prairie species exist in the buffer or forested areas?	Yes
Remnant oak or prairie species observed (Alverson 2010)	Snowqueen ( <i>Synthyris reniformis</i> ), toughleaf iris ( <i>Iris tenax</i> ), woodland strawberry ( <i>Fragaria vesca</i> ), California fescue ( <i>Festuca californica</i> ), Oregon white oak ( <i>Quercus garryana</i> ), Lance selfheal ( <i>Prunella vulgaris ssp. lanceolata</i> )
General notes	This site consists of five meadow openings (CAS_150-154) which were merged into one large site complex due to the proximity of meadow areas. CAS_155 was included in this complex, but only consisted of a small opening in the forest.

Woody species			
Overall live woody cover (%)	7		
Live native tree cover (%)	2	Live non-native tree cover (%)	0
Live native shrub cover (%)	5	Live non-native shrub cover (%)	0

Live tree cover from oaks (%)	1	Standing dead woody cover (%)	0
Number oaks >15 in DBH	0		
Number of large trees (>40 in DBH)	0		
Woody species encroaching on prairie habitat**	Oceanspray ( <i>Holodiscus discolor</i> ), poison oak ( <i>Toxicodendron diversilobum</i> )*, Douglas-fir ( <i>Pseudotsuga menziesii</i> )		
Would removal of encroaching woody species result in the need for wood to be hauled off-site?	No		

\*Woody species of management concern from the *Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington* (USFWS 2010).

+Woody species of management concern that exceed 5% cover of the site.

Herbaceous non-native species	
Herbaceous non-native cover (%)	75
Most common non-native species	Soft brome ( <i>Bromus hordeaceus</i> ), bristly dogstail grass ( <i>Cynosurus echinatus</i> ), bristly hawkbeard ( <i>Crepis setosa</i> ), smooth cat's ear ( <i>Hypochaeris glabra</i> ), hairy cat's ear ( <i>Hypochaeris radicata</i> ), cutleaf geranium ( <i>Geranium dissectum</i> )
Herbaceous non-native species notes	Bristly dogstail grass comprises nearly 50% of the herbaceous layer.

Herbaceous native species	
Herbaceous native cover (%)	25
Most common native species	Common woolly sunflower ( <i>Eriophyllum lanatum</i> ), seep monkeyflower ( <i>Mimulus guttatus</i> ), bluehead gilia ( <i>Gilia capitata</i> ), blue wildrye ( <i>Elymus glaucus</i> ), small camas ( <i>Camassia quamash</i> ), smallhead clover ( <i>Trifolium microcephalum</i> )
Relevé survey?	Yes (see <a href="#">Table E-3</a> )
T&E species present?	No
Seed collection potential?	California oatgrass ( <i>Danthonia californica</i> ), maiden blue eyed Mary ( <i>Collinsia parviflora</i> ), California fescue ( <i>Festuca californica</i> ), seep monkeyflower ( <i>Mimulus guttatus</i> ), smallhead clover ( <i>Trifolium microcephalum</i> ), tomcat clover ( <i>Trifolium willdenovii</i> ), smallflower bird's-foot trefoil ( <i>Acmispon parviflorus</i> ), true babystars ( <i>Leptosiphon bicolor</i> ), shortspur seablush ( <i>Plectritis congesta</i> ), bluehead gilia ( <i>Gilia capitata</i> ), common woolly sunflower ( <i>Eriophyllum lanatum</i> ), grassy tarweed ( <i>Madia gracilis</i> ), prairie Junegrass ( <i>Koeleria macrantha</i> ), small camas ( <i>Camassia quamash</i> ), blue wildrye ( <i>Elymus glaucus</i> ), white brodiaea ( <i>Triteleia hyacinthina</i> ), Lemmon's needlegrass ( <i>Achnatherum lemmonii</i> ), whitetip clover ( <i>Trifolium variegatum</i> ), California brome ( <i>Bromus carinatus</i> ), American wild carrot ( <i>Daucus pusillus</i> ), Oregon bedstraw ( <i>Galium oreganum</i> ), sticky cinquefoil ( <i>Drymocallis glandulosa</i> ), ookow ( <i>Dichelostemma congestum</i> )

Wildlife	
Wildlife species of interest observed	Olive-sided flycatcher

Preliminary habitat restoration/management recommendations	
Overall ranking as a priority for restoration (high/moderate, or low)	High

Short-term recommended actions	Remove oceanspray ( <i>Holodiscus discolor</i> ) and poison oak ( <i>Toxicodendron diversilobum</i> ). Cut young conifers encroaching on the meadow.
Long-term recommended actions	Cut conifers to create a corridor between meadow areas. Treat non-native grasses. Spot spray priority weeds.
Site accessibility issues	There is an old roadbed leading to the site, but it is currently impassible by vehicle. It could be cleared to improve access. The site is generally steep with loose soils.

Modified prairie habitat quality summary (USFWS 2010)			
Oak habitat criteria	Data	Objective	Meets objectives?
Oaks present?	Yes	Yes	Yes
Number of oaks greater than 15 inches DBH?	0	≥1	No
Prairie habitat criteria	Data	Recovery Plan threshold	Meets threshold?
Native herbaceous species cover (%)	25	50% min	No
Woody species cover	7	15% max	Yes
Does any one woody species of management concern exceed 5% cover?	No	5% max	Yes
Prairie diversity	Native forb richness	7	Yes
	Native bunchgrass richness	1	Yes
	Total native herbaceous species richness	>10	Yes
Do any non-native species exceed 50% cover within the relevé plot?	No	50%	No
Do any non-native species of particular concern exceed 5% cover?	No	5%	No

**Table E-3.** Relevé survey data. Braun-Blanquet cover scale: R = <5% and single individual, + = <5% and 2-20 individuals, 1 = <5% many individuals, 2 = 5-25%, 3 = 25-50%, 4 = 50-75%, 5 = 75-100%. The origin was listed as “unknown” for plants that were not identified to species and that have both native and non-native species in their genus.

Relevé data for CAS_150			
Scientific name	Common name	Origin	Braun-Blanquet cover score
<i>Symphoricarpos albus</i>	common snowberry	Native	1
<i>Toxicodendron diversilobum</i>	Pacific poison oak	Native	+
<i>Aira caryophyllea</i>	silver hairgrass	Invasive	1
<i>Gilia capitata</i>	bluehead gilia	Native	1
<i>Bromus hordeaceus</i>	soft brome	Invasive	2
<i>Bromus sitchensis</i>	Alaska brome	Native	+
<i>Cynosurus echinatus</i>	bristly dogstail grass	Invasive	3
<i>Danthonia californica</i>	California oatgrass	Native	1
<i>Elymus glaucus</i>	blue wildrye	Native	+
<i>Festuca californica</i>	California fescue	Native	R
<i>Holcus lanatus</i>	common velvetgrass	Invasive	1
<i>Koeleria macrantha</i>	prairie Junegrass	Native	+
<i>Acmispon parviflorus</i>	bird's foot trefoil	Native	1

Relevé data for CAS_150			
Scientific name	Common name	Origin	Braun-Blanquet cover score
<i>Camassia quamash</i>	small camas	Native	2
<i>Cerastium glomeratum</i>	sticky chickweed	Invasive	1
<i>Crepis capillaris</i>	smooth hawksbeard	Invasive	1
<i>Crepis setosa</i>	bristly hawksbeard	Invasive	1
<i>Dichelostemma congestum</i>	ookow	Native	+
<i>Eriophyllum lanatum</i>	common woolly sunflower	Native	1
<i>Galium parisiense</i>	wall bedstraw	Invasive	1
<i>Geranium dissectum</i>	cutleaf geranium	Invasive	1
<i>Geranium molle</i>	dovefoot geranium	Invasive	+
<i>Hypochaeris glabra</i>	smooth cat's ear	Invasive	1
<i>Leptosiphon bicolor</i>	true babystars	Native	1
<i>Sanicula crassicaulis</i>	Pacific blacksnakeroot	Native	+
<i>Veronica arvensis</i>	corn speedwell	Invasive	1
<i>Triodanis perfoliata</i>	clasping Venus' looking-glass	Native	1
<i>Trifolium microcephalum</i>	smallhead clover	Native	1
<i>Clarkia sp.</i>	clarkia	Native	+
<i>Sanicula graveolens</i>	northern sanicle	Native	1

Relevé substrate (%)			
Bare	Moss/Lichen	Rock	Thatch
0.5	0	0	3

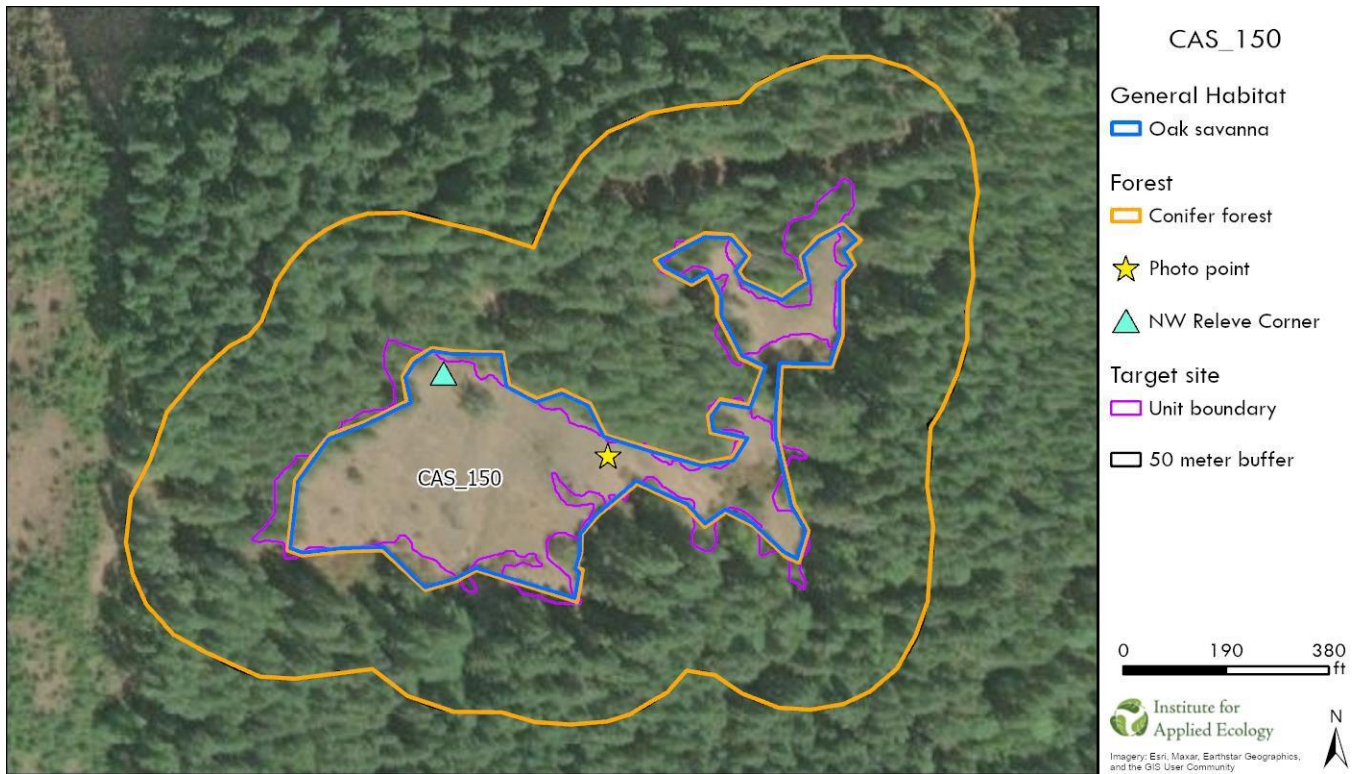


Figure E-34. Overview of CAS\_150 with habitat, forested buffer areas, photopoint, and relevé plot location.

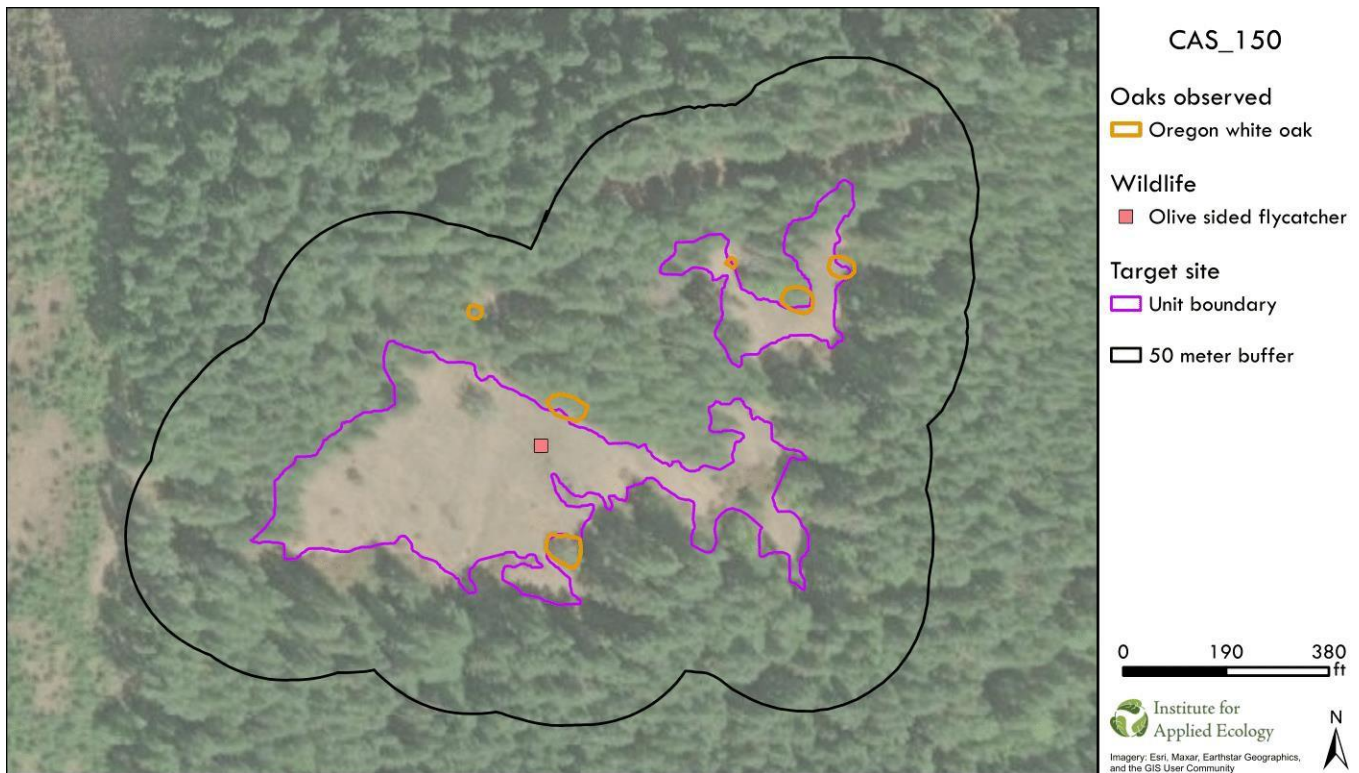


Figure E-35. Oaks, large trees, pines, and wildlife observed, if applicable.

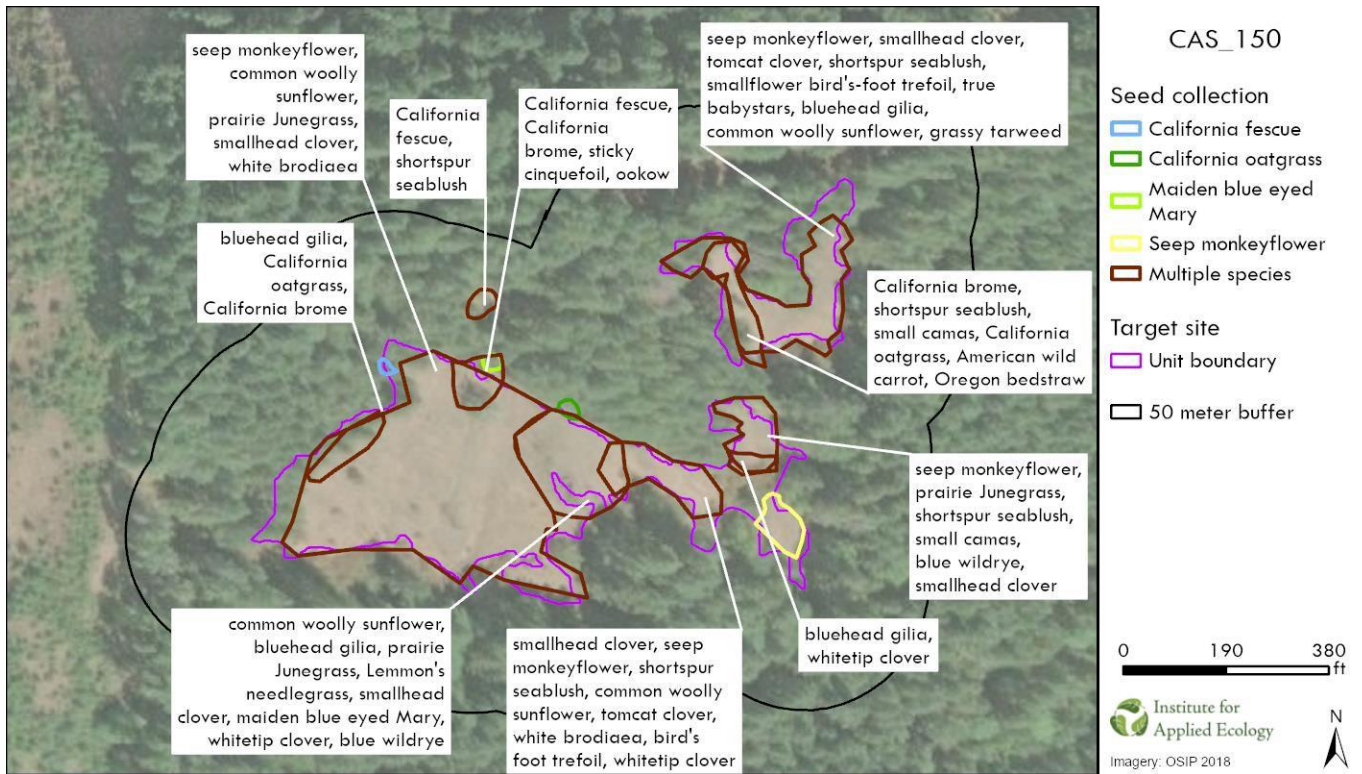


Figure E-36. Seed collection species observed.

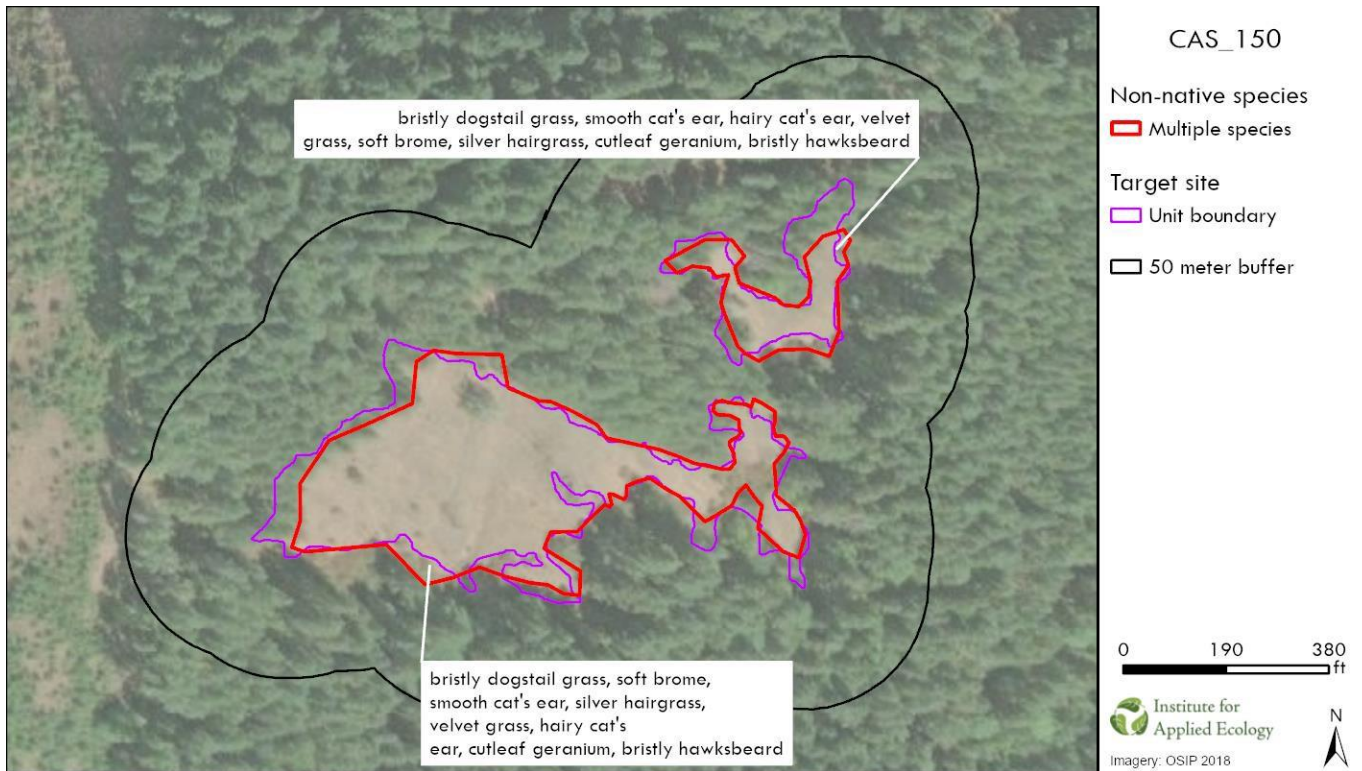
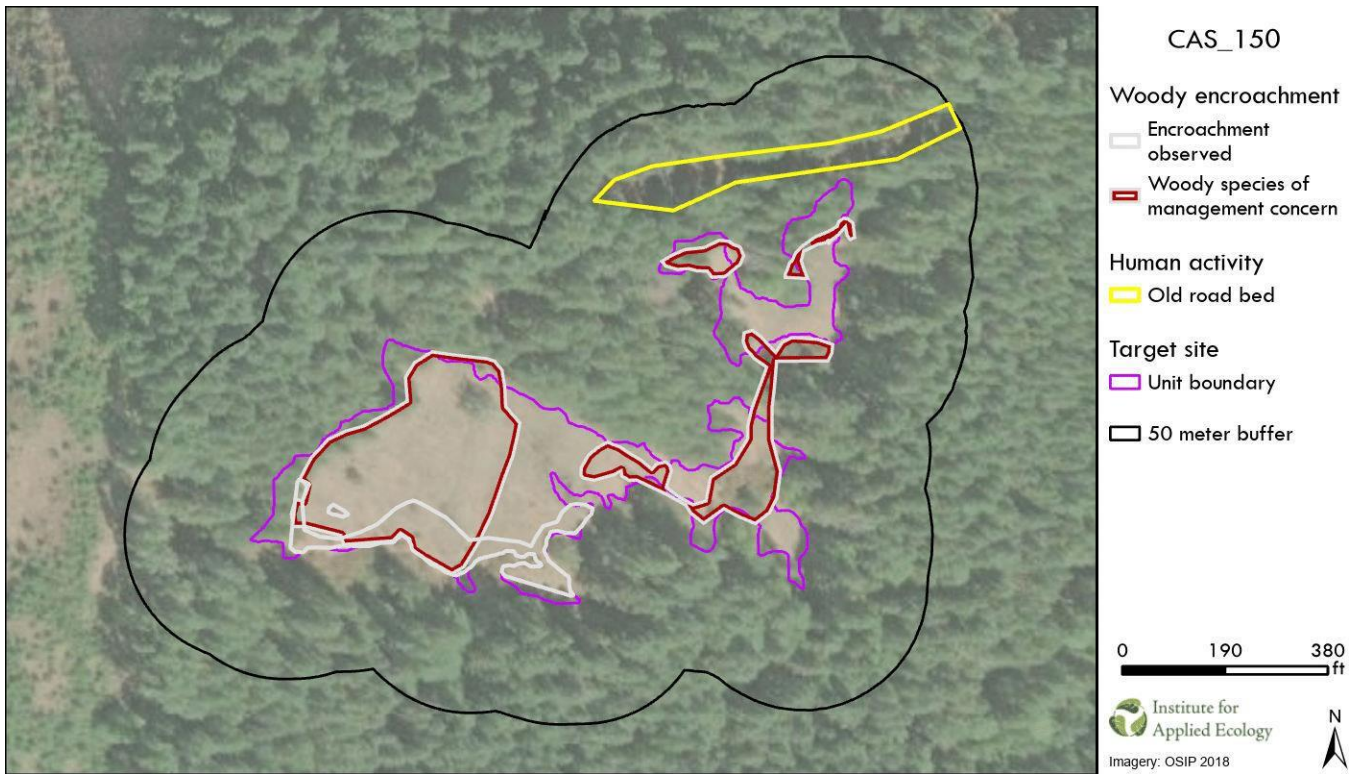
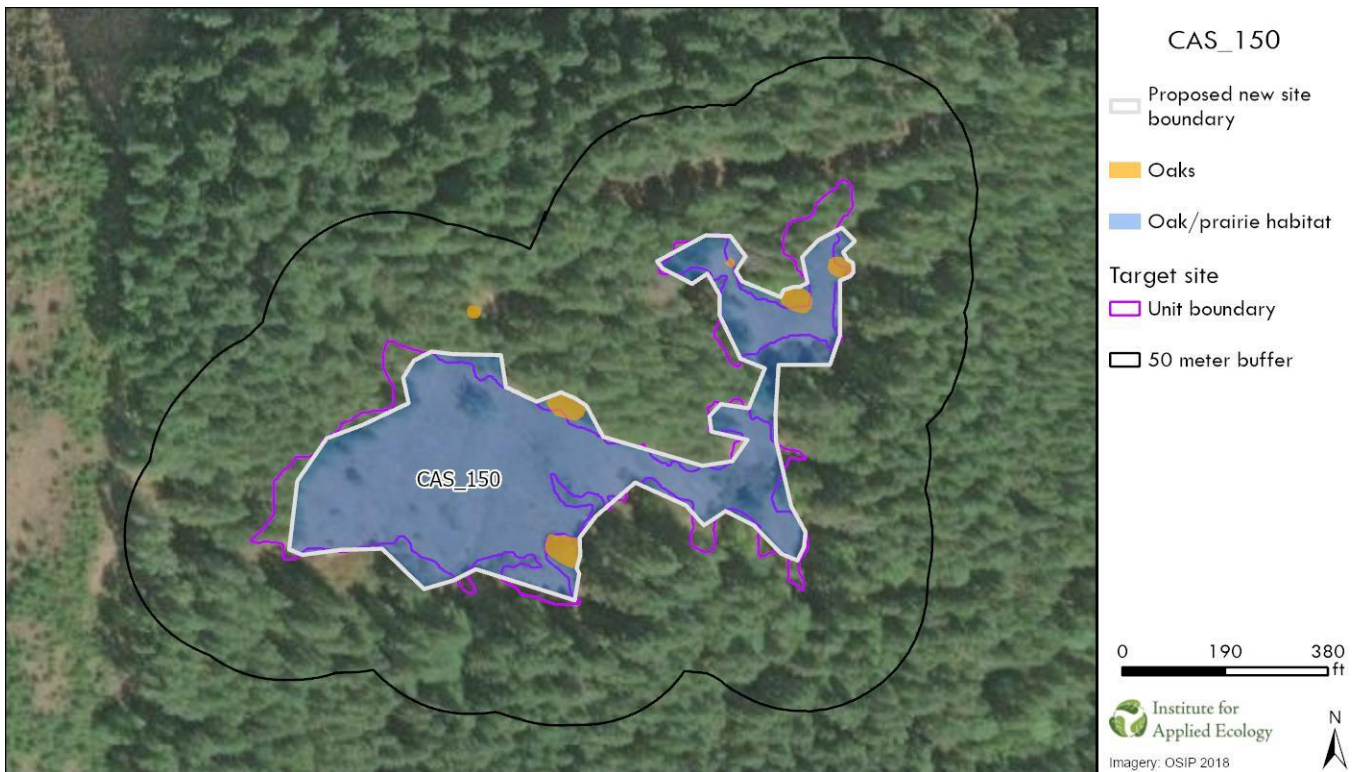


Figure E-37. Non-native species observed.



**Figure E-38.** Woody encroachment and human activity observed. Woody species of management concern observed in 2022 was poison oak.



**Figure E-39.** Recommended changes to the unit boundary based on habitat and/or oaks present.



North:



East:



South:



West:



**Figure E-40.** CAS\_150 photopoints taken at -122.639472, 44.551100.

## APPENDIX F: MARYS PEAK FIELD OFFICE SITE REPORTS

## FANNO RIDGE

### MP\_057

General site information	
Date surveyed	6/30/2022
Observers (affiliation)	Annamarie Pfeifer, Annie Lamas, Zade Clark-Henry (IAE)
Unit ID	MP_057
Site name	Fanno Ridge
BLM Field Office	Marys Peak
County	Polk
Township, Range, Section	T9S, R07W, Sec03
Recovery zone (USFWS 2010)	Salem West
Land ownership	BLM, Northwest Oregon District
Contact person and contact information	Andy Frazier afrazier@blm.gov, 503-315-5979 (office) 971-283-5444 (cell) Cory Young cyoung@blm.gov, 503-315-5988 (office) 503-983-4864 (cell)
Directions	Follow Bald Mountain Rd to Camp 3 Rd. Park north of the site on Camp 3 Rd.
Photopoint coordinates	-123.536725, 44.816949

Habitat overview	
Unit area (acres)	1.51
Prairie and/or oak habitat present?	No
Habitat type (special habitat)	Douglas-fir forest, shrubland (cliff)
Slope (degrees)	60
Aspect	SSW
Elevation (feet)	2450
What maintains site openness?	Fire disturbance
Type of site	Largely forested
Buffer or forested area description	This site is a second growth forest dominated by Douglas-fir ( <i>Pseudotsuga menziesii</i> ).
Do remnant oak or prairie species exist in the buffer or forested areas?	No

Woody species	
Number of oaks >15 in DBH	0
Number of large trees (>40 in DBH)	0
Woody species notes	No covers estimated because no open habitat present.

Herbaceous species	
Herbaceous species notes	Native and non-native herbaceous covers not estimated – not prairie or oak habitat.

Wildlife	
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Wildlife species of interest observed	None
<b>Preliminary habitat restoration/management recommendations</b>	
Restoration action notes	No restoration required at this site. No oaks or prairie habitat observed.

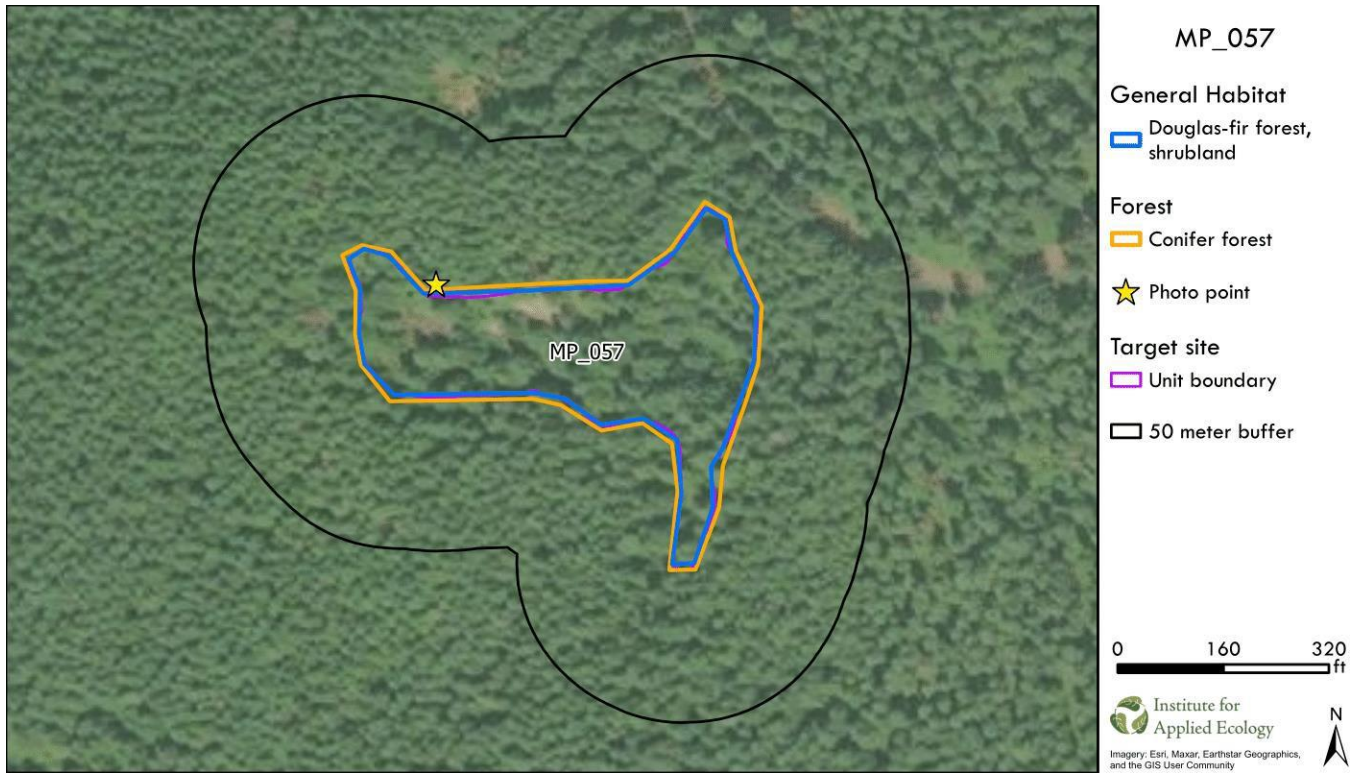


Figure F-1. Overview of MP\_057 and 50-meter buffer including habitat, forested buffer areas, and photopoint location.

North:



East:



South:



West:



**Figure F-2.** MP\_057 photopoints taken at -123.536725, 44.816949

## GREEN MOUNTAIN

### MP\_013

General site information	
Date surveyed	6/22/2022
Observers (affiliation)	Annamarie Pfeifer, Annie Lamas, Zade Clark-Henry (IAE)
Unit ID	MP_013
Site name	Green Mountain
BLM Field Office	Marys Peak
County	Polk
Township, Range, Section	T9S, R07W, Sec31
Recovery zone (USFWS 2010)	Salem West
Land ownership	BLM, Northwest Oregon District
Contact person and contact information	Andy Frazier afrazier@blm.gov, 503-315-5979 (office) 971-283-5444 (cell) Cory Young cyoung@blm.gov, 503-315-5988 (office) 503-983-4864 (cell)
Directions	Follow Green Mountain Road to small turnout. Park on BLM 9-8-36.2. There is a small walking path through the forest leading to the meadow at the summit.
Photopoint coordinates	-123.584935, 44.739562

Habitat overview	
Unit area (acres)	1.46
Prairie and/or oak habitat present?	Yes
Habitat type (special habitat)	Montane meadow (rock garden)
Habitat type notes	This site is a low elevation montane meadow dominated by slender goldenbanner ( <i>Thermopsis gracilis</i> ). There is a small rock garden in the east portion of the site.
Slope (degrees)	1
Aspect	SSW
Elevation (feet)	2670
What maintains site openness?	Fire disturbance, soils
Evidence of human disturbance	No
Type of site	Open area surrounded by forest
Buffer or forested area description	Buffer is a second growth forest dominated by Douglas-fir ( <i>Pseudotsuga menziesii</i> ) and co-dominated by western hemlock ( <i>Tsuga heterophylla</i> ).
Do remnant oak or prairie species exist in the buffer or forested areas?	Yes
Remnant oak or prairie species observed (Alverson 2010)	Woodland strawberry ( <i>Fragaria vesca</i> ), toughleaf iris ( <i>Iris tenax</i> )

<b>Woody species</b>			
Overall live woody cover (%)	5		
Live native tree cover (%)	3	Live non-native tree cover (%)	0
Live native shrub cover (%)	2	Live non-native shrub cover (%)	0
Live tree cover from oaks (%)	0	Standing dead woody cover (%)	0
Number oaks >15 in DBH	0		
Number of large trees (>40 in DBH)	5		
Species of large trees	Douglas-fir ( <i>Pseudotsuga menziesii</i> )		
Average Van Pelt score	<2 (35-80 years)		
Woody species encroaching on prairie habitat*+	Oceanspray ( <i>Holodiscus discolor</i> ), Douglas-fir ( <i>Pseudotsuga menziesii</i> )		
Would removal of encroaching woody species result in the need for wood to be hauled off-site?	No		

\*Woody species of management concern from the *Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington* (USFWS 2010).

+Woody species of management concern that exceed 5% cover of the site.

<b>Herbaceous non-native species</b>	
Herbaceous non-native cover (%)	45
Most common non-native species	Silver hairgrass ( <i>Aira caryophylla</i> ), annual vernalgrass ( <i>Anthoxanthum aristatum</i> ), foxglove ( <i>Digitalis purpurea</i> ), common velvetgrass ( <i>Holcus lanatus</i> ), hairy cat's ear ( <i>Hypochaeris radicata</i> ), common sheep sorrel ( <i>Rumex acetosella</i> ), annual fescue ( <i>Vulpia sp.</i> )

<b>Herbaceous native species</b>	
Herbaceous native cover (%)	55
Most common native species	Common yarrow ( <i>Achillea millefolium</i> ), Virginia strawberry ( <i>Fragaria virginiana</i> ), small camas ( <i>Camassia quamash</i> ), Menzies' larkspur ( <i>Delphinium menziesii</i> ), blue wildrye ( <i>Elymus glaucus</i> ), slender goldenbanner ( <i>Thermopsis gracilis</i> ), maiden blue eyed Mary ( <i>Collinsia parviflora</i> ), russethair saxifrage ( <i>Micranthes ferruginea</i> )
Relevé survey?	No
T&E species present?	No
Seed collection potential?	Blue wildrye ( <i>Elymus glaucus</i> ), Menzies' larkspur ( <i>Delphinium menziesii</i> ), slender golden banner ( <i>Thermopsis gracilis</i> ), maiden blue eyed Mary ( <i>Collinsia parviflora</i> ), field chickweed ( <i>Cerastium arvense</i> ), Cascade desert parsley ( <i>Lomatium martindalei</i> ), small camas ( <i>Camassia quamash</i> ), Pacific woodrush ( <i>Luzula comosa</i> ), tarweed ( <i>Madia sp.</i> ), russethair saxifrage ( <i>Micranthes ferruginea</i> )

<b>Wildlife</b>	
Wildlife species of interest observed	None

<b>Preliminary habitat restoration/management recommendations</b>	
Overall ranking as a priority for restoration (high, moderate, or low)	Moderate



Short-term recommended actions	Remove small Douglas-firs encroaching into the meadow and pull patches of bull thistle ( <i>Cirsium vulgare</i> ) and foxglove ( <i>Digitalis purpurea</i> ).
Long-term recommended actions	Treat non-native annual grasses and hairy cat's ear ( <i>Hypochaeris radicata</i> ).
Site accessibility issues	Access to the site requires a 1/3 mile hike uphill through the forest along an established footpath.
Restoration management notes	This site does not contain oak habitat and consists of a low-elevation montane meadow plant community. This site should be preserved for the high-quality habitat and native species diversity, but may not be within the scope of this project.

Modified prairie habitat quality summary (USFWS 2010)				
Oak habitat criteria		Data	Objective	Meets objectives?
Oaks present?		No	Yes	No
Number of oaks greater than 15 inches DBH?		0	≥1	No
Prairie habitat criteria		Data	Recovery Plan threshold	Meets threshold?
Native herbaceous species cover (%)		55	50% min	Yes
Woody species cover (%)		5	15% max	Yes
Does any one woody species of management concern exceed 5% cover?		No	No	Yes
Prairie diversity	Native forb richness	N/A	7	No data
	Native bunchgrass richness	N/A	1	No data
	Total native herbaceous species richness	N/A	>10	No data
Do any non-native species exceed 50% cover within the relevé plot?		N/A	No	No data
Do any non-native species of particular concern exceed 5% cover?		N/A	No	No data

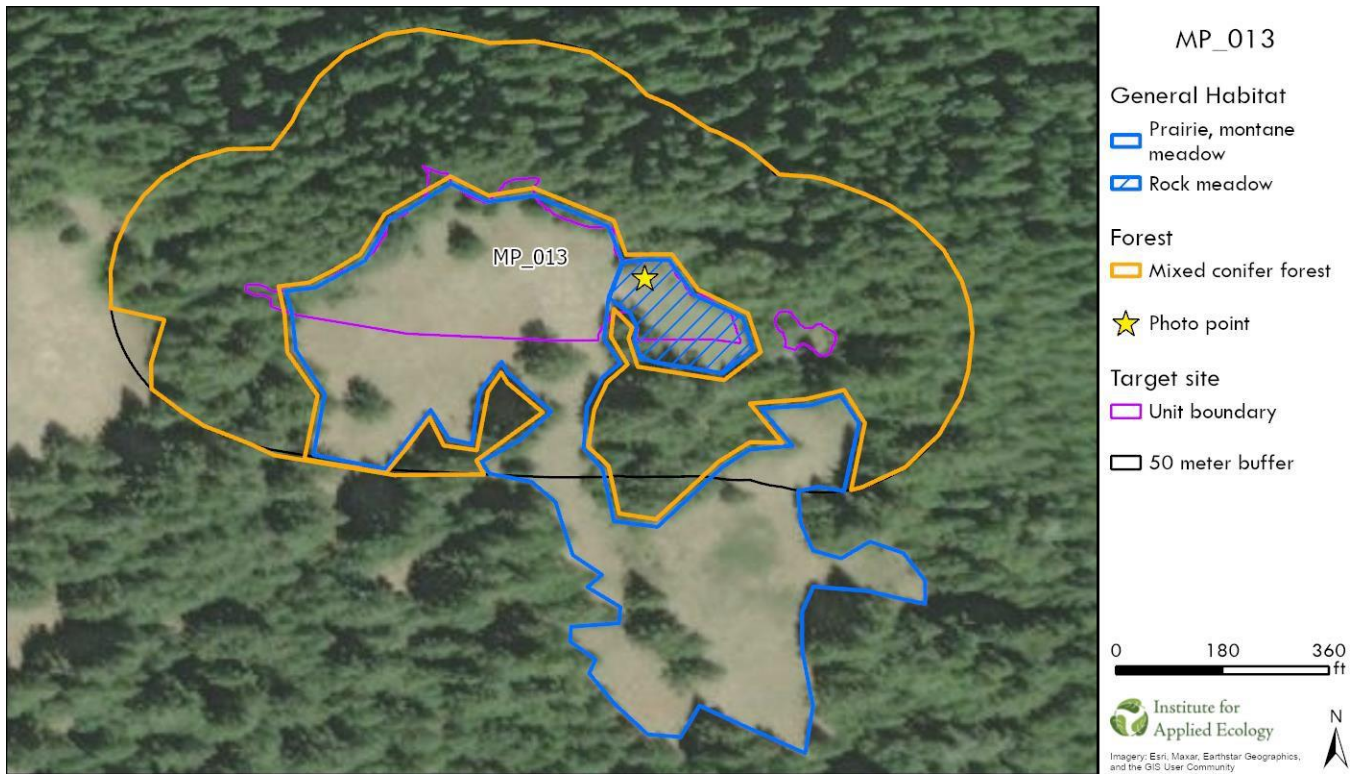


Figure F-3. Overview of MP\_013 with habitat, forested buffer areas, and photopoint location.



Figure F-4. Oaks, large trees, pines, and wildlife observed, if applicable.

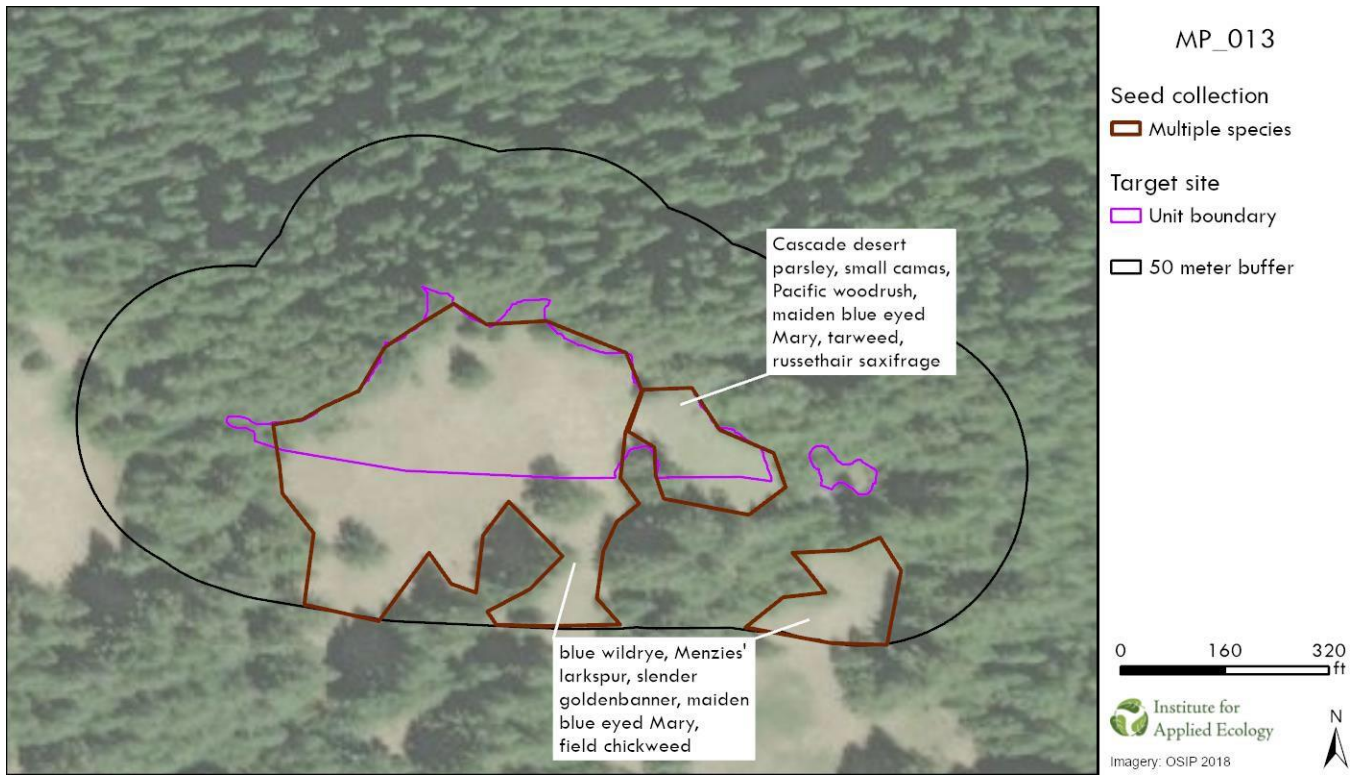


Figure F-5. Seed collection species observed.

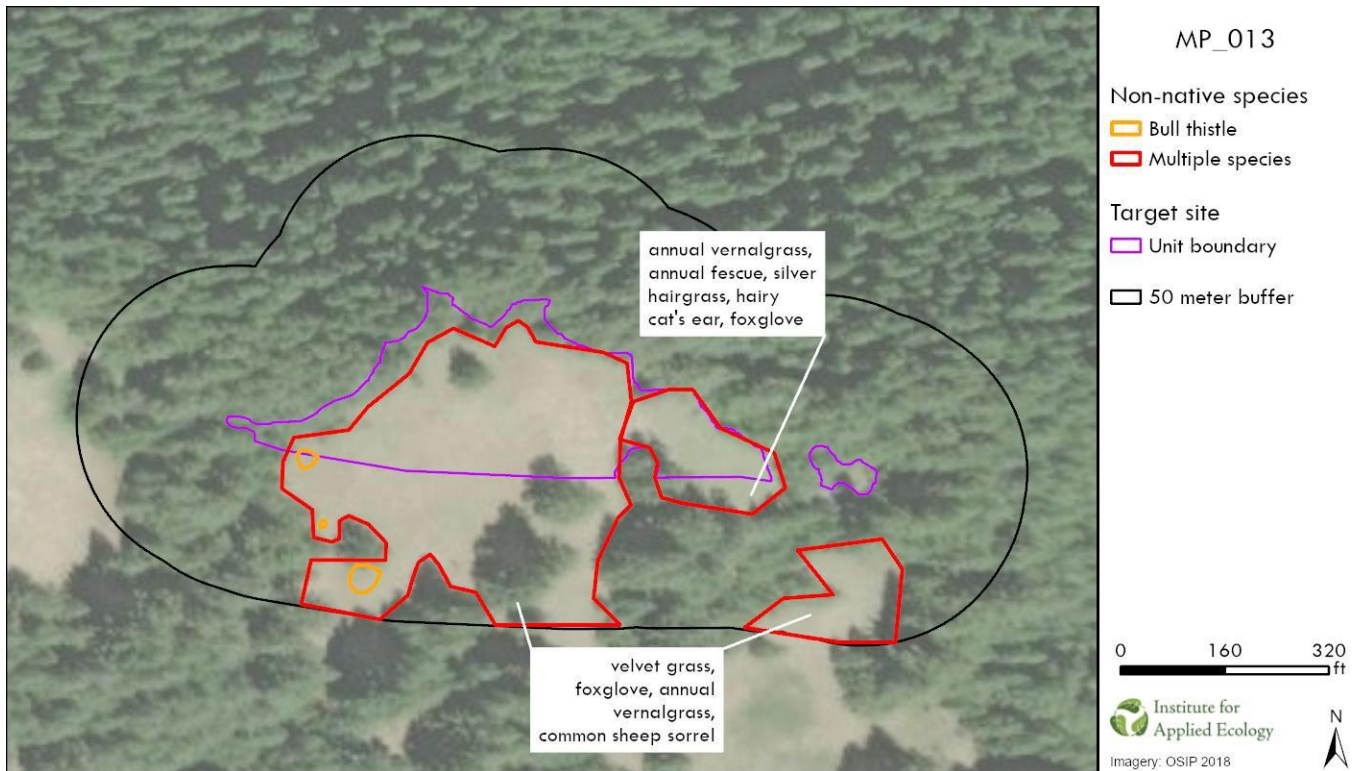


Figure F-6. Non-native species observed.



Figure F-7. Woody encroachment and human activity observed.



Figure F-8. Recommended changes to the unit boundary based on habitat and/or oaks present.

North:



East:



South:



West:



**Figure F-9.** MP\_013 photopoints taken at -123.584935, 44.739562.

## APPENDIX G: SIUSLAW FIELD OFFICE SITE REPORTS

## CLAY CREEK

### SIU\_014

General site information	
Date surveyed	6/14/2022
Observers (affiliation)	Annie Lamas, Zade Clark-Henry (IAE)
Unit ID	SIU_014
Site name	Clay Creek
BLM Field Office	Siuslaw
County	Lane
Township, Range, Section	T18S, R08W, Sec25
Recovery zone (USFWS 2010)	Eugene West
Land ownership	BLM, Northwest Oregon District
Contact person and contact information	Greg Hedrick ghedrick@blm.gov, 541-683-6796 (office)
Directions	Access via Siuslaw River Rd. (18-8-34) to Wolf Cr. Rd (18-8-35) then to roads 18-8-36 and 18-8-25. Gate at junction of Siuslaw River Rd. & Wolf Cr. Rd. Park within site on road.
Photopoint coordinates	-123.60615, 43.971463

Habitat overview	
Unit area (acres)	6.70
Prairie and/or oak habitat present?	Yes
Habitat type (special habitat)	Rock meadow (dry meadow, rock garden)
Slope (degrees)	55
Aspect	S
Elevation (feet)	1080
What maintains site openness?	Fire disturbance, hydrology, soils
Evidence of human disturbance	Yes
Level of human disturbance	Moderate
Type of human disturbance	Old roadbed
Human disturbance notes	The roadbed above the site presents a vector for non-native weeds and shrubs, including Scotch broom ( <i>Cytisus scoparius</i> ), Canada thistle ( <i>Cirsium arvense</i> ), tall oatgrass ( <i>Arrhenatherum elatius</i> ), and tall fescue ( <i>Schedonorus arundinaceus</i> ).
Type of site	Open area surrounded by forest
Buffer or forested area description	Buffer is a second growth forest dominated by Douglas-fir ( <i>Pseudotsuga menziesii</i> ).
Do remnant oak or prairie species exist in the buffer or forested areas?	Yes
Remnant oak or prairie species observed (Alverson 2010)	Toughleaf iris ( <i>Iris tenax</i> ), blue wildrye ( <i>Elymus glaucus</i> )
General notes	This site contains a moderate dry, rocky meadow with a small patch of oaks. The road above the site provides easy access, but the steepness of the site will make restoration difficult.

Woody species			
Overall live woody cover (%)	8		
Live native tree cover (%)	2	Live non-native tree cover (%)	0
Live native shrub cover (%)	6	Live non-native shrub cover (%)	0
Live tree cover from oaks (%)	1	Standing dead woody cover (%)	1
Number oaks >15 in DBH	1		
Number of large trees (>40 in DBH)	2		
Species of large trees	Douglas-fir ( <i>Pseudotsuga menziesii</i> )		
Average Van Pelt score	2/3 (70-160 years)		
Woody species encroaching on prairie habitat*+	Douglas-fir ( <i>Pseudotsuga menziesii</i> ), poison oak ( <i>Toxicodendron diversilobum</i> )*, oceanspray ( <i>Holodiscus discolor</i> ) Scotch broom ( <i>Cytisus scoparius</i> )*		
Would removal of encroaching woody species result in the need for wood to be hauled off-site?	No		
Woody species notes	The buffer west of the road is comprised of stands of dead conifers and a small patch of mixed hardwood/conifer forest on the cliff above the road. The meadow is being encroached primarily by poison oak and oceanspray, with some conifer establishment.		

\*Woody species of management concern from the *Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington* (USFWS 2010).

+Woody species of management concern that exceed 5% cover of the site.

Herbaceous non-native species	
Herbaceous non-native cover (%)	92
Most common non-native species	Soft brome ( <i>Bromus hordeaceus</i> ), bristly dogstail grass ( <i>Cynosurus echinatus</i> ), foxglove ( <i>Digitalis purpurea</i> ), common velvetgrass ( <i>Holcus lanatus</i> ), common vetch ( <i>Vicia sativa</i> )

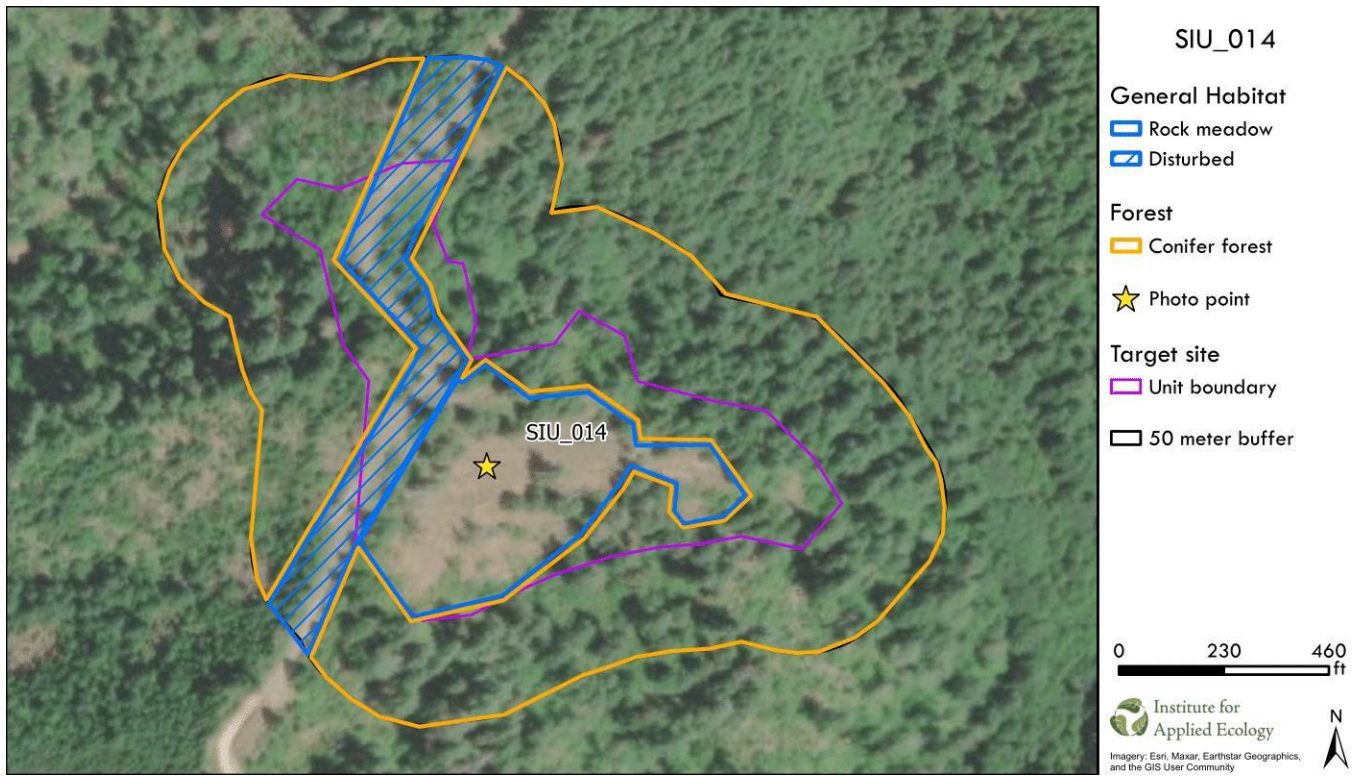
Herbaceous native species	
Herbaceous native cover (%)	8
Most common native species	Farewell-to-spring ( <i>Clarkia amoena</i> ), blue wildrye ( <i>Elymus glaucus</i> ), bluehead gilia ( <i>Gilia capitata</i> ), grassy tarweed ( <i>Madia gracilis</i> ), smallhead clover ( <i>Trifolium microcephalum</i> ), tomcat clover ( <i>Trifolium willdenovii</i> )
Relevé survey?	No
T&E species present?	No
Seed collection potential?	Dwarf checkermallow ( <i>Sidalcea virgata</i> ), smallflower bird's-foot trefoil ( <i>Acmispon parviflorus</i> ), bluehead gilia ( <i>Gilia capitata</i> ), blue wildrye ( <i>Elymus glaucus</i> ), grassy tarweed ( <i>Madia gracilis</i> ), prairie junegrass ( <i>Koeleria macrantha</i> ), tomcat clover ( <i>Trifolium willdenovii</i> ), farewell-to-spring ( <i>Clarkia amoena</i> ), smallhead clover ( <i>Trifolium microcephalum</i> )

Wildlife	
Wildlife species of interest observed	Olive-sided flycatcher, wrentit

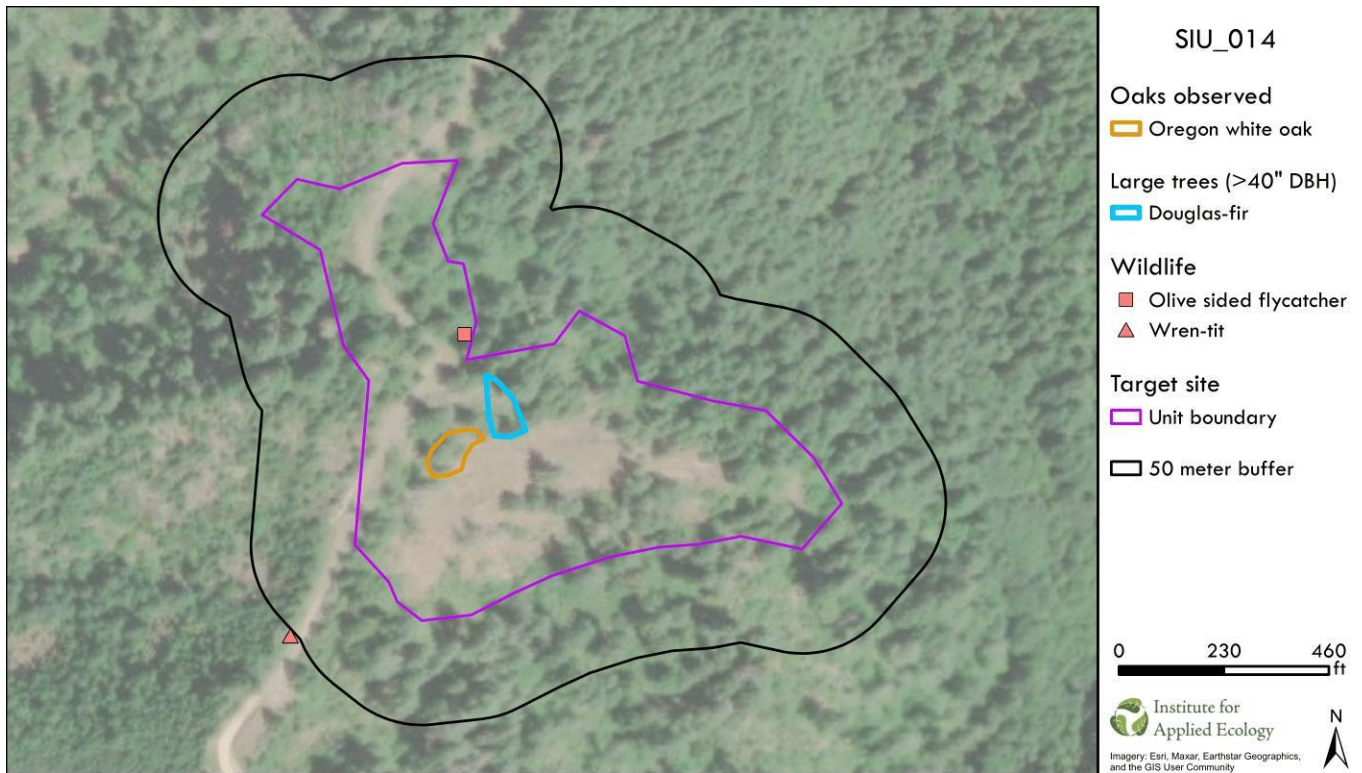


Preliminary habitat restoration/management recommendations	
Overall ranking as a priority for restoration (high, moderate, or low)	Moderate
Short-term recommended actions	Remove Scotch broom ( <i>Cytisus scoparius</i> ) and Canada thistle ( <i>Cirsium arvense</i> ) along the road near the site. Cut conifers establishing in the meadow. Pull foxglove ( <i>Digitalis purpurea</i> ) on the road and in the meadow. Girdle conifers suppressing oaks.
Long-term recommended actions	Treat non-native annual grasses in the meadow, and non-native perennial grasses on the road. Augment the meadow with additional native bunchgrasses.
Site accessibility issues	This site is very steep, with thin, loose soil on a layer of rock. Restoration within the meadow may be difficult as a result.
Restoration action notes	The priority restoration actions focus heavily on the non-native species on the road above the site. This is to prevent establishment of those species in the meadow, and due to the difficulty of completing restoration in the meadow given the steepness.

Modified prairie habitat quality summary (USFWS 2010)				
Oak habitat criteria		Data	Objective	Meets objectives?
Oaks present?		Yes	Yes	Yes
Number of oaks greater than 15 inches DBH?		1	≥1	Yes
Prairie habitat criteria		Data	Recovery Plan threshold	Meets threshold?
Native herbaceous species cover (%)		8	50% min	No
Woody species cover (%)		8	15% max	Yes
Does any one woody species of management concern exceed 5% cover?		No	No	Yes
Prairie diversity	Native forb richness	N/A	7	No data
	Native bunchgrass richness	N/A	1	No data
	Total native herbaceous species richness	N/A	>10	No data
Do any non-native species exceed 50% cover within the relevé plot?		N/A	No	No data
Do any non-native species of particular concern exceed 5% cover?		N/A	No	No data



**Figure G-1.** Overview of SIU\_014 with habitat, forested buffer areas, and photopoint location.



**Figure G-2.** Oaks, large trees, pines, and wildlife observed, if applicable.

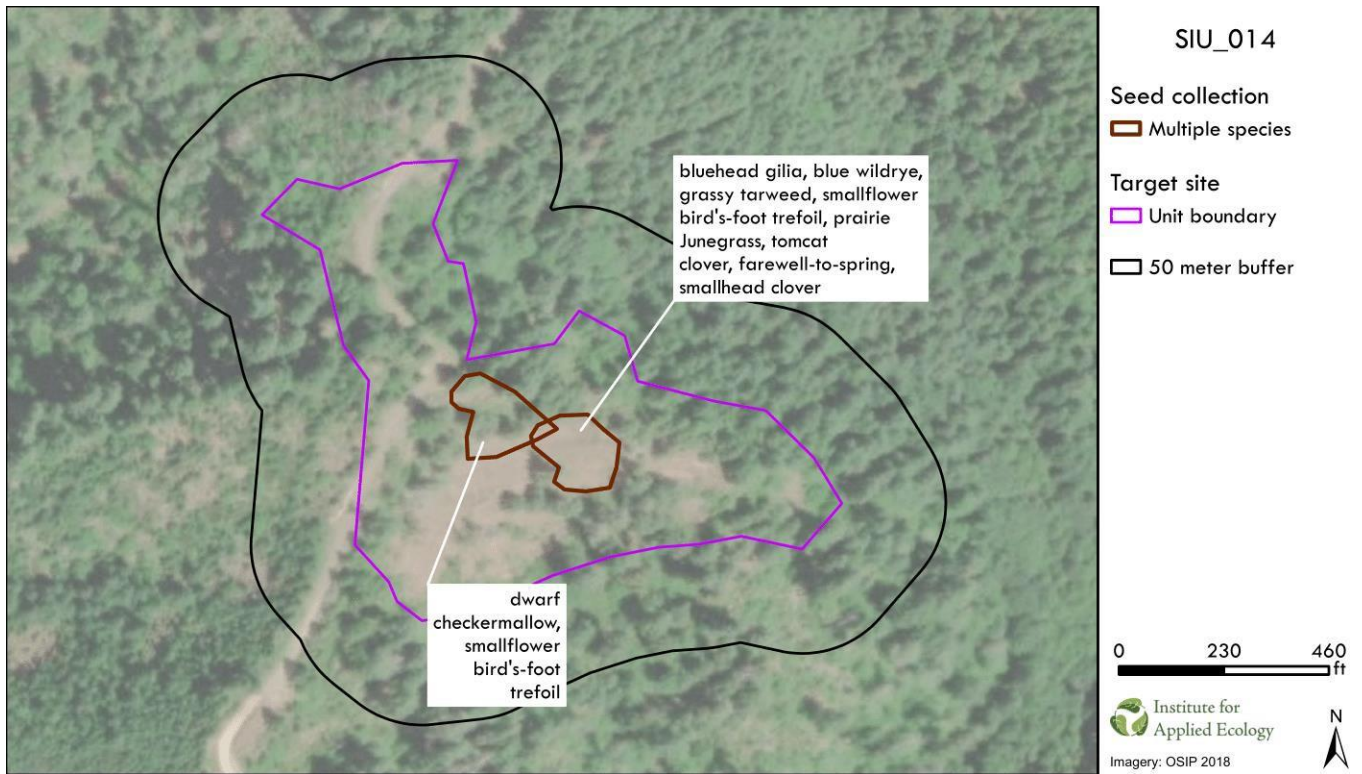


Figure G-3. Seed collection species observed.

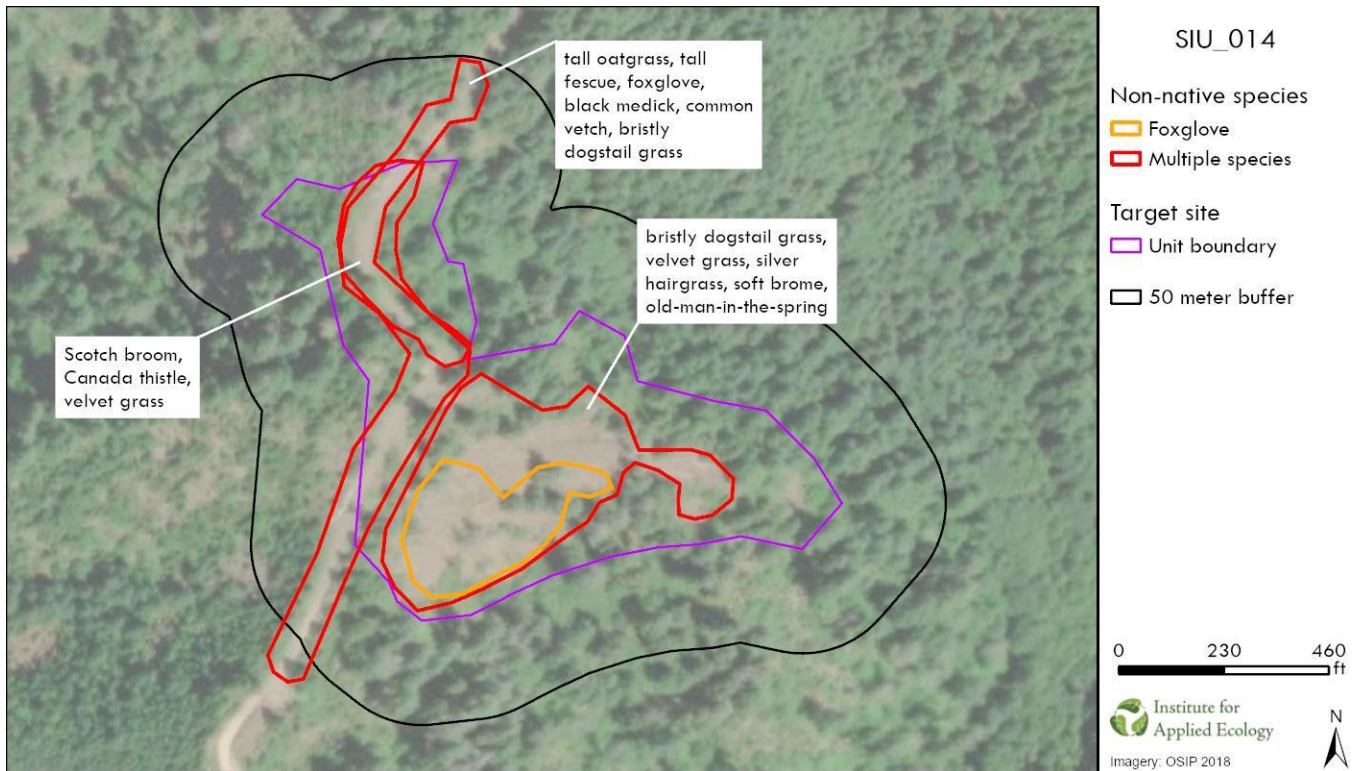
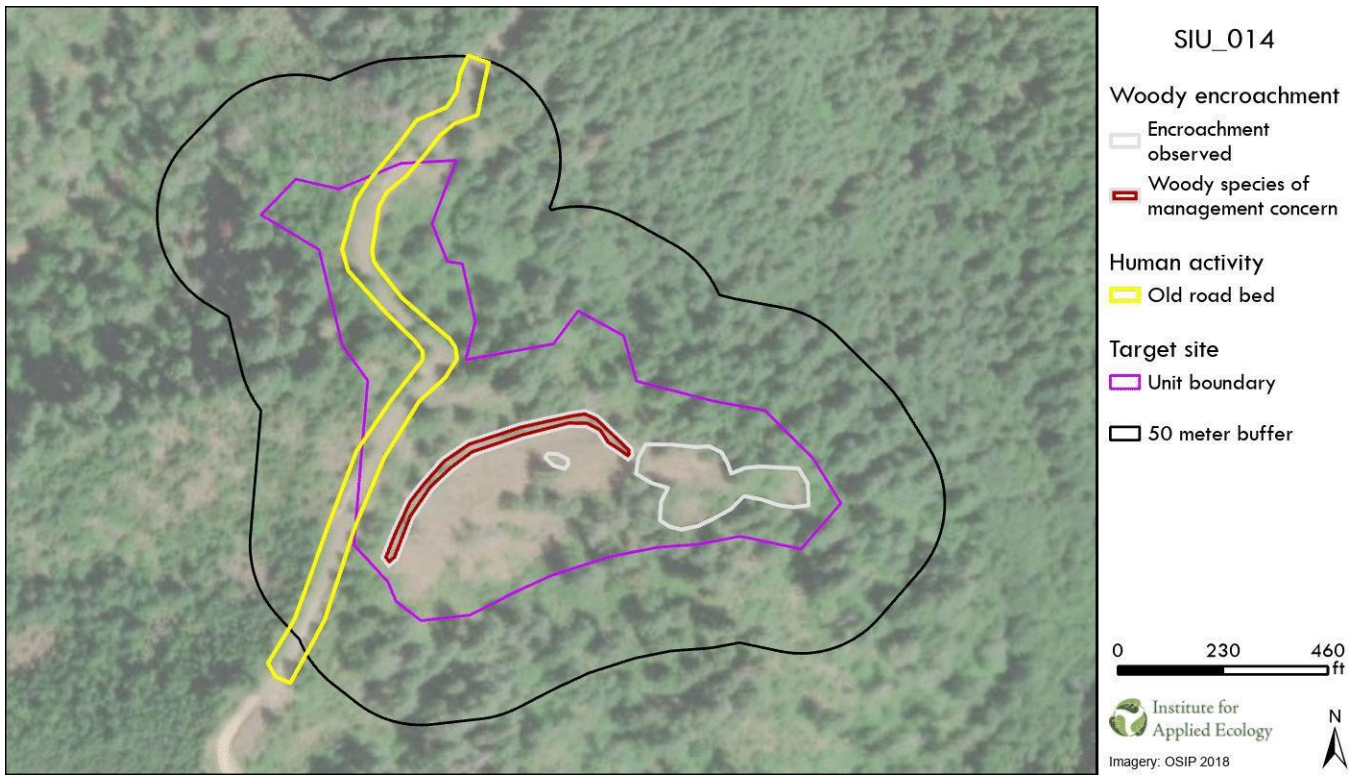


Figure G-4. Non-native species observed.



**Figure G-5.** Woody encroachment and human activity observed. Woody species of management concern observed in 2022 were poison oak and Scotch broom.



**Figure G-6.** Recommended changes to the unit boundary based on habitat and/or oaks present.

North:



East:



South:



West:



**Figure G-7.** SIU\_014 photopoints taken at -123.606150, 43.971463.

## FOX HOLLOW

### SIU\_021

General site information	
Date surveyed	6/15/2022
Observers (affiliation)	Annie Lamas, Zade Clark-Henry (IAE)
Unit ID	SIU_021
Site name	Fox Hollow
BLM Field Office	Siuslaw
County	Lane
Township, Range, Section	T19S, R04W, Sec23
Recovery zone (USFWS 2010)	Eugene West
Land ownership	BLM, Northwest Oregon District
Contact person and contact information	Greg Hedrick ghedrick@blm.gov, 541-683-6796 (office)
Directions	Access via Weiss Rd. (county rd.) then turn onto BLM Rd. 19-4-22. There is a gate just off of the county road.
Photopoint coordinates	-123.142253, 43.903800

Habitat overview	
Unit area (acres)	6.73
Prairie and/or oak habitat present?	Yes
Habitat type (special habitat)	Mixed hardwood/conifer forest, disturbed (shrub field, mesic meadow)
Habitat type notes	Logging and other land maintenance contribute to site openness.
Slope (degrees)	4
Aspect	W
Elevation (feet)	800
What maintains site openness?	Fire disturbance, land management
Evidence of human disturbance	Yes
Level of human disturbance	High
Type of human disturbance	Land management, survey markers
Human disturbance notes	Logging and land management have influenced the habitat type significantly.
Type of site	Open area surrounded by forest
Buffer or forested area description	Buffer is a second growth forest dominated by Douglas-fir ( <i>Pseudotsuga menziesii</i> ), Oregon white oak ( <i>Quercus garryana</i> ) and co-dominated by Oregon ash ( <i>Fraxinus latifolia</i> ).
Do remnant oak or prairie species exist in the buffer or forested areas?	Yes

Remnant oak or prairie species observed (Alverson 2010)	California fescue ( <i>Festuca californica</i> ), forest scurfpea ( <i>Rupertia physodes</i> ), snowqueen ( <i>Synthyris reniformis</i> ), Pacific hound's tongue ( <i>Cynoglossum grande</i> ), Virginia strawberry ( <i>Fragaria virginiana</i> ), toughleaf iris ( <i>Iris tenax</i> ), woodland strawberry ( <i>Fragaria vesca</i> ), Suksdorf woodsorrel ( <i>Oxalis suksdorfii</i> ), Oregon white oak ( <i>Quercus garryana</i> )
General notes	This site appears to have been more forested in the past. Many forest understory species are present in the open areas. The site is dominated by woody species, with high oak presence. Scotch broom slash piles indicate previous restoration.

Woody species			
Overall live woody cover (%)	90		
Live native tree cover (%)	54	Live non-native tree cover (%)	0
Live native shrub cover (%)	24	Live non-native shrub cover (%)	12
Live tree cover from oaks (%)	20	Standing dead woody cover (%)	1
Number oaks >15 in DBH	0		
Number of large trees (>40 in DBH)	0		
Woody species encroaching on prairie habitat*+	Grand fir ( <i>Abies grandis</i> ), Scotch broom ( <i>Cytisus scoparius</i> )*+, oceanspray ( <i>Holodiscus discolor</i> ), Douglas-fir ( <i>Pseudotsuga menziesii</i> ), western brackenfern ( <i>Pteridium aquilinum</i> ), incense cedar ( <i>Calocedrus decurrens</i> ), Himalayan blackberry ( <i>Rubus bifrons</i> )*, one-seed hawthorn ( <i>Crataegus monogyna</i> )*, sweetbriar rose ( <i>Rosa rubiginosa</i> )*, poison oak ( <i>Toxicodendron diversilobum</i> )*+, cutleaf blackberry ( <i>Rubus laciniatus</i> )*		
Would removal of encroaching woody species result in the need for wood to be hauled off-site?	Yes		
Woody species notes	The site is almost entirely dominated by woody species. Oaks and pines are present throughout, while Douglas-fir ( <i>Pseudotsuga menziesii</i> ), incense cedar ( <i>Calocedrus decurrens</i> ), and grand fir ( <i>Abies grandis</i> ) are actively establishing. Western brackenfern ( <i>Pteridium aquilinum</i> ), poison oak ( <i>Toxicodendron diversilobum</i> ), cutleaf blackberry ( <i>Rubus laciniatus</i> ), and Scotch broom ( <i>Cytisus scoparius</i> ) are present in large patches.		

\*Woody species of management concern from the *Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington* (USFWS 2010).

+Woody species of management concern that exceed 5% cover of the site.

Herbaceous non-native species	
Herbaceous non-native cover (%)	20
Most common non-native species	Silver hairgrass ( <i>Aira caryophylla</i> ), oxeye daisy ( <i>Leucanthemum vulgare</i> ), spreading hedge parsley ( <i>Torilis arvensis</i> ), St. John's wort ( <i>Hypericum perforatum</i> ), orchard grass ( <i>Dactylis glomerata</i> ), bristly dogtail grass ( <i>Cynosurus echinatus</i> )

Herbaceous native species	
Herbaceous native cover (%)	80

Most common native species	California fescue ( <i>Festuca californica</i> ), woodland strawberry ( <i>Fragaria vesca</i> ), Virginia strawberry ( <i>Fragaria virginiana</i> ), blue wildrye ( <i>Elymus glaucus</i> ), celeryleaf licorice-root ( <i>Ligusticum apiifolium</i> ), slender goldenbanner ( <i>Thermopsis gracilis</i> )
Relevé survey?	No
T&E species present?	No
Seed collection potential?	American wild carrot ( <i>Daucus pusillus</i> ), blue wildrye ( <i>Elymus glaucus</i> ), Virginia strawberry ( <i>Fragaria virginiana</i> ), slender goldenbanner ( <i>Thermopsis gracilis</i> ), California fescue ( <i>Festuca californica</i> ), shortspur seablush ( <i>Plectritis congesta</i> ), straightbeak buttercup ( <i>Ranunculus orthorhynchus</i> ), California brome ( <i>Bromus carinatus</i> ), toughleaf iris ( <i>Iris tenax</i> ), California oatgrass ( <i>Danthonia californica</i> ), Alaska brome ( <i>Bromus sitchensis</i> )

**Wildlife**

Wildlife species of interest observed	Olive-sided flycatcher
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**Preliminary habitat restoration/management recommendations**

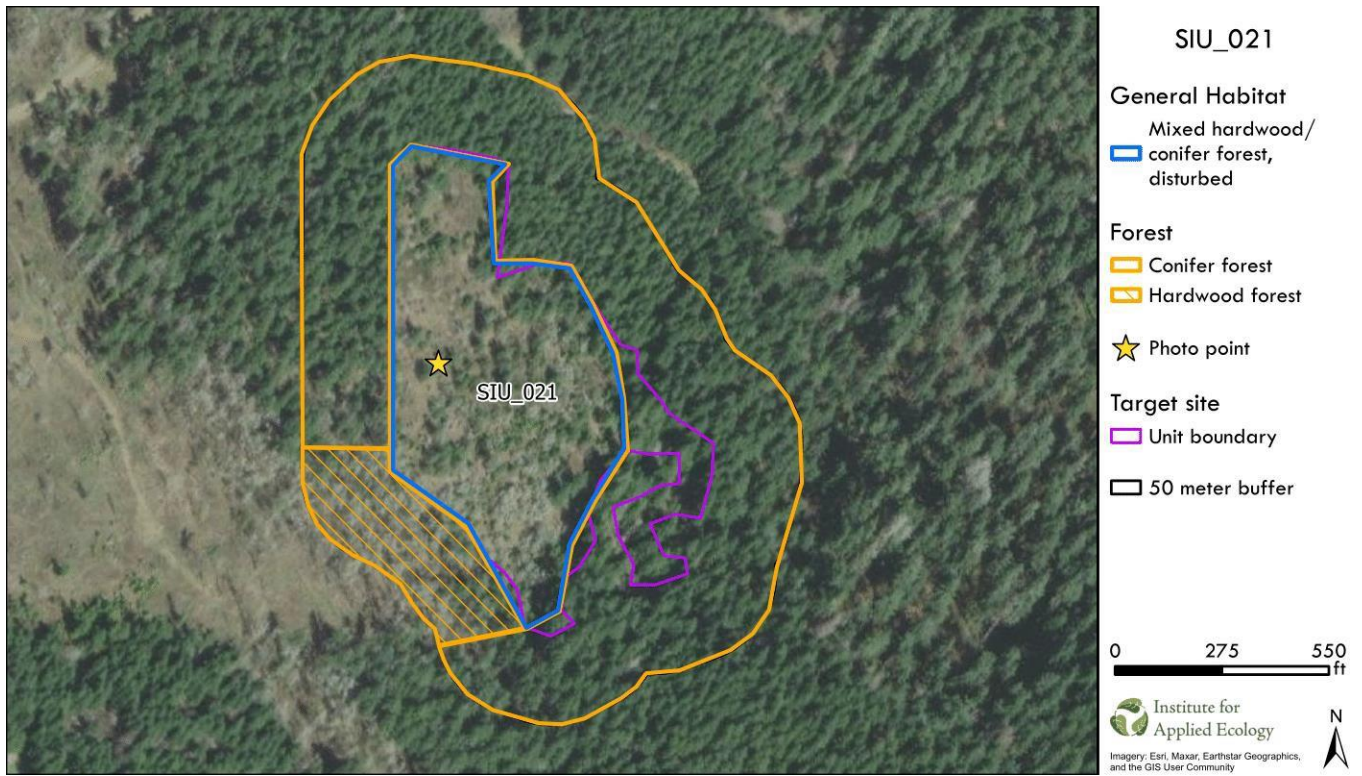
Overall ranking as a priority for restoration (high, moderate, or low)	Moderate
Short-term recommended actions	Cut establishing conifers and one-seed hawthorn ( <i>Crataegus monogyna</i> ). Pull Scotch broom ( <i>Cytisus scoparius</i> ), poison oak ( <i>Toxicodendron diversilobum</i> ), and western brackenfern ( <i>Pteridium aquilinum</i> ). Mow and treat cutleaf blackberry ( <i>Rubus laciniatus</i> ) and sweetbriar rose ( <i>Rosa rubiginosa</i> ) patches. Cut conifers and shrubs suppressing oaks. Pile and burn woody debris, if possible.
Long-term recommended actions	Continue treatment of woody species of management concern. Implement prescribed burn to reduce woody material and litter accumulation. Augment habitat with addition of native meadow forbs. Amplify local grass populations and distribute seed in cleared area. Connect oaks in southeast corner of site to larger population by removing conifers. Consider partnering with private landowners to the south and west to conserve oak woodland habitat.
Site accessibility issues	There is an old, heavily overgrown roadbed leading to the northwest corner of the site from Weiss Rd. The bed could be cleared to improve access to the site.
Restoration action notes	Depending on management goals, consider leaving pines, madrones, and ash trees in the open meadow to maintain a mixed woodland community.
Restoration management notes	A relevé plot was not surveyed because most species are forest edge and understory species. However, a partial species list was developed for the site to aid in determining habitat type and restoration potential.

**Modified prairie habitat quality summary (USFWS 2010)**

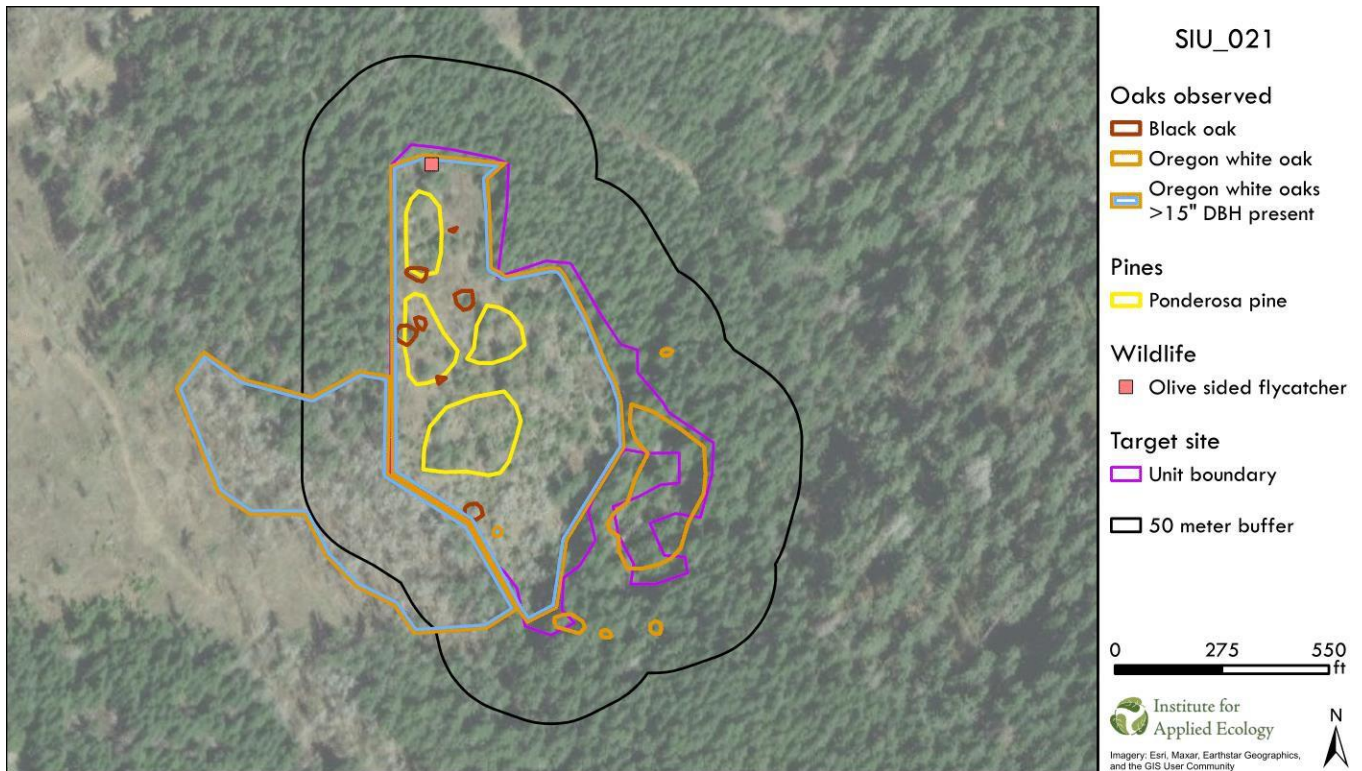
Oak habitat criteria	Data	Objective	Meets objectives?
Oaks present?	Yes	Yes	Yes
Number of oaks greater than 15 inches DBH?	0	≥1	No
Prairie habitat criteria	Data	Recovery Plan threshold	Meets threshold?



<b>Modified prairie habitat quality summary (USFWS 2010)</b>				
Native herbaceous species cover (%)		80	50% min	Yes
Woody species cover (%)		90	15% max	No
Does any one woody species of management concern exceed 5% cover?		Yes	No	No
Prairie diversity	Native forb richness	N/A	7	No data
	Native bunchgrass richness	N/A	1	No data
	Total native herbaceous species richness	N/A	>10	No data
Do any non-native species exceed 50% cover within the relevé plot?		N/A	No	No data
Do any non-native species of particular concern exceed 5% cover?		N/A	No	No data



**Figure G-8.** Overview of SIU\_021 with habitat, forested buffer areas, and photopoint location.



**Figure G-9.** Oaks, large trees, pines, and wildlife observed, if applicable.

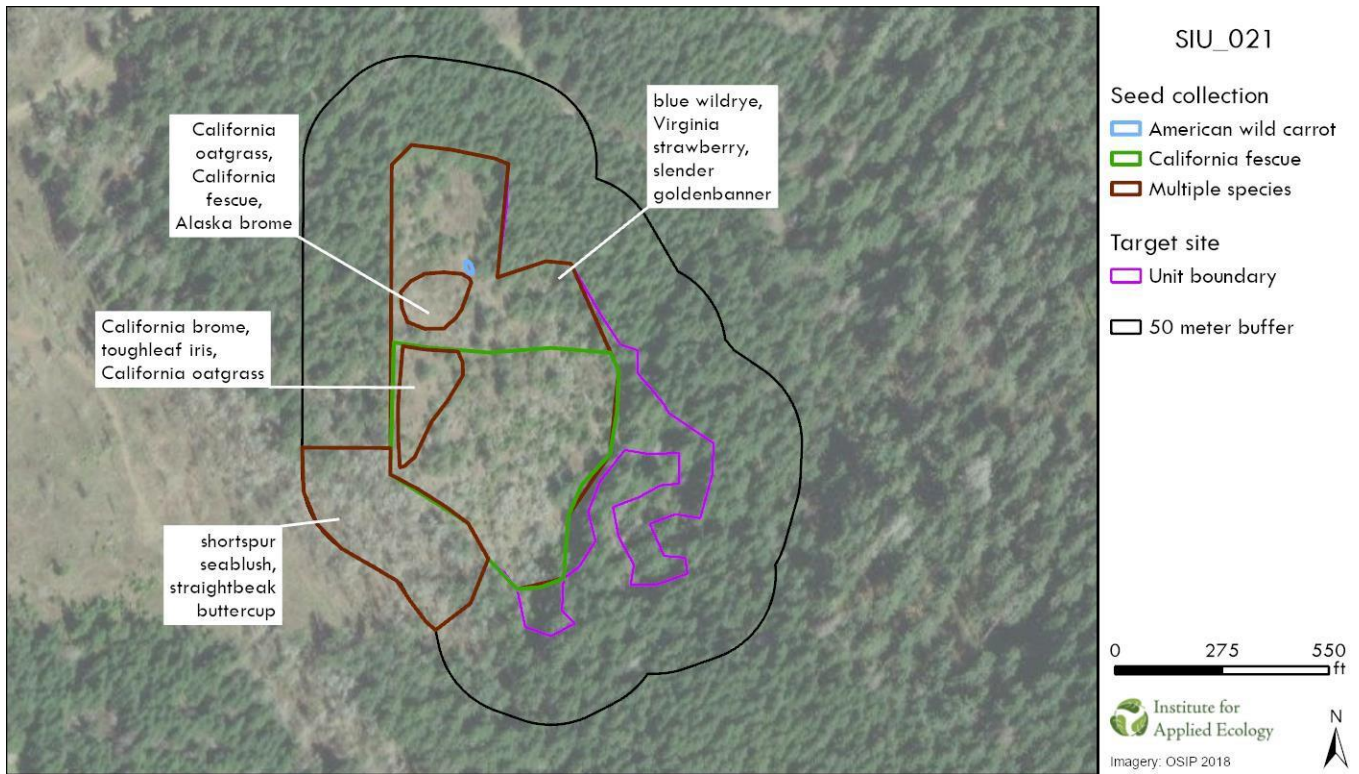


Figure G-10. Seed collection species observed.

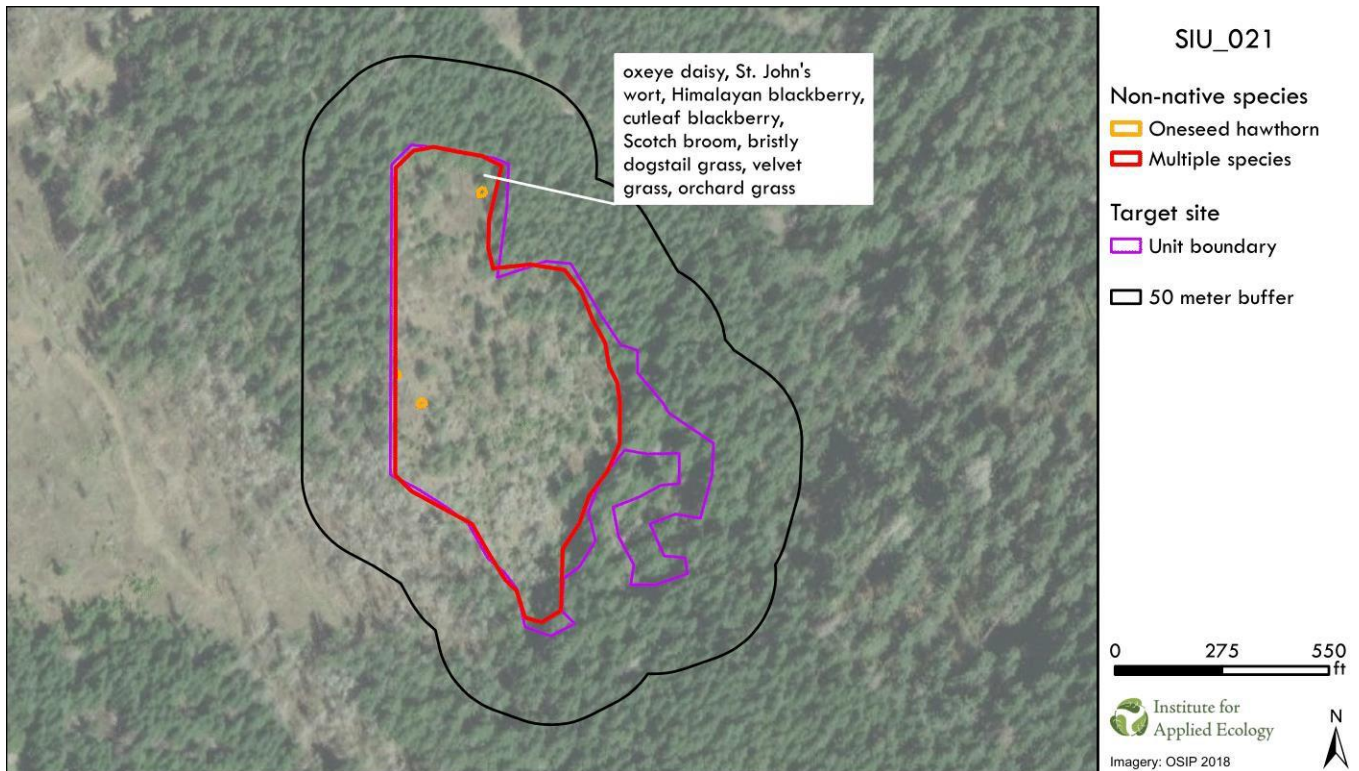
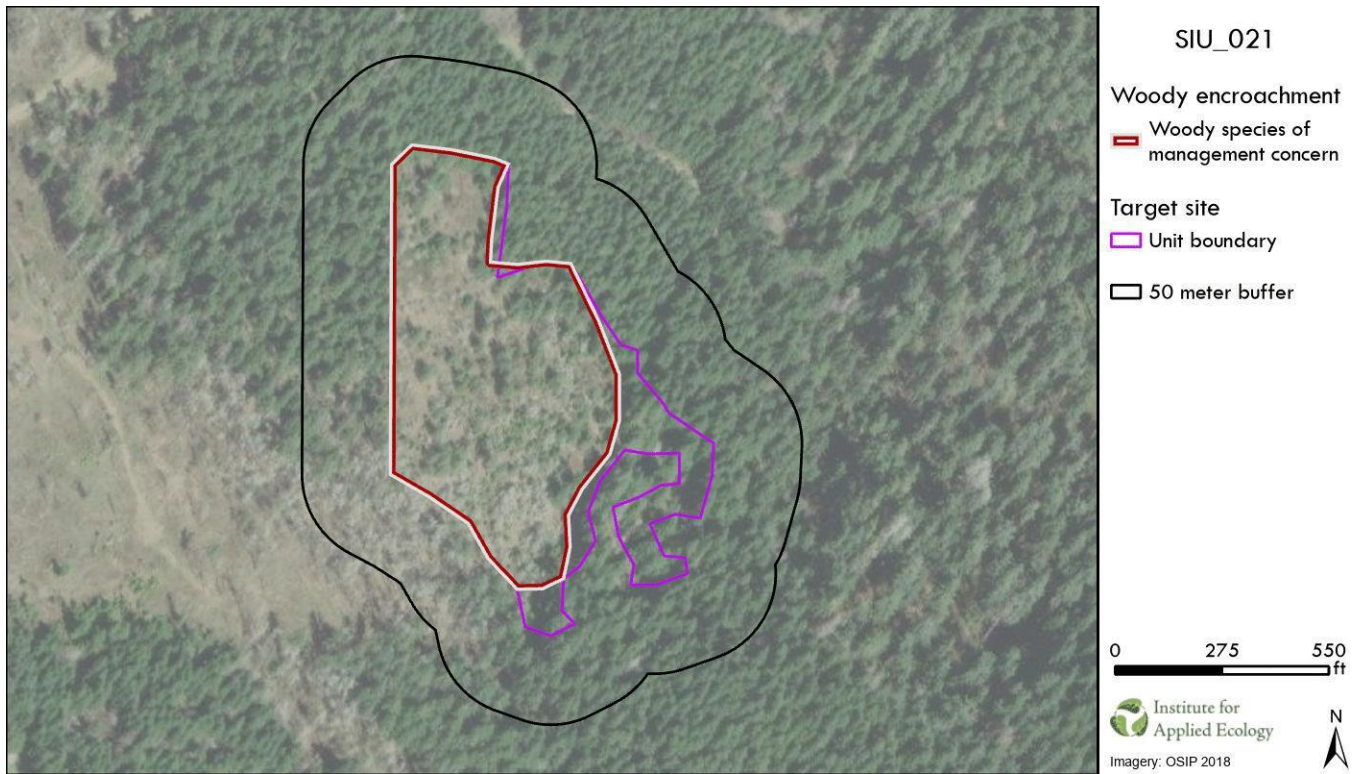
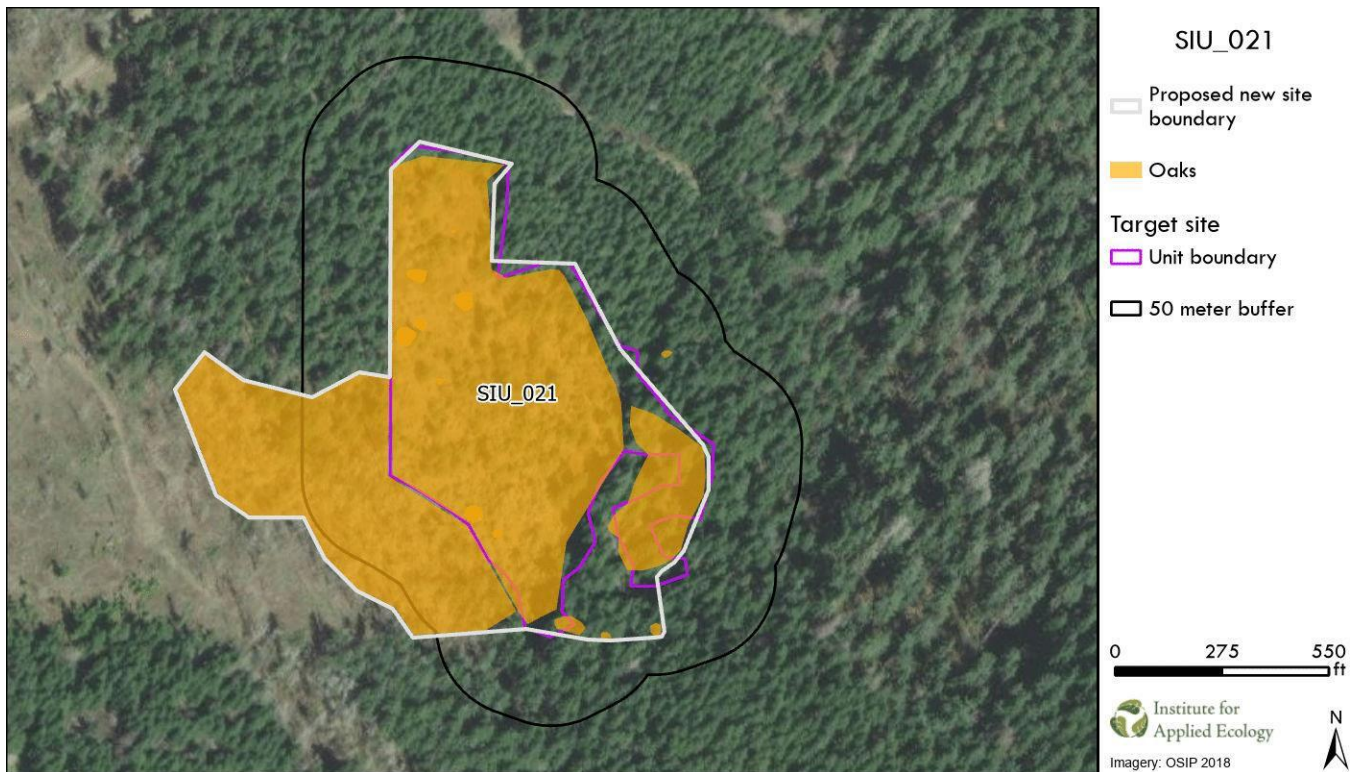


Figure G-11. Non-native species observed.



**Figure G-12.** Woody encroachment and human activity observed. Woody species of management concern observed in 2022 were Scotch broom, Himalayan blackberry, one-seed hawthorn, sweetbriar rose, poison oak, and cutleaf blackberry.



**Figure G-13.** Recommended changes to the unit boundary based on habitat and/or oaks present.

North:



East:



South:



West:



**Figure G-14.** SIU\_021 photopoints taken at -123.142253, 43.903800.

## SIU\_022

General site information	
Date surveyed	7/5/2022
Observers (affiliation)	Annie Lamas, Zade Clark-Henry (IAE)
Unit ID	SIU_022
Site name	Fox Hollow
BLM Field Office	Siuslaw
County	Lane
Township, Range, Section	T19S, R04W, Sec23
Recovery zone (USFWS 2010)	Eugene West
Land ownership	BLM, Northwest Oregon District
Contact person and contact information	Greg Hedrick, ghedrick@blm.gov, 541-683-6796 (office)
Directions	Access via Weiss Rd., then turn onto BLM Rd. 19-4-23.0. Park adjacent to the site to the east.
Photopoint coordinates	-123.133795, 43.905573

Habitat overview	
Unit area (acres)	0.83
Prairie and/or oak habitat present?	Yes
Habitat type (special habitat)	Oak savanna (mesic meadow)
Slope (degrees)	1
Aspect	WSW
Elevation (feet)	980
What maintains site openness?	Hydrology
Evidence of human disturbance	No
Type of site	Open area surrounded by forest
Buffer or forested area description	Buffer is a second growth forest dominated by Douglas-fir ( <i>Pseudotsuga menziesii</i> ).
Do remnant oak or prairie species exist in the buffer or forested areas?	Yes
Remnant oak or prairie species observed (Alverson 2010)	Woodland strawberry ( <i>Fragaria vesca</i> ), Pacific hound's tongue ( <i>Cynoglossum grande</i> ), Oregon white oak ( <i>Quercus garryana</i> ), blue wildrye ( <i>Elymus glaucus</i> ), California brome ( <i>Bromus carinatus</i> )
General notes	

Woody species			
Overall live woody cover (%)	25		
Live native tree cover (%)	13	Live non-native tree cover (%)	0
Live native shrub cover (%)	1	Live non-native shrub cover (%)	11
Live tree cover from oaks (%)	7	Standing dead woody cover (%)	2
Number oaks >15 in DBH	0		
Number of large trees (>40 in DBH)	2		
Species of large trees	Incense cedar ( <i>Calocedrus decurrens</i> )		
Woody species encroaching on prairie habitat*+	Himalayan blackberry ( <i>Rubus bifrons</i> )*+, Douglas-fir ( <i>Pseudotsuga menziesii</i> ), poison oak ( <i>Toxicodendron diversilobum</i> )* Scotch broom ( <i>Cytisus scoparius</i> )*		

Would removal of encroaching woody species result in the need for wood to be hauled off-site?	No
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\*Woody species of management concern from the *Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington* (USFWS 2010).

+Woody species of management concern that exceed 5% cover of the site.

Herbaceous non-native species	
Herbaceous non-native cover (%)	95
Most common non-native species	Bristly dogstail grass ( <i>Cynosurus echinatus</i> ), common velvetgrass ( <i>Holcus lanatus</i> ), oxeye daisy ( <i>Leucanthemum vulgare</i> ), soft brome ( <i>Bromus hordeaceus</i> ), orchard grass ( <i>Dactylis glomerata</i> )

Herbaceous native species	
Herbaceous native cover (%)	5
Most common native species	Seep monkeyflower ( <i>Mimulus guttatus</i> ), shortspur seablush ( <i>Plectritis congesta</i> ), blue wildrye ( <i>Elymus glaucus</i> ), California brome ( <i>Bromus carinatus</i> ), crown brodiaea ( <i>Brodiaea coronaria</i> )
Relevé survey?	No
T&E species present?	No
Seed collection potential?	Seep monkeyflower ( <i>Mimulus guttatus</i> ), shortspur seablush ( <i>Plectritis congesta</i> ), blue wildrye ( <i>Elymus glaucus</i> ), California brome ( <i>Bromus carinatus</i> ), California oatgrass ( <i>Danthonia californica</i> ), whitetip clover ( <i>Trifolium variegatum</i> ), crown brodiaea ( <i>Brodiaea coronaria</i> )

Wildlife	
Wildlife species of interest observed	None

Preliminary habitat restoration/management recommendations	
Overall ranking as a priority for restoration (high, moderate, or low)	Moderate
Short-term recommended actions	Remove Scotch broom ( <i>Cytisus scoparius</i> ), Himalayan blackberry ( <i>Rubus bifrons</i> ), and poison oak ( <i>Toxicodendron diversilobum</i> ) that is encroaching on the meadow. Remove conifers growing around the oaks.
Long-term recommended actions	Treat non-native grasses, oxeye daisy ( <i>Leucanthemum vulgare</i> ), Canada thistle ( <i>Cirsium arvense</i> ), and false brome ( <i>Brachypodium sylvaticum</i> ). Augment the meadow with native forbs and bunchgrasses.
Site accessibility issues	This site is directly adjacent to the road.

Modified prairie habitat quality summary (USFWS 2010)			
Oak habitat criteria	Data	Objective	Meets objectives?
Oaks present?	Yes	Yes	Yes
Number of oaks greater than 15 inches DBH?	0	≥1	No
Prairie habitat criteria	Data	Recovery Plan threshold	Meets threshold?
Native herbaceous species cover (%)	5	50% min	No
Woody species cover (%)	25	15% max	No

<b>Modified prairie habitat quality summary (USFWS 2010)</b>				
Does any one woody species of management concern exceed 5% cover?		Yes	No	No
Prairie diversity	Native forb richness	N/A	7	No data
	Native bunchgrass richness	N/A	1	No data
	Total native herbaceous species richness	N/A	>10	No data
Do any non-native species exceed 50% cover within the relevé plot?		N/A	No	No data
Do any non-native species of particular concern exceed 5% cover?		N/A	No	No data



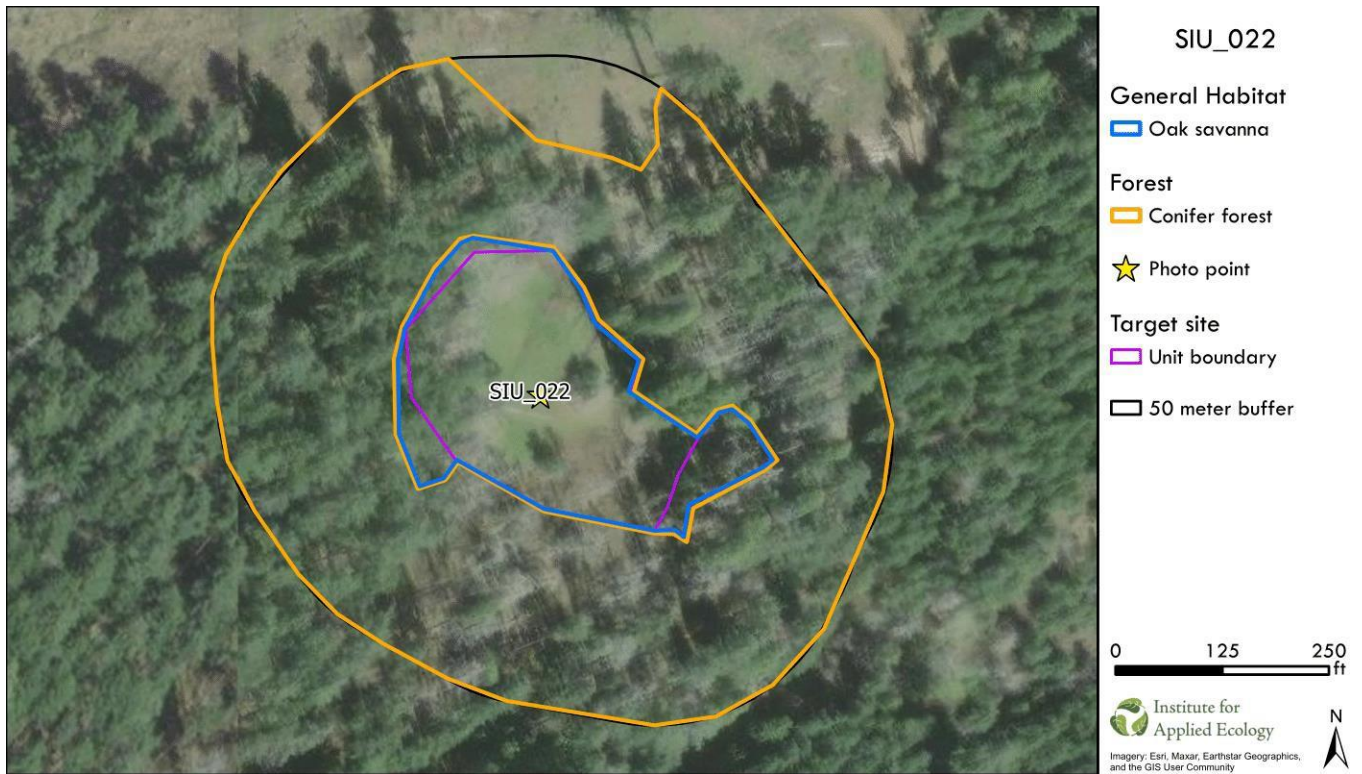


Figure G-15. Overview of SIU\_022 with habitat, forested buffer areas, and photopoint location.



Figure G-16. Oaks, large trees, pines, and wildlife observed, if applicable.

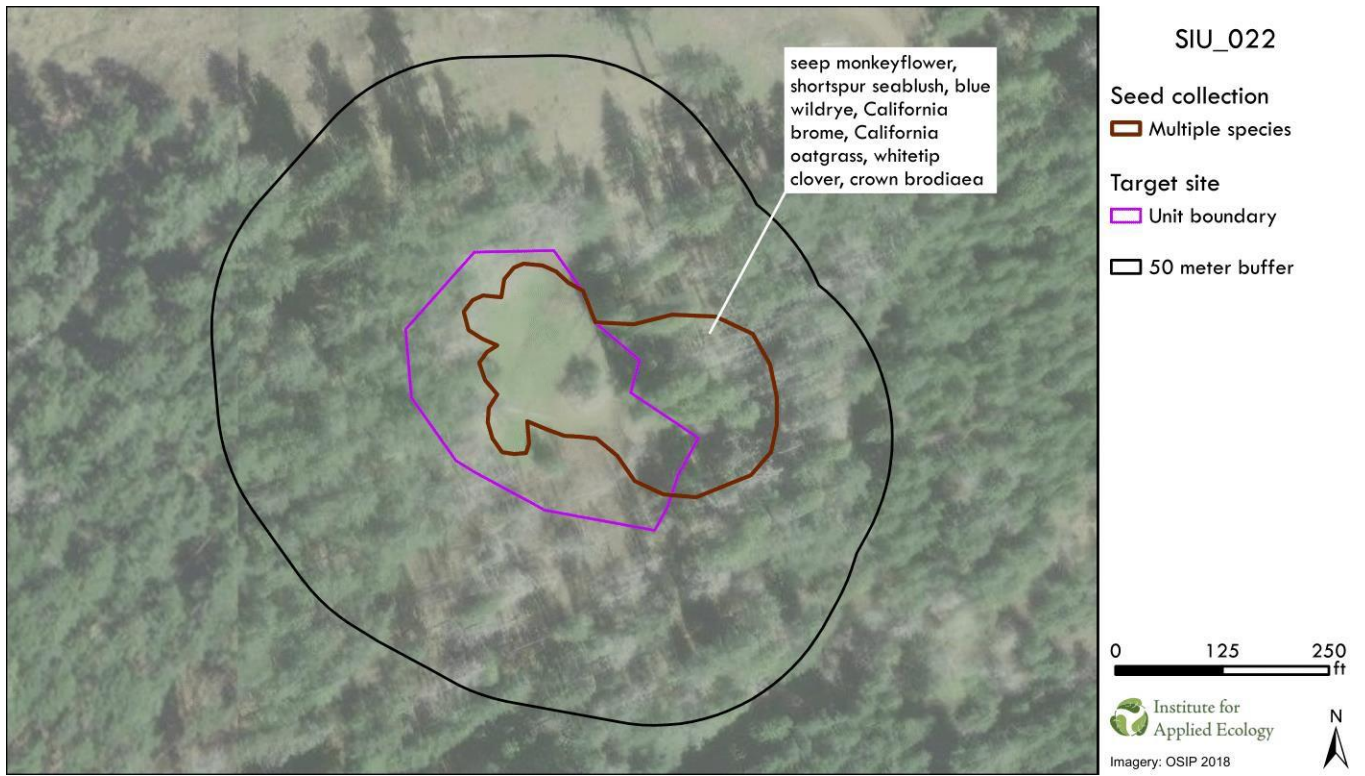


Figure G-17. Seed collection species observed.

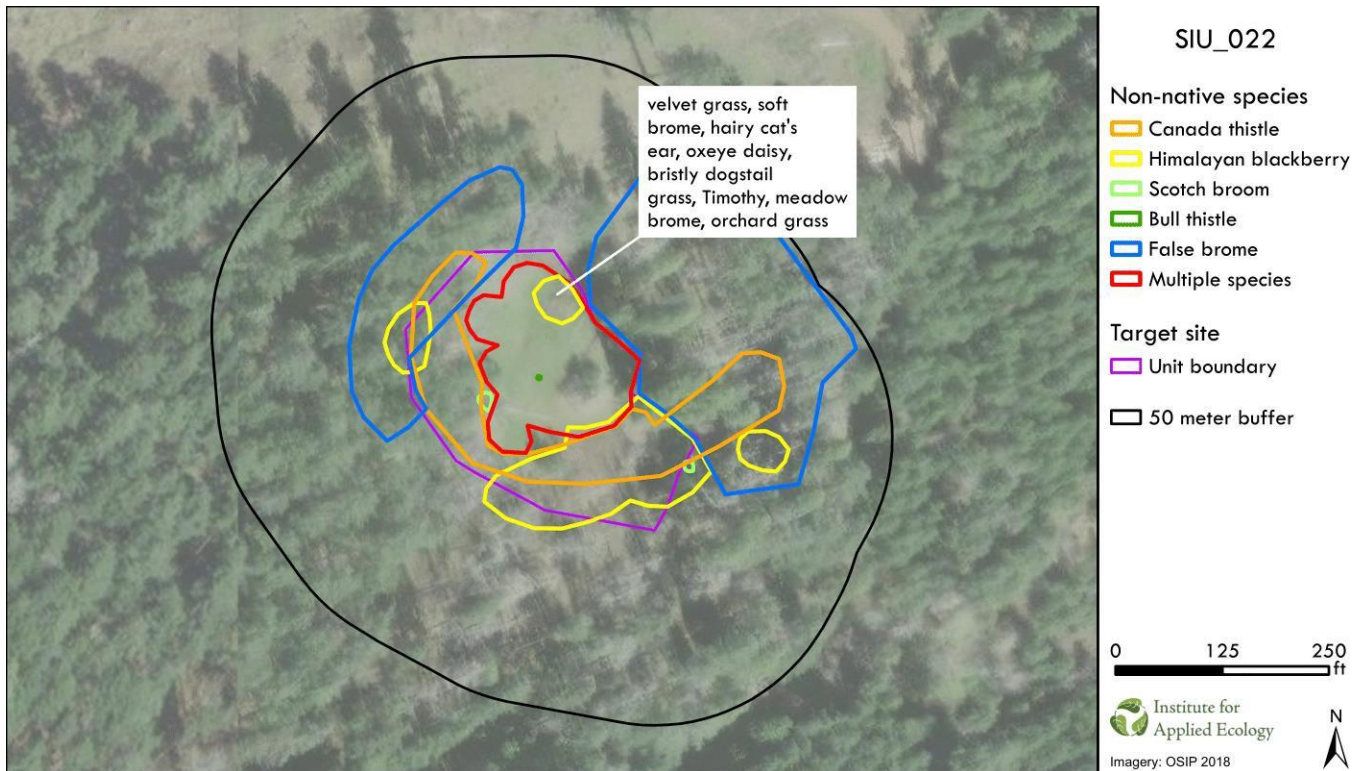
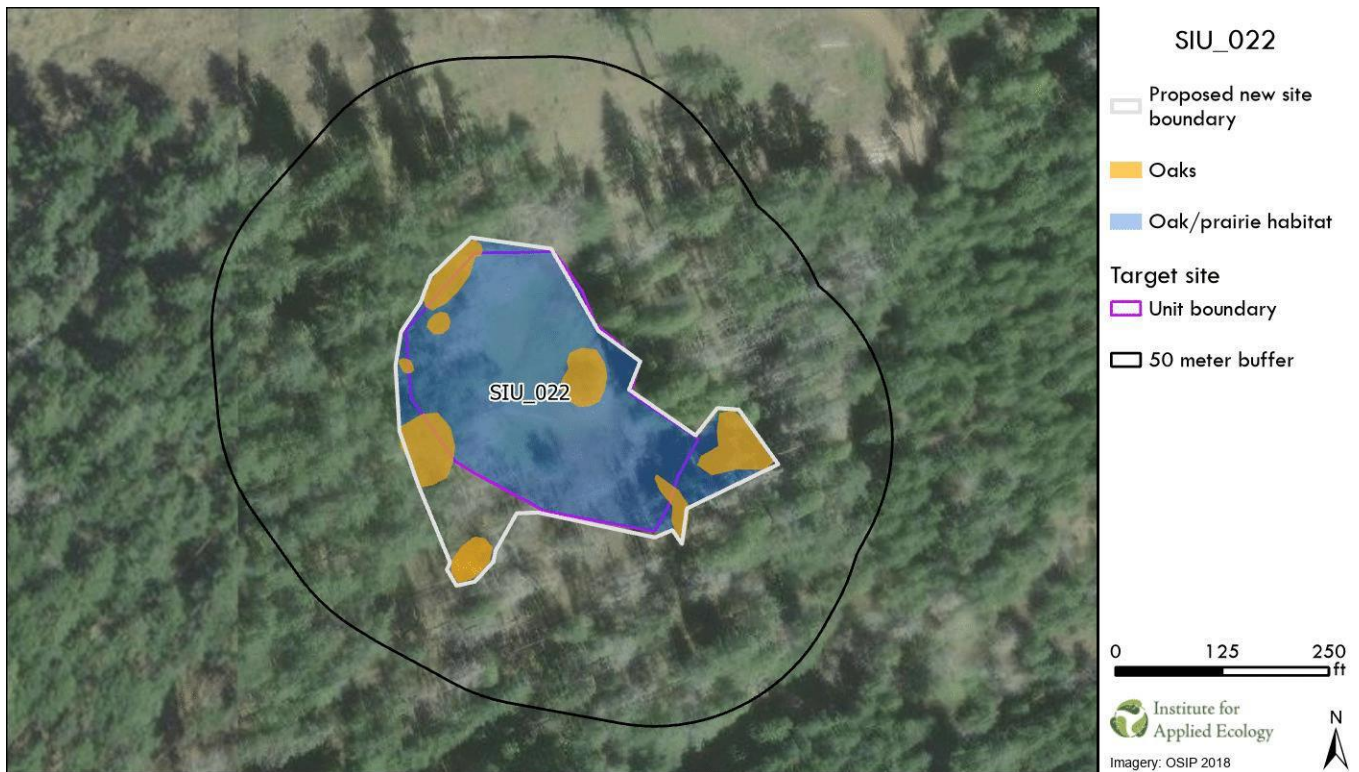


Figure G-18. Non-native species observed.



**Figure G-19.** Woody encroachment and human activity observed. Woody species of management concern observed in 2022 were poison oak, Himalayan blackberry, and Scotch broom.



**Figure G-20.** Recommended changes to the unit boundary based on habitat and/or oaks present.

North:



East:



South:



West:



**Figure G-21.** SIU\_022 photopoints taken at -123.133795, 43.905572.

## SIU\_023

General site information	
Date surveyed	7/5/2022
Observers (affiliation)	Annie Lamas, Zade Clark-Henry (IAE)
Unit ID	SIU_023
Site name	Fox Hollow
BLM Field Office	Siuslaw
County	Lane
Township, Range, Section	T19S, R04W, Sec23
Recovery zone (USFWS 2010)	Eugene West
Land ownership	BLM, Northwest Oregon District
Contact person and contact information	Greg Hedrick ghedrick@blm.gov, 541-683-6796 (office)
Directions	Follow Weiss Rd. to 19-4-23.0. Park southeast of the site at the end of the road.
Photopoint coordinates	-123.132320, 43.908479

Habitat overview	
Unit area (acres)	0.64
Prairie and/or oak habitat present?	Yes
Habitat type (special habitat)	Oak woodland (shrub field)
Habitat type notes	The plant community within the dense shrubby area indicates very wet habitat. Dominant plants include horsetail ( <i>Equisetum</i> sp.) and sword fern ( <i>Pteridium aquilinum</i> ).
Slope (degrees)	0
Aspect	SSW
Elevation (feet)	950
What maintains site openness?	Hydrology
Type of site	Largely forested
Buffer or forested area description	This site is a second growth forest dominated by Douglas-fir ( <i>Pseudotsuga menziesii</i> ).
Do remnant oak or prairie species exist in the buffer or forested areas?	Yes
Remnant oak or prairie species observed (Alverson 2010)	Blue wildrye ( <i>Elymus glaucus</i> ), Pacific woodrush ( <i>Luzula comosa</i> ), Pacific hound's tongue ( <i>Cynoglossum grande</i> )

Woody species	
Number of oaks >15 in DBH	8
Number of large trees (>40 in DBH)	0
Woody species notes	No covers estimated because no open habitat was present.

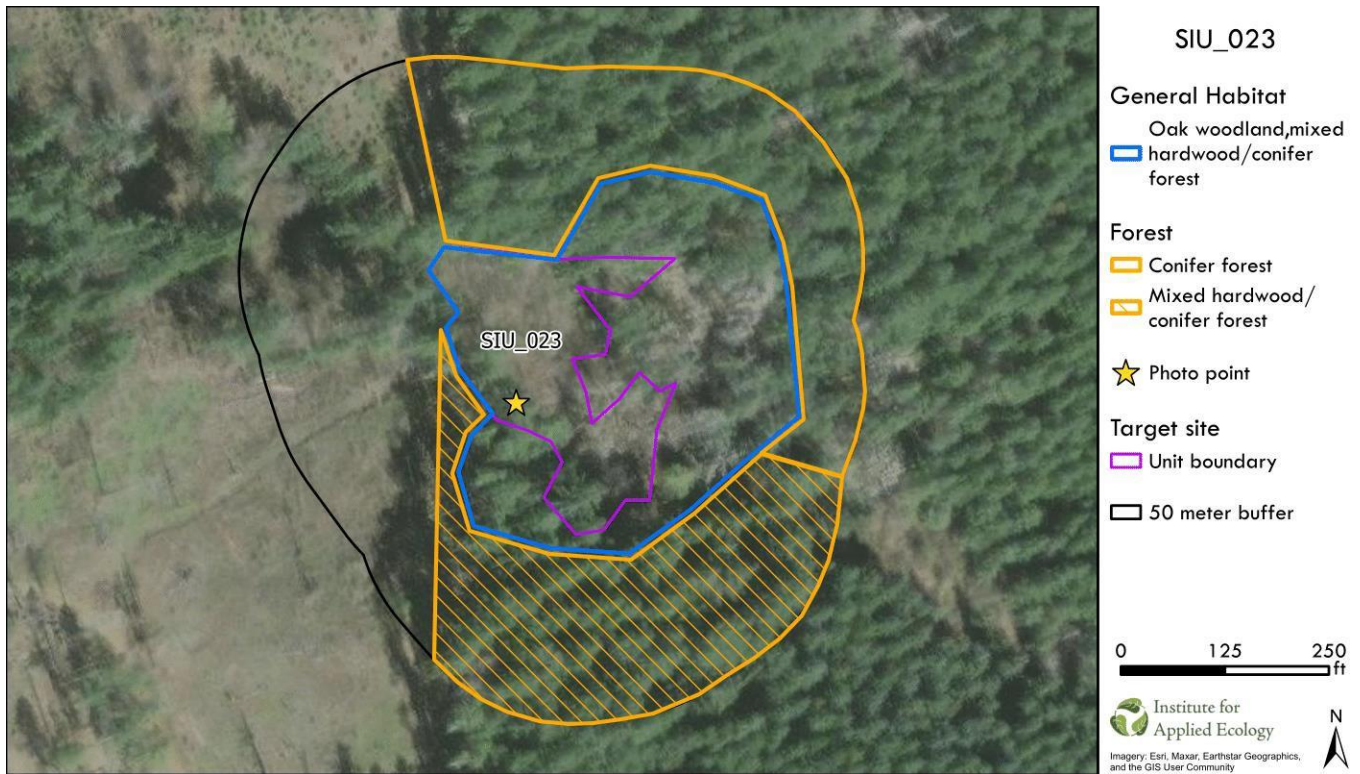
<b>Herbaceous species</b>	
Herbaceous species notes	Native and non-native herbaceous covers not estimated – no open habitat observed.

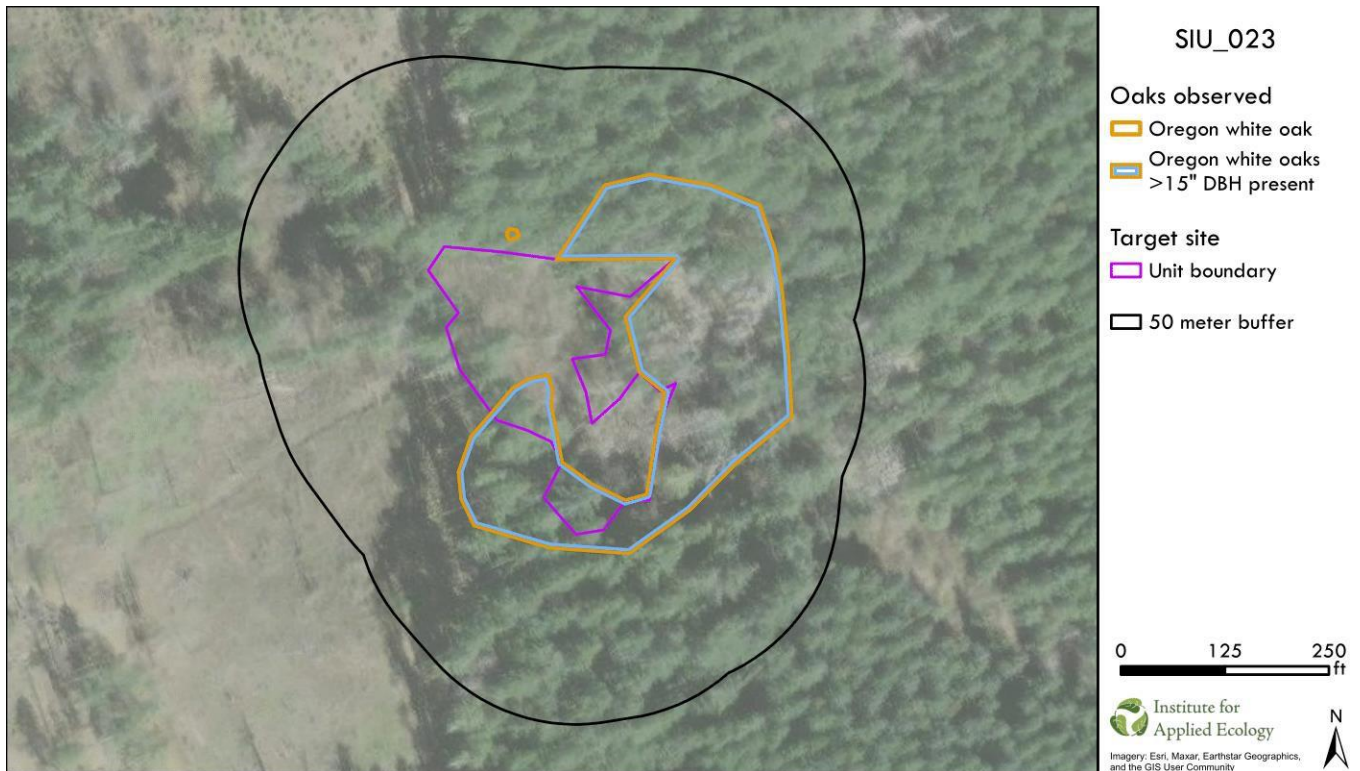
<b>Wildlife</b>	
Wildlife species of interest observed	None

<b>Preliminary habitat restoration/management recommendations</b>	
Restoration action notes	This site is densely covered by vine maple ( <i>Acer circinatum</i> ) and beaked hazelnut ( <i>Corylus cornuta</i> ). Large oaks are growing along the edges of the shrubby habitat and into the forest on the north and east sides, which may indicate remnant oak woodland. No open meadow habitat observed.



**Figure G-22.** Overview of SIU\_023 and 50-meter buffer including habitat, forested buffer areas, and photopoint location.



**Figure G-23.** Oaks, large trees, pines, and wildlife observed, if applicable.

North:



East:



South:



West:



**Figure G-24.** SIU\_023 photopoints taken at -123.132320, 43.908479.



## LORANE

## SIU\_038

General site information	
Date surveyed	6/13/2022
Observers (affiliation)	Annamarie Pfeifer, Annie Lamas, Zade Clark-Henry (IAE)
Unit ID	SIU_038
Site name	Gowdyville
BLM Field Office	Siuslaw
County	Lane
Township, Range, Section	T20S, R04W, Sec35
Recovery zone (USFWS 2010)	Eugene West
Land ownership	BLM, Northwest Oregon District
Contact person and contact information	Greg Hedrick ghedrick@blm.gov, 541-683-6796 (office)
Directions	Park on Gowdyville Road in the middle of the site.
Photopoint coordinates	-123.134789, 43.791922

Habitat overview	
Unit area (acres)	40.29
Prairie and/or oak habitat present?	No
Habitat type (special habitat)	Mixed hardwood/conifer forest, mixed conifer forest
Habitat type notes	Mixed hardwood conifer forest in northwest section of the site.
Slope (degrees)	5
Aspect	S
Elevation (feet)	1520
What maintains site openness?	No open areas were evident at this site at the time of visit.
Type of site	Largely forested
Buffer or forested area description	This site is a second growth forest dominated by Douglas-fir ( <i>Pseudotsuga menziesii</i> ), western red cedar ( <i>Thuja plicata</i> ) and co-dominated by bigleaf maple ( <i>Acer macrophyllum</i> ), grand fir ( <i>Abies grandis</i> ), red alder ( <i>Alnus rubra</i> ).
Do remnant oak or prairie species exist in the buffer or forested areas?	Yes
Remnant oak or prairie species observed (Alverson 2010)	Toughleaf iris ( <i>Iris tenax</i> )

Woody species	
Number of oaks >15 in DBH	0
Number of large trees (>40 in DBH)	6
Species of large trees	Douglas-fir ( <i>Pseudotsuga menziesii</i> )
Average Van Pelt score	<2 (35-80 years)
Woody species notes	No covers estimated because no open habitat present.

<b>Herbaceous species</b>	
Herbaceous species notes	Native and non-native herbaceous covers not estimated – not prairie or oak habitat.

<b>Wildlife</b>	
Wildlife species of interest observed	None

<b>Preliminary habitat restoration/management recommendations</b>	
Restoration action notes	No restoration required at this site. No oaks or prairie habitat.



Figure G-25. Overview of SIU\_038 and 50-meter buffer including habitat, forested buffer areas, and photopoint location.



Figure G-26. Oaks, large trees, pines, and wildlife observed, if applicable.

North:



East:



South:



West:



**Figure G-27.** SIU\_038 photopoints taken at -123.134789, 43.791922.

## ROMAN NOSE MOUNTAIN

### SIU\_013

General site information	
Date surveyed	7/6/2022
Observers (affiliation)	Annie Lamas, Zade Clark-Henry (IAE)
Unit ID	SIU_013
Site name	Roman Nose Mountain
BLM Field Office	Siuslaw
County	Lane
Township, Range, Section	T18S, R08W, Sec27
Recovery zone (USFWS 2010)	Eugene West
Land ownership	BLM, Northwest Oregon District
Contact person and contact information	Greg Hedrick ghedrick@blm.gov, 541-683-6796 (office)
Directions	From Lower Siuslaw Rd, park in the dispersed camping area south-southwest of the site (18-8-27.1).
Photopoint coordinates	-123.635870, 43.975400

Habitat overview	
Unit area (acres)	22.73
Prairie and/or oak habitat present?	No
Habitat type (special habitat)	Mixed conifer forest, rock meadow, disturbed (shrub field, cliff)
Habitat type notes	This site shows evidence of a recent burn. Many standing dead trees were present throughout, with most trees exhibiting charred bases. Some acorns were located in the site, though no live oaks were observed.
Slope (degrees)	60
Aspect	S
Elevation (feet)	1000
What maintains site openness?	Fire disturbance, soils
Type of site	Largely forested
Buffer or forested area description	This site is a second growth forest dominated by Douglas-fir ( <i>Pseudotsuga menziesii</i> ), red alder ( <i>Alnus rubra</i> ) and co-dominated by western hemlock ( <i>Tsuga heterophylla</i> ).
Do remnant oak or prairie species exist in the buffer or forested areas?	Yes
Remnant oak or prairie species observed (Alverson 2010)	Blue wildrye ( <i>Elymus glaucus</i> ), toughleaf iris ( <i>Iris tenax</i> )

Woody species	
Number of oaks >15 in DBH	0
Number of large trees (>40 in DBH)	0
Woody species notes	No covers estimated because no open habitat present.

<b>Herbaceous species</b>	
Herbaceous species notes	Native and non-native herbaceous covers not estimated – not prairie or oak habitat.

<b>Wildlife</b>	
Wildlife species of interest observed	Wrentit

<b>Preliminary habitat restoration/management recommendations</b>	
Restoration action notes	This site is likely too steep to consider restoration actions, and the habitat observed was out of the scope of the project. No oaks or meadow habitat were observed.

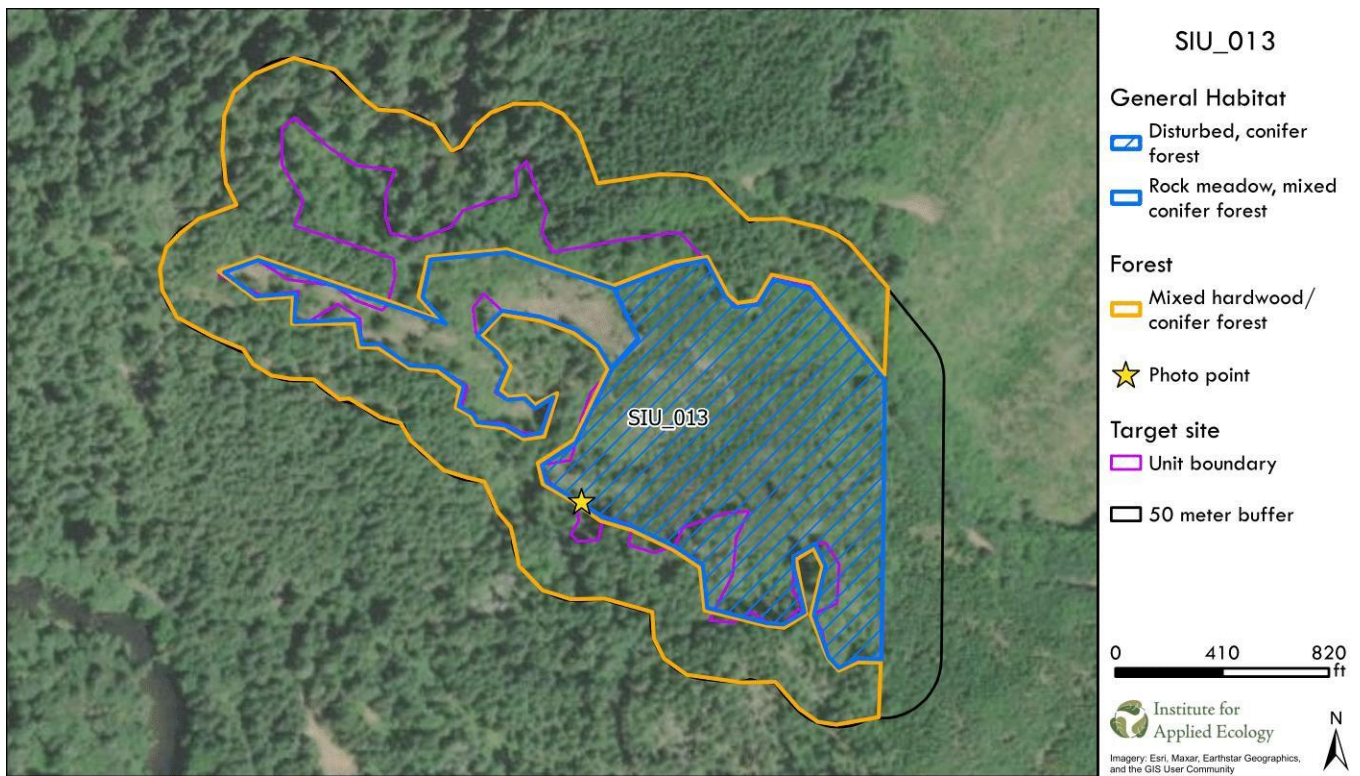


Figure G-28. Overview of SIU\_013 and 50-meter buffer including habitat, forested buffer areas, and photopoint location.

North:



East:



South:



West:



**Figure G-29.** SIU\_013 photopoints taken at -123.635870, 43.975400.



## APPENDIX H: UPPER WILLAMETTE FIELD OFFICE SITE REPORTS

## BLUE MOUNTAIN

### UPW\_068

General site information	
Date surveyed	6/8/2022
Observers (affiliation)	Annamarie Pfeifer, Annie Lamas, Zade Clark-Henry (IAE)
Unit ID	UPW_068
Site name	Blue Mountain
BLM Field Office	Upper Willamette
County	Lane
Township, Range, Section	T21S, R02W, Sec33
Recovery zone (USFWS 2010)	Eugene East
Land ownership	BLM, Northwest Oregon District
Contact person and contact information	Chad Conklin cconklin@blm.gov, 541-683-6120 (office), 541-517-0631 (cell)
Directions	Access via Blue Mountain Rd. (21-2-33). No gates.
Photopoint coordinates	-122.932891, 43.707222

Habitat overview	
Unit area (acres)	8.99
Prairie and/or oak habitat present?	Yes
Habitat type (special habitat)	Oak savanna, rock meadow (dry meadow, rock outcrop, cliff)
Habitat type notes	The southeastern portion of the site contains a sheer cliff face dropping 100-200 ft. to Douglas-fir ( <i>Pseudotsuga menziesii</i> ) forest below. Large rocky outcrops are present throughout the open meadow. All oaks occur on the southwestern and western edges of the site.
Slope (degrees)	35
Aspect	SSW
Elevation (feet)	2880
What maintains site openness?	Hydrology, soils
Evidence of human disturbance	Yes
Level of human disturbance	High
Type of human disturbance	Campsite, firepit, shotgun casings, trash dump, old roadbed
Human disturbance notes	Shattered clay pigeons, spent ammunition, and trash are scattered throughout the site.
Type of site	Open area surrounded by forest
Buffer or forested area description	Buffer is a second growth forest dominated by Douglas-fir ( <i>Pseudotsuga menziesii</i> ).
Do remnant oak or prairie species exist in the buffer or forested areas?	Yes
Remnant oak or prairie species observed (Alverson 2010)	Snowqueen ( <i>Synthyris reniformis</i> )

Woody species			
Overall live woody cover (%)	5		
Live native tree cover (%)	3	Live non-native tree cover (%)	0
Live native shrub cover (%)	2	Live non-native shrub cover (%)	0
Live tree cover from oaks (%)	1	Standing dead woody cover (%)	0
Number oaks >15 in DBH	0		
Number of large trees (>40 in DBH)	0		
Woody species encroaching on prairie habitat*+	Poison oak ( <i>Toxicodendron diversilobum</i> )*		
Would removal of encroaching woody species result in the need for wood to be hauled off-site?	No		

\*Woody species of management concern from the *Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington*.

+ Woody species of management concern that exceed 5% cover of the site.

Herbaceous non-native species	
Herbaceous non-native cover (%)	80
Most common non-native species	Silver hairgrass ( <i>Aira caryophylla</i> ), bristly dogstail grass ( <i>Cynosurus echinatus</i> ), smooth cat's ear ( <i>Hypochaeris glabra</i> ), hairy cat's ear ( <i>Hypochaeris radicata</i> ), common sheep sorrel ( <i>Rumex acetosella</i> ), red fescue ( <i>Festuca rubra</i> ), poverty brome ( <i>Bromus sterilis</i> )

Herbaceous native species	
Herbaceous native cover (%)	20
Most common native species	Roemer's fescue ( <i>Festuca roemerii</i> ), death camas ( <i>Toxicoscordion venenosum</i> ), tomcat clover ( <i>Trifolium willdenovii</i> ), seep monkeyflower ( <i>Mimulus guttatus</i> ), common woolly sunflower ( <i>Eriophyllum lanatum</i> )
Relevé survey?	Yes (see <a href="#">Table H-1</a> )
T&E species present?	No
Seed collection potential?	Miniature lupine ( <i>Lupinus bicolor</i> ), Tolmie star-tulip ( <i>Calochortus tolmiei</i> ), death camas ( <i>Toxicoscordion venenosum</i> ), Roemer's fescue ( <i>Festuca roemerii</i> ), Olympic onion ( <i>Allium crenulatum</i> ), small camas ( <i>Camassia quamash</i> ), shortspur seablush ( <i>Plectritis congesta</i> ), common lomatium ( <i>Lomatium utriculatum</i> ), common woolly sunflower ( <i>Eriophyllum lanatum</i> ), Menzies' larkspur ( <i>Delphinium menziesii</i> ), smallhead clover ( <i>Trifolium microcephalum</i> ), tomcat clover ( <i>Trifolium willdenovii</i> ), naked buckwheat ( <i>Eriogonum nudum</i> ), prairie Junegrass ( <i>Koeleria macrantha</i> ), seep monkeyflower ( <i>Mimulus guttatus</i> ), Cascade desert parsley ( <i>Lomatium martindalei</i> ), giant blue eyed Mary ( <i>Collinsia grandiflora</i> ), Suksdorf's large camas ( <i>Camassia leichtlinii</i> var. <i>suksdorfii</i> )

Wildlife	
Wildlife species of interest observed	None

Preliminary habitat restoration/management recommendations	
Overall ranking as a priority for restoration (high, moderate, or low)	Moderate

Short-term recommended actions	Discourage skeet shooting in the meadow area. Consider discouraging entry into the meadow. Treat potential weed seed sources in parking area.
Long-term recommended actions	Treat the non-native annual grasses.
Site accessibility issues	The site is easily accessible, but heavy machinery is not recommended for restoration activities.
Restoration action notes	This site evidently has high recreational visitation. It is unclear the extent to which human activities, especially skeet shooting, are affecting the meadow habitat.

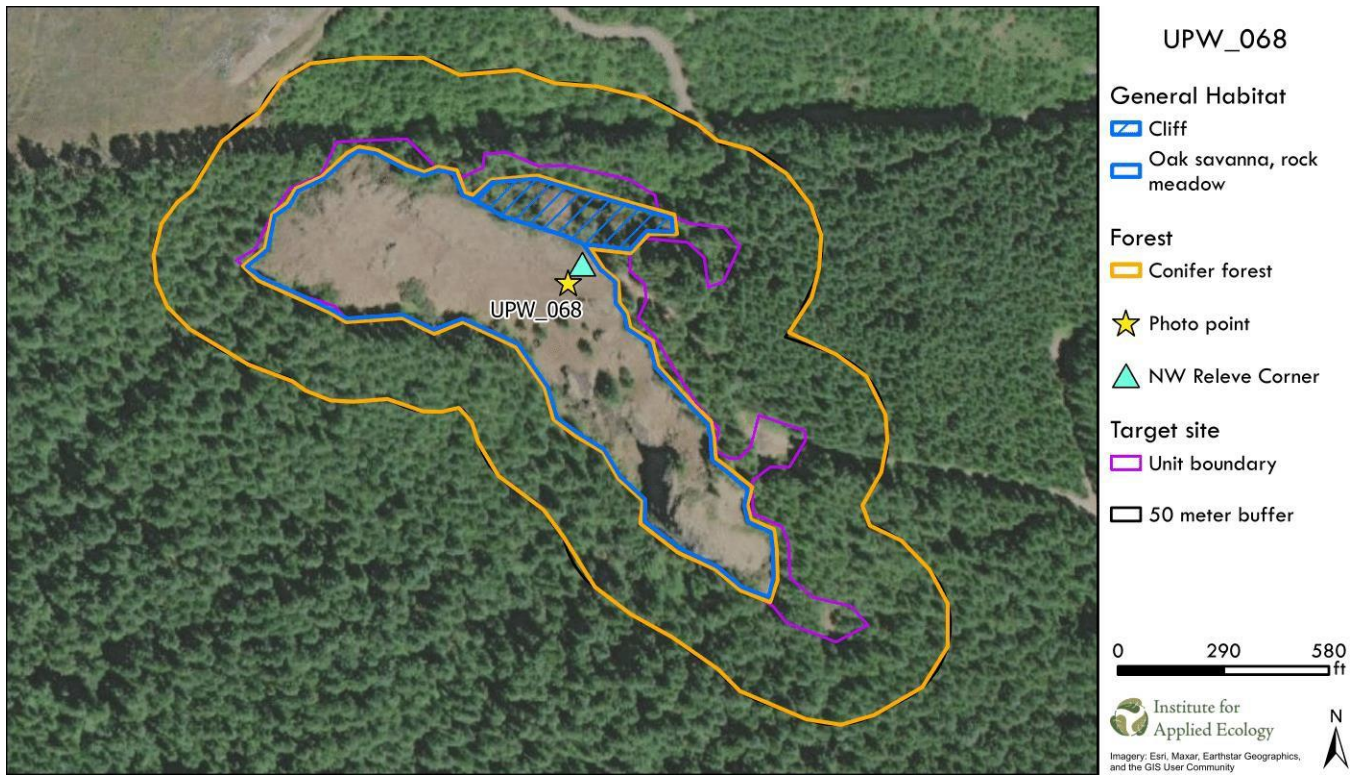
Modified prairie habitat quality summary (USFWS 2010)			
Oak habitat criteria	Data	Objective	Meets objectives?
Oaks present?	Yes	Yes	Yes
Number of oaks greater than 15 inches DBH?	0	≥1	No
Prairie habitat criteria	Data	Recovery Plan threshold	Meets threshold?
Native herbaceous species cover (%)	20	50% min	No
Woody species cover (%)	5	15% max	Yes
Does any one woody species of management concern exceed 5% cover?	No	5% max	Yes
Prairie diversity	Native forb richness	7	Yes
	Native bunchgrass richness	1	Yes
	Total native herbaceous species richness	>10	Yes
Do any non-native species exceed 50% cover within the relevé plot?	No	50%	Yes
Do any non-native species of particular concern exceed 5% cover?	No	5%	Yes

**Table H-1.** Relevé survey data. Braun-Blanquet cover scale: R = <5% and single individual, + = <5% and 2-20 individuals, 1 = <5% many individuals, 2 = 5-25%, 3 = 25-50%, 4 = 50-75%, 5 = 75-100%. The origin was listed as “unknown” for plants that were not identified to species and that have both native and non-native species in their genus.

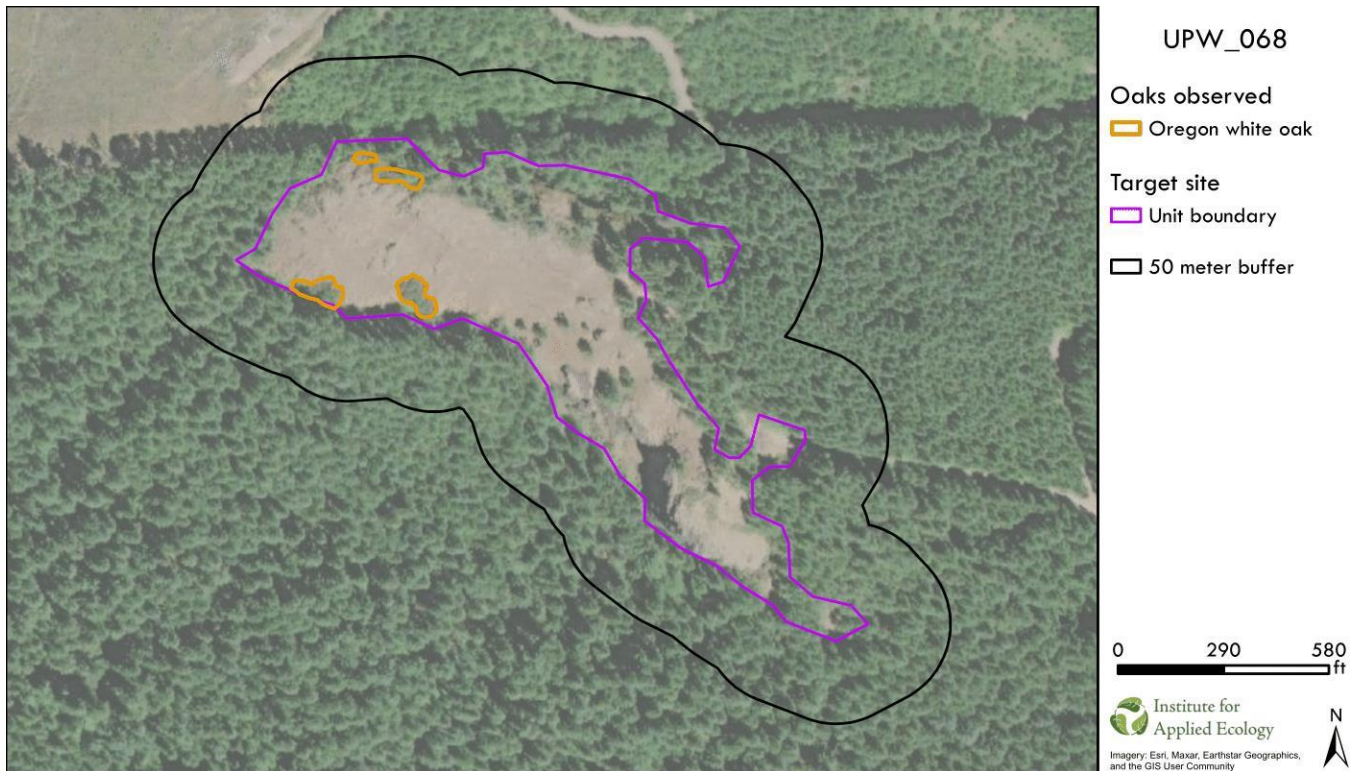
Relevé data for UPW_068			
Scientific name	Common name	Origin	Braun-Blanquet cover score
<i>Achnatherum lemmonii</i>	Lemmon's needlegrass	Native	+
<i>Aira caryophylla</i>	silver hairgrass	Invasive	2
<i>Bromus hordeaceus</i>	soft brome	Invasive	+
<i>Bromus sterilis</i>	poverty brome	Invasive	1
<i>Cynosurus echinatus</i>	bristly dogstail grass	Invasive	3
<i>Festuca roemerii</i>	Roemer's fescue	Native	1
<i>Koeleria macrantha</i>	prairie Junegrass	Native	+
<i>Achillea millefolium</i>	common yarrow	Native	1
<i>Acmispon parviflorus</i>	bird's foot trefoil	Native	+
<i>Daucus pusillus</i>	American wild carrot	Native	+

<b>Relevé data for UPW_068</b>			
<b>Scientific name</b>	<b>Common name</b>	<b>Origin</b>	<b>Braun-Blanquet cover score</b>
<i>Eriogonum nudum</i>	naked buckwheat	Native	+
<i>Eriophyllum lanatum</i>	common woolly sunflower	Native	1
<i>Mimulus guttatus</i>	seep monkeyflower	Native	1
<i>Hypochaeris glabra</i>	smooth cat's ear	Invasive	1
<i>Hypochaeris radicata</i>	hairy cat's ear	Invasive	1
<i>Lomatium utriculatum</i>	common lomatium	Native	1
<i>Rumex acetosella</i>	common sheep sorrel	Invasive	+
<i>Sherardia arvensis</i>	blue fieldmadder	Invasive	1
<i>Toxicoscordion venenosum</i>	meadow death camas	Native	1
<i>Castilleja hispida</i>	harsh Indian paintbrush	Native	+
<i>Lomatium martindalei</i>	Wasatch desertparsley	Native	1
<i>Trifolium willdenovii</i>	tomcat clover	Native	1
<i>Trifolium microcephalum</i>	smallhead clover	Native	1
<i>Silene gallica</i>	common catchfly	Invasive	1
<i>Allium crenulatum</i>	Olympic onion	Native	1
<i>Delphinium menziesii</i>	Menzies' larkspur	Native	+
<i>Delphinium nuttallianum</i>	upland larkspur	Native	+
<i>Galium sp.</i>	wild bedstraw	Unknown	1
<i>Clarkia sp.</i>	clarkia	Native	1

<b>Relevé substrate (%)</b>			
<b>Bare</b>	<b>Moss/Lichen</b>	<b>Rock</b>	<b>Thatch</b>
0.1	2.5	10	2



**Figure H-1.** Overview of UPW\_068 with habitat, forested buffer areas, photopoint, and relevé plot location.



**Figure H-2.** Oaks, large trees, pines, and wildlife observed, if applicable.

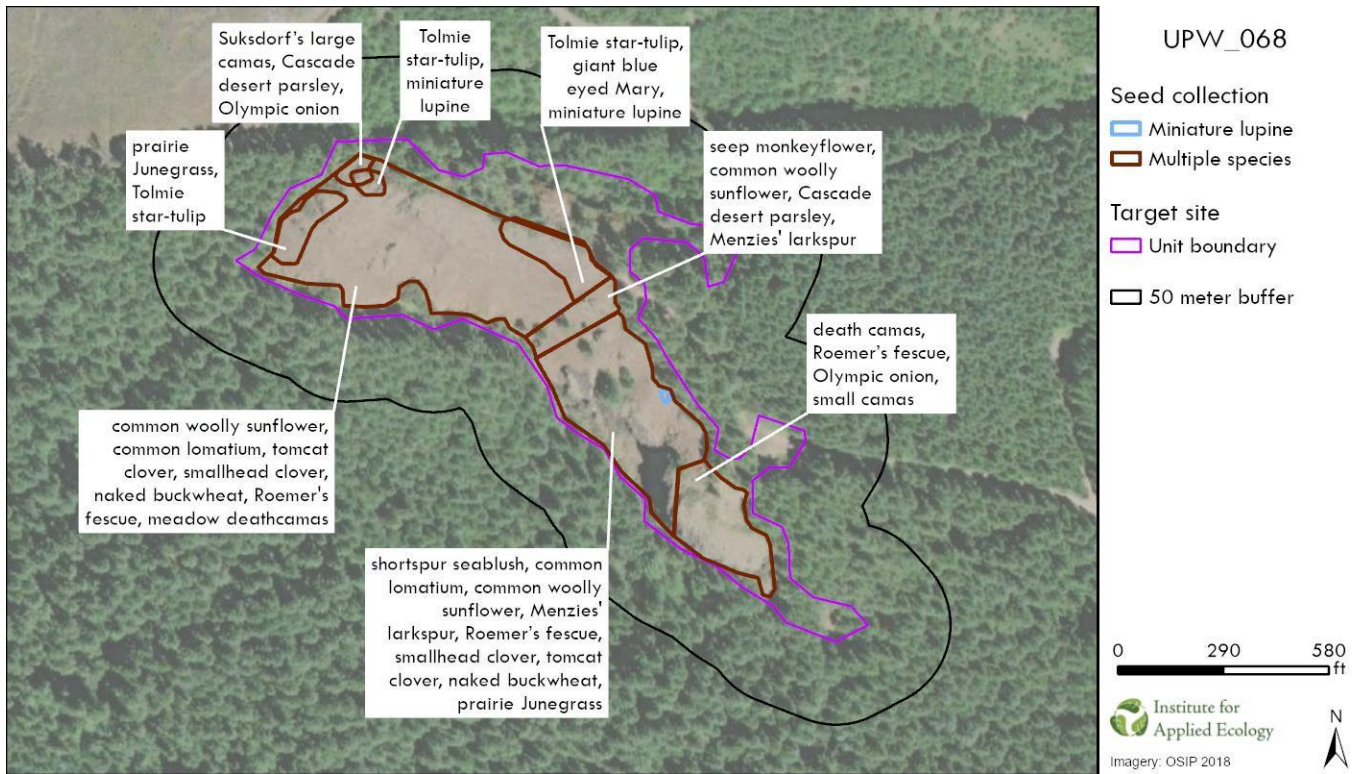


Figure H-3. Seed collection species observed.

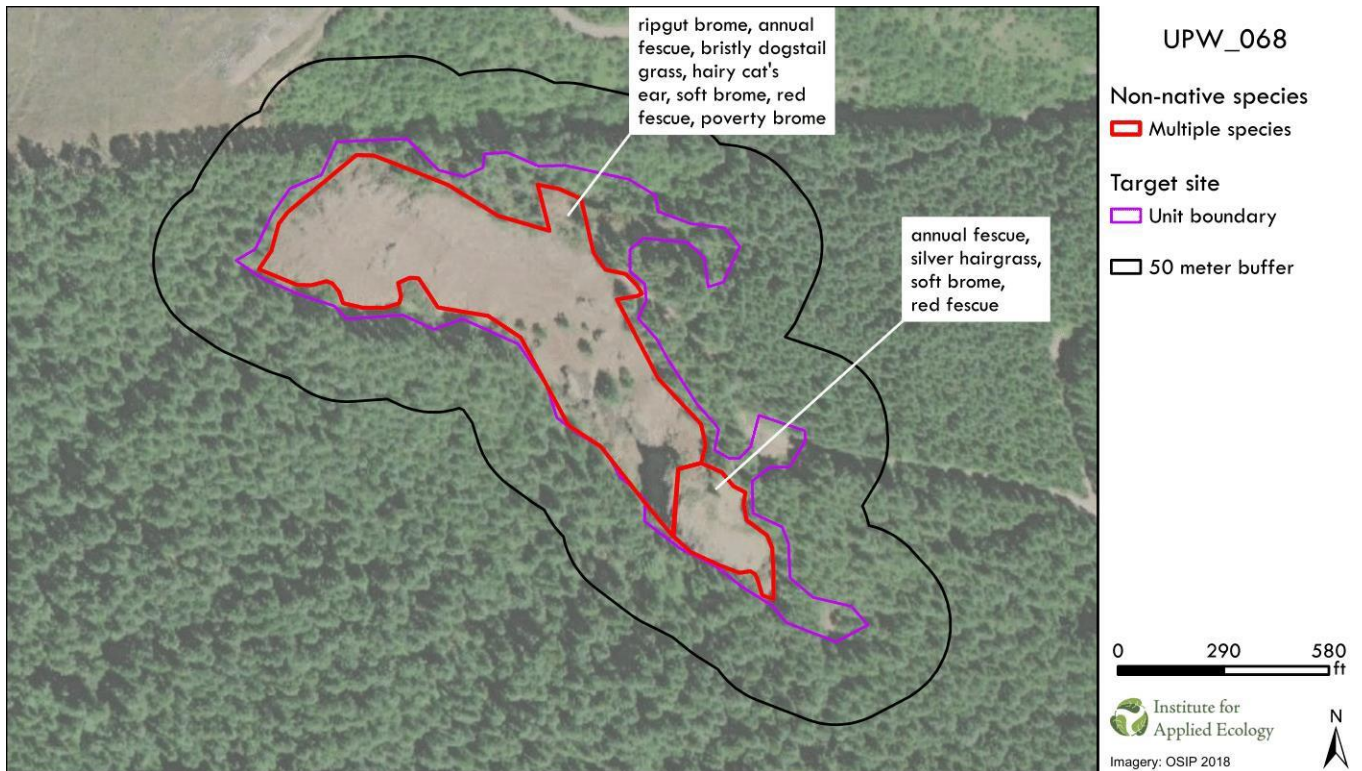
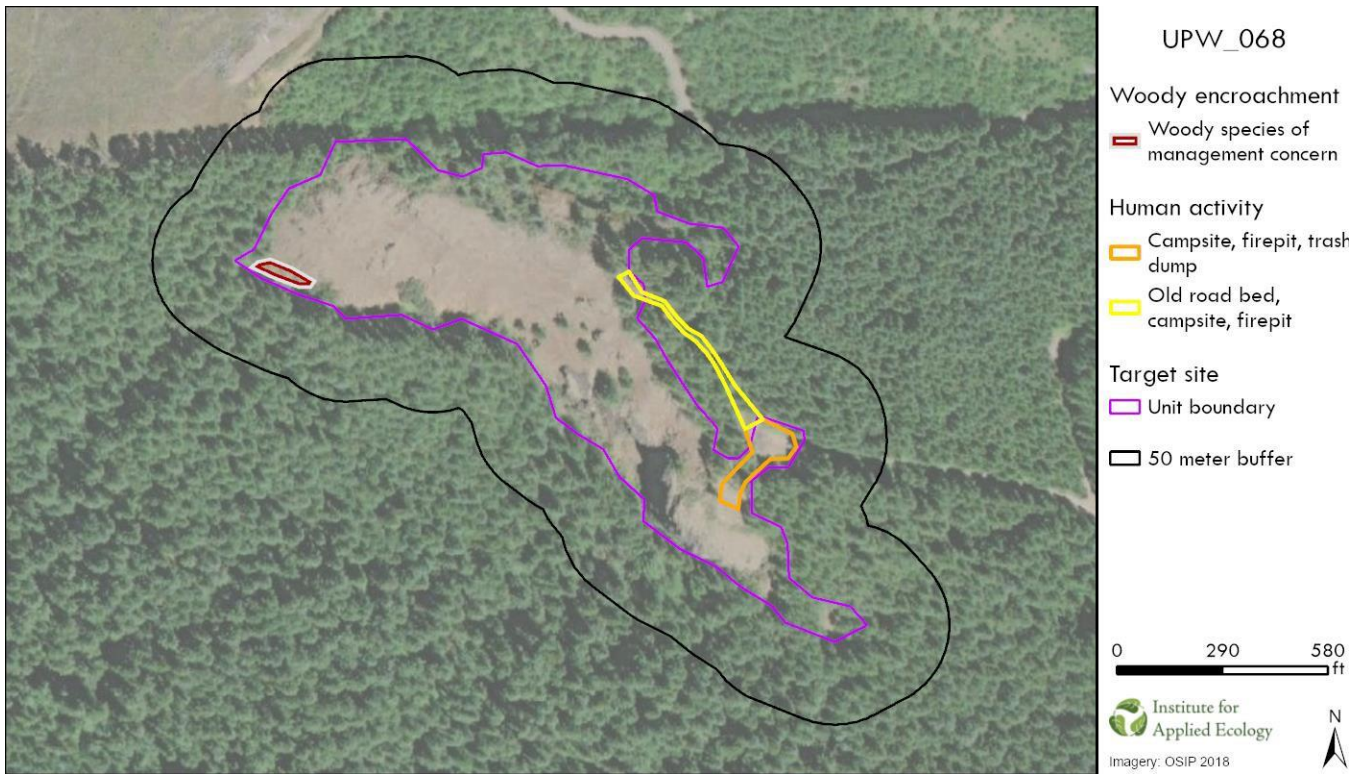
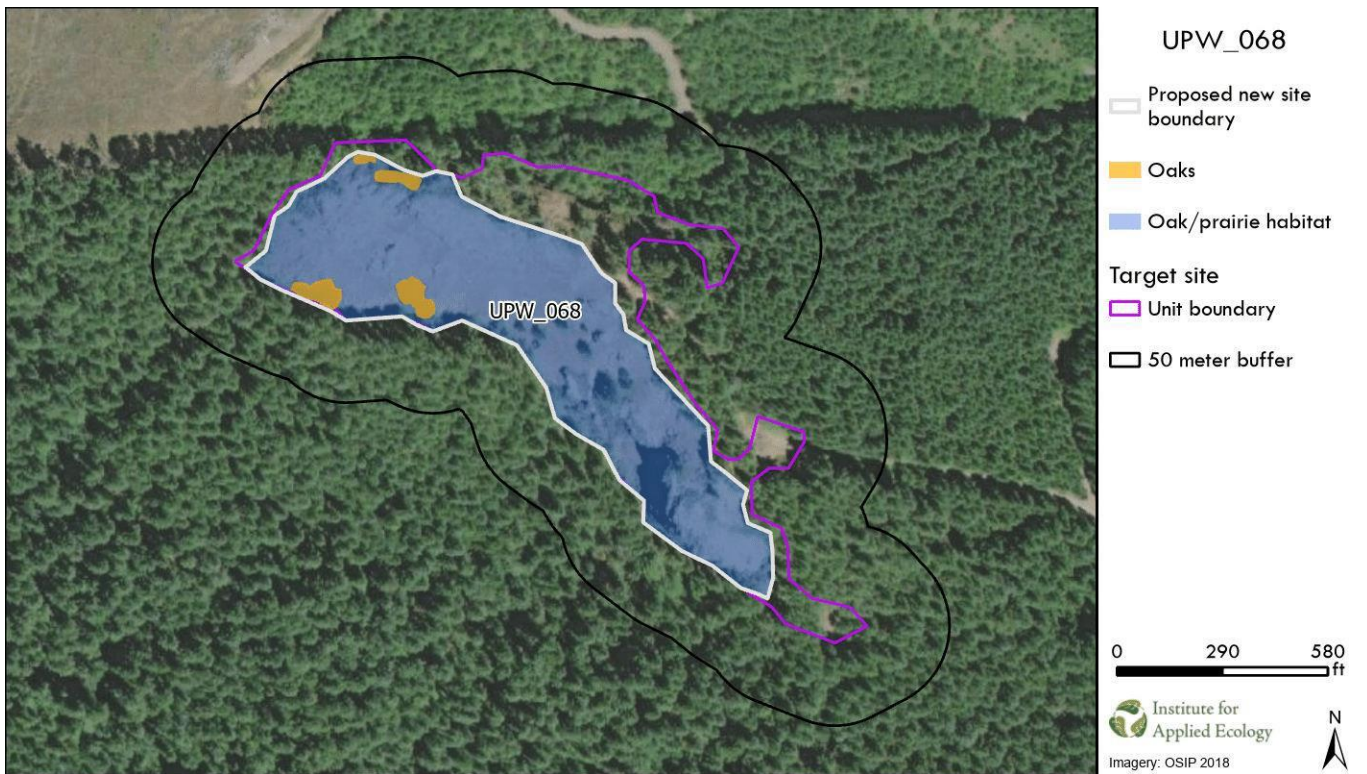


Figure H-4. Non-native species observed.



**Figure H-5.** Woody encroachment and human activity observed. Woody species of management concern observed in 2022 was poison oak.



**Figure H-6.** Recommended changes to the unit boundary based on habitat and/or oaks present.



North:



East:



South:



West:



**Figure H-7.** UPW\_068 photopoints taken at -122.932891, 43.707222.

## UPW\_069

General site information	
Date surveyed	6/8/2022
Observers (affiliation)	Annamarie Pfeifer, Annie Lamas, Zade Clark-Henry (IAE)
Unit ID	UPW_069
Site name	Blue Mountain
BLM Field Office	Upper Willamette
County	Lane
Township, Range, Section	T21S, R02W, Sec33
Recovery zone (USFWS 2010)	Eugene East
Land ownership	BLM, Northwest Oregon District
Contact person and contact information	Chad Conklin cconklin@blm.gov, 541-683-6120 (office), 541-517-0631 (cell)
Directions	Access via Blue Mountain Rd. (21-2-33). No gates. Hike down from the north of the site.
Photopoint coordinates	-122.928363, 43.700503

Habitat overview	
Unit area (acres)	3.04
Prairie and/or oak habitat present?	Yes
Habitat type (special habitat)	Prairie, rock meadow, shrubland (dry meadow)
Habitat type notes	The southern opening is a steep, rocky meadow with dense shrubland to the west and heavy encroachment throughout. The meadow opening in the northeast is a native bunchgrass prairie. No oaks observed.
Slope (degrees)	22
Aspect	SSW
Elevation (feet)	2700
What maintains site openness?	Soils, hydrology, fire disturbance
Evidence of human disturbance	No
Type of site	Open area surrounded by forest
Buffer or forested area description	Buffer is a second growth forest dominated by Douglas-fir ( <i>Pseudotsuga menziesii</i> ).
Do remnant oak or prairie species exist in the buffer or forested areas?	Yes
Remnant oak or prairie species observed (Alverson 2010)	Pacific hound's tongue ( <i>Cynoglossum grande</i> ), woodland strawberry ( <i>Fragaria vesca</i> ), toughleaf iris ( <i>Iris tenax</i> )

Woody species			
Overall live woody cover (%)	20		
Live native tree cover (%)	1	Live non-native tree cover (%)	0
Live native shrub cover (%)	19	Live non-native shrub cover (%)	0
Live tree cover from oaks (%)	0	Standing dead woody cover (%)	0.1
Number oaks >15 in DBH	0		
Number of large trees (>40 in DBH)	0		
Woody species encroaching on prairie habitat*+	poison oak ( <i>Toxicodendron diversilobum</i> )*+		

Would removal of encroaching woody species result in the need for wood to be hauled off-site?	No
Woody species notes	Most of the woody cover in the site is poison oak ( <i>Toxicodendron diversilobum</i> ). The northeastern meadow is relatively unencroached.

\*Woody species of management concern from the *Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington*.

+ Woody species of management concern that exceed 5% cover of the site.

**Herbaceous non-native species**

Herbaceous non-native cover (%)	85
Most common non-native species	Ripgut brome ( <i>Bromus diandrus</i> ), soft brome ( <i>Bromus hordeaceus</i> ), bristly dogstail grass ( <i>Cynosurus echinatus</i> ), annual fescue ( <i>Vulpia</i> sp.), smooth cat's ear ( <i>Hypochaeris glabra</i> )

**Herbaceous native species**

Herbaceous native cover (%)	15
Most common native species	Blue wildrye ( <i>Elymus glaucus</i> ), Roemer's fescue ( <i>Festuca roemerii</i> ), dwarf checkermallow ( <i>Sidalcea virgata</i> ), California oatgrass ( <i>Danthonia californica</i> ), California brome ( <i>Bromus carinatus</i> )
Relevé survey?	No
T&E species present?	No
Seed collection potential?	California brome ( <i>Bromus carinatus</i> ), blue wildrye ( <i>Elymus glaucus</i> ), California oatgrass ( <i>Danthonia californica</i> ), Roemer's fescue ( <i>Festuca roemerii</i> ), dwarf checkermallow ( <i>Sidalcea virgata</i> ), Lemmon's needlegrass ( <i>Achnatherum lemmonii</i> ), prairie Junegrass ( <i>Koeleria macrantha</i> ), seep monkeyflower ( <i>Mimulus guttatus</i> ), shortspur seablush ( <i>Plectritis congesta</i> ), smallhead clover ( <i>Trifolium microcephalum</i> ), true babystars ( <i>Leptosiphon bicolor</i> )

**Wildlife**

Wildlife species of interest observed	None
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**Preliminary habitat restoration/management recommendations**

Overall ranking as a priority for restoration (high, moderate, or low)	Moderate
Short-term recommended actions	Fell conifers growing within the meadow areas. Begin pulling poison oak ( <i>Toxicodendron diversilobum</i> ) from the southern meadow.
Long-term recommended actions	Treat the non-native grasses. Augment meadow areas with addition of native seed. Consider adding native forbs to the northeastern meadow.
Site accessibility issues	This site is accessible via a short hike through the woods from the north. The southern meadow area is very steep, with loose soils. Heavy machinery is not recommended for restoration.
Restoration action notes	There is a small patch of Douglas-fir ( <i>Pseudotsuga menziesii</i> ) growing in the eastern portion of the northeastern meadow, which could be removed to open the meadow habitat.

<b>Modified prairie habitat quality summary (USFWS 2010)</b>				
<b>Oak habitat criteria</b>		<b>Data</b>	<b>Objective</b>	<b>Meets objectives?</b>
Oaks present?		No	Yes	No
Number of oaks greater than 15 inches DBH?		0	≥1	No
<b>Prairie habitat criteria</b>		<b>Data</b>	<b>Recovery Plan threshold</b>	<b>Meets threshold?</b>
Native herbaceous species cover (%)		15	50% min	No
Woody species cover (%)		20	15% max	No
Does any one woody species of management concern exceed 5% cover?		Yes	5% max	No
Prairie diversity	Native forb richness	N/A	7	No Data
	Native bunchgrass richness	N/A	1	No Data
	Total native herbaceous species richness	N/A	>10	No Data
Do any non-native species exceed 50% cover within the relevé plot?		N/A	50%	No Data
Do any non-native species of particular concern exceed 5% cover?		N/A	5%	No Data

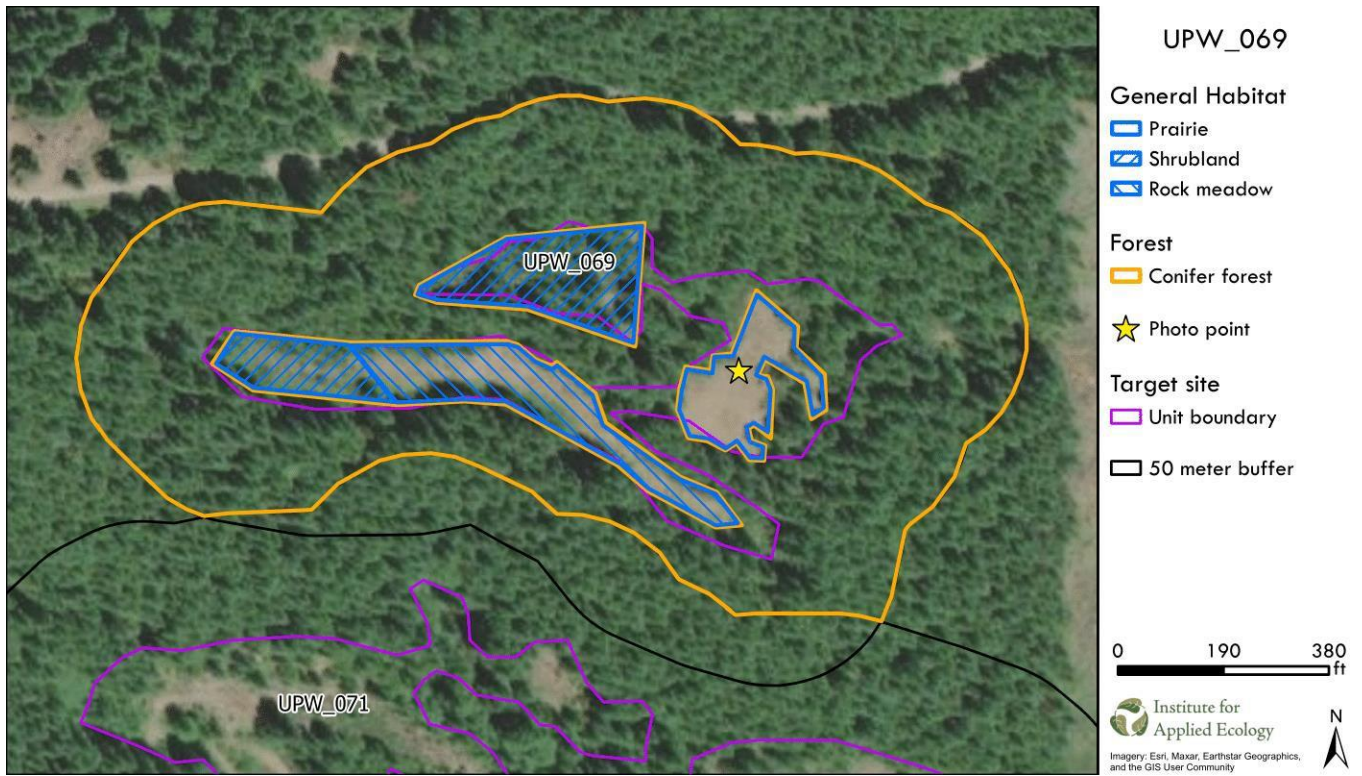


Figure H-8. Overview of UPW\_069 with habitat, forested buffer areas, and photopoint location.

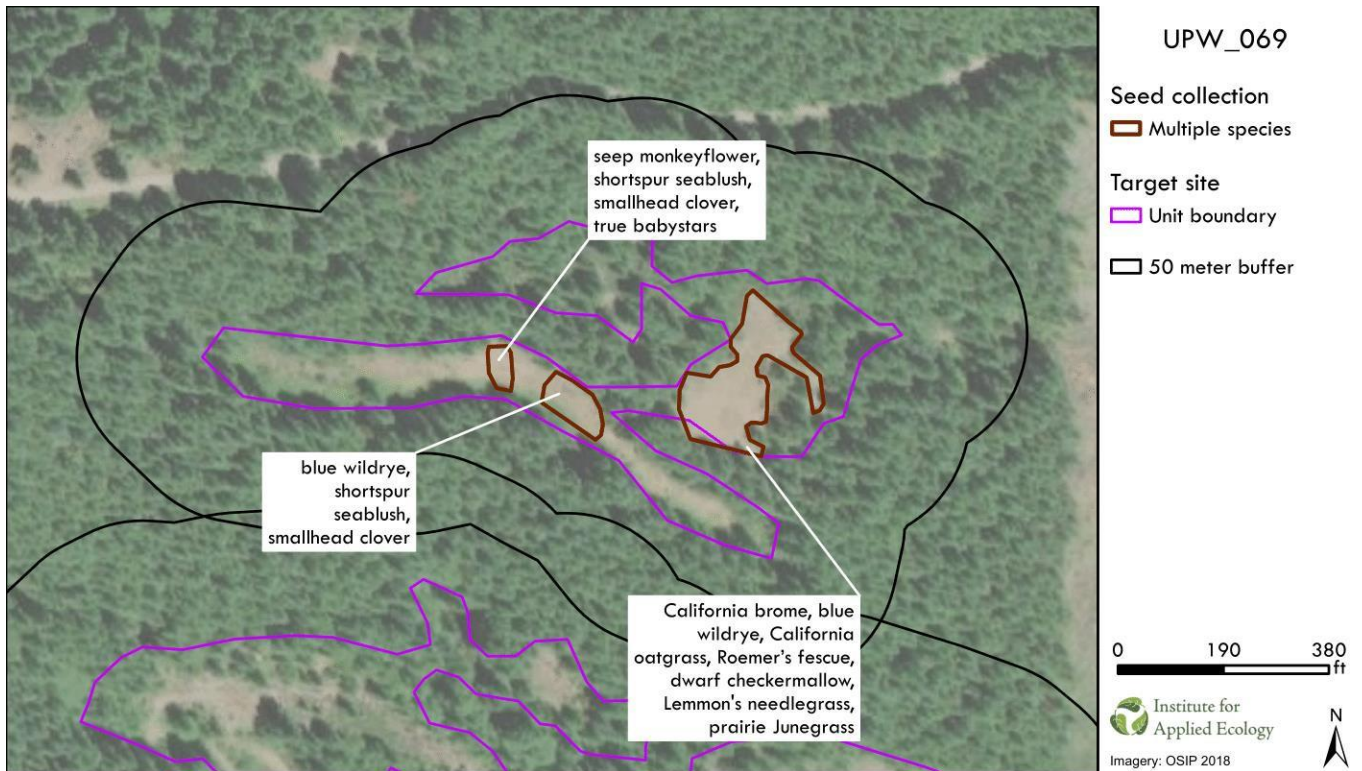


Figure H-9. Seed collection species observed.

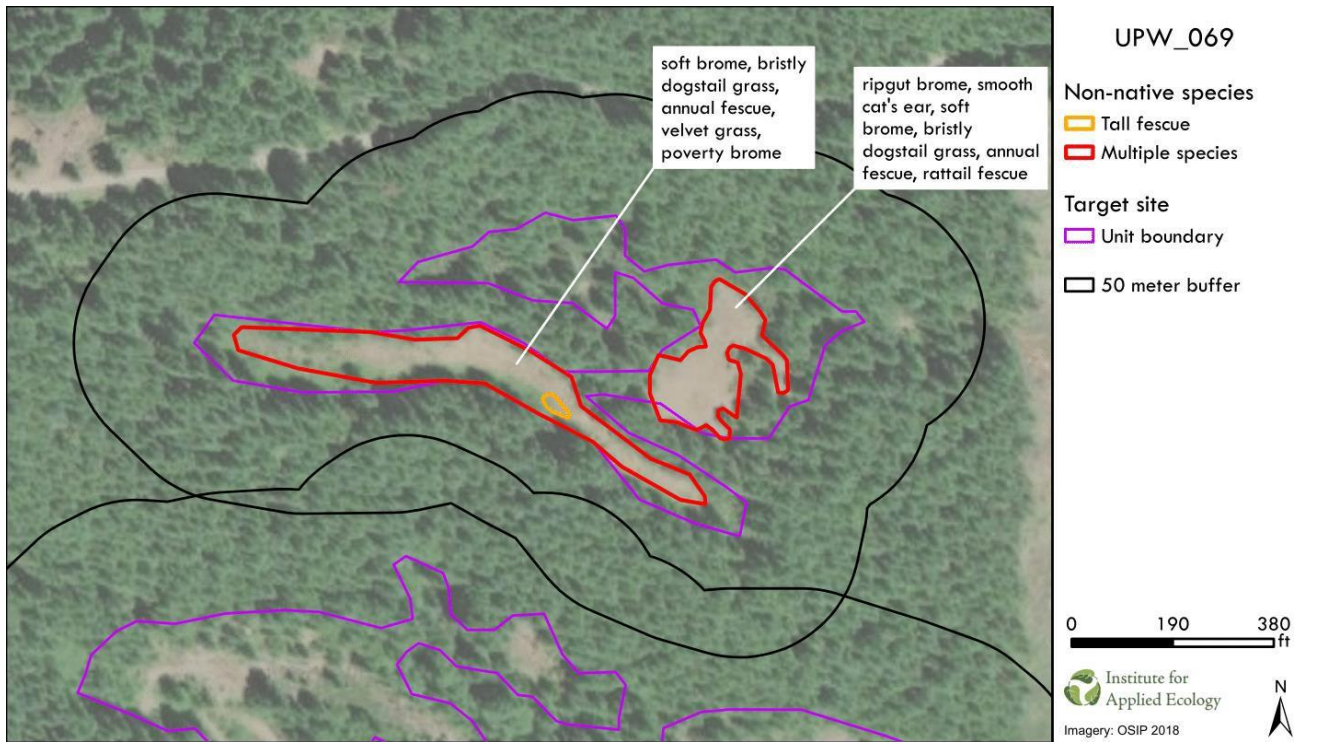


Figure H-10. Non-native species observed.

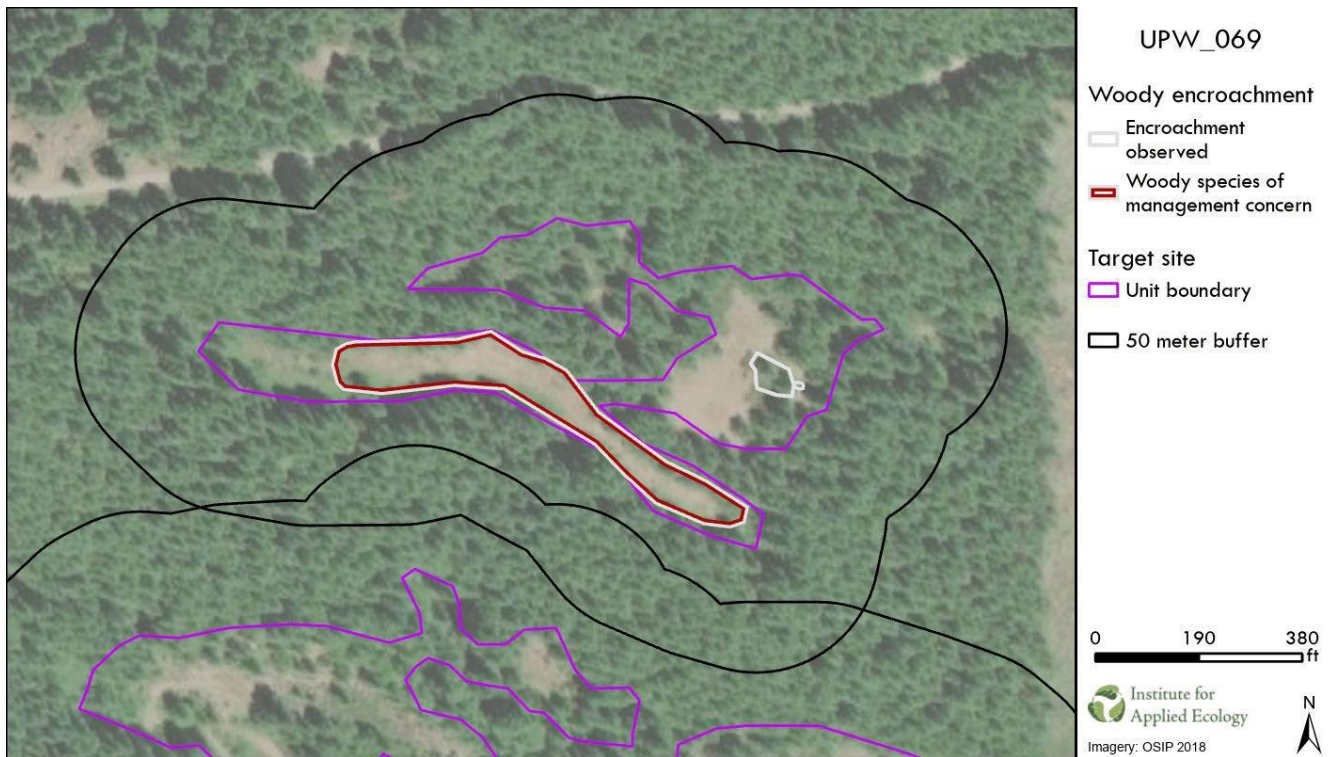


Figure H-11. Woody encroachment and human activity observed. Woody species of management concern observed in 2022 was poison oak.



Figure H-12. Recommended changes to the unit boundary based on habitat and/or oaks present.

North:



East:



South:



West:



**Figure H-13.** UPW\_069 photopoints taken at -122.928363, 43.700503.



## UPW\_070

General site information	
Date surveyed	6/7/2022
Observers (affiliation)	Annamarie Pfeifer, Annie Lamas, Zade Clark-Henry (IAE)
Unit ID	UPW_070
Site name	Blue Mountain
BLM Field Office	Upper Willamette
County	Lane
Township, Range, Section	T21S, R02W, Sec33
Recovery zone (USFWS 2010)	Eugene East
Land ownership	BLM, Northwest Oregon District
Contact person and contact information	Chad Conklin cconklin@blm.gov, 541-683-6120 (office), 541-517-0631 (cell)
Directions	Access via Blue Mountain Rd. (21-2-33). No gates.
Photopoint coordinates	-122.933426, 43.699247

Habitat overview	
Unit area (acres)	0.91
Prairie and/or oak habitat present?	Yes
Habitat type (special habitat)	Prairie (mesic meadow)
Slope (degrees)	8
Aspect	SW
Elevation (feet)	2350
What maintains site openness?	Hydrology, fire disturbance, soils
Evidence of human disturbance	No
Type of site	Open area surrounded by forest
Buffer or forested area description	Buffer is a second growth forest dominated by Douglas-fir ( <i>Pseudotsuga menziesii</i> ).
Do remnant oak or prairie species exist in the buffer or forested areas?	Yes
Remnant oak or prairie species observed (Alverson 2010)	Pacific hound's tongue ( <i>Cynoglossum grande</i> ), woodland strawberry ( <i>Fragaria vesca</i> ), toughleaf iris ( <i>Iris tenax</i> ), snowqueen ( <i>Synthyris reniformis</i> ), western buttercup ( <i>Ranunculus occidentalis</i> ), dwarf checkermallow ( <i>Sidalcea virgata</i> )

Woody species			
Overall live woody cover (%)	1		
Live native tree cover (%)	0.5	Live non-native tree cover (%)	0
Live native shrub cover (%)	0.5	Live non-native shrub cover (%)	0
Live tree cover from oaks (%)	0	Standing dead woody cover (%)	2
Number oaks >15 in DBH	0		
Number of large trees (>40 in DBH)	0		
Woody species encroaching on prairie habitat*+	Douglas-fir ( <i>Pseudotsuga menziesii</i> ), oceanspray ( <i>Holodiscus discolor</i> ), poison oak ( <i>Toxicodendron diversilobum</i> )*		

Would removal of encroaching woody species result in the need for wood to be hauled off-site?	No
Woody species notes	Many conifers along the edge of the site are standing dead in the buffer.

\*Woody species of management concern from the *Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington*.

+ Woody species of management concern that exceed 5% cover of the site.

**Herbaceous non-native species**

Herbaceous non-native cover (%)	58
Most common non-native species	Bristly dogstail grass ( <i>Cynosurus echinatus</i> ), cutleaf geranium ( <i>Geranium dissectum</i> ), small geranium ( <i>Geranium pusillum</i> ), smooth cat's ear ( <i>Hypochaeris glabra</i> ), silver hairgrass ( <i>Aira caryophyllea</i> ), spreading hedge parsley ( <i>Torilis arvensis</i> )

**Herbaceous native species**

Herbaceous native cover (%)	42
Most common native species	Dwarf checkermallow ( <i>Sidalcea virgata</i> ), seep monkeyflower ( <i>Mimulus guttatus</i> ), western buttercup ( <i>Ranunculus occidentalis</i> ), California fescue ( <i>Festuca californica</i> ), woodland strawberry ( <i>Fragaria vesca</i> ), blue wildrye ( <i>Elymus glaucus</i> )
Relevé survey?	No
T&E species present?	No
Seed collection potential?	Dwarf checkermallow ( <i>Sidalcea virgata</i> ), blue wildrye ( <i>Elymus glaucus</i> ), California fescue ( <i>Festuca californica</i> ), seep monkeyflower ( <i>Mimulus guttatus</i> ), western buttercup ( <i>Ranunculus occidentalis</i> ), tomcat clover ( <i>Trifolium willdenovii</i> ), smallhead clover ( <i>Trifolium microcephalum</i> ), California brome ( <i>Bromus carinatus</i> ), Tolmie star-tulip ( <i>Calochortus tolmiei</i> ), California oatgrass ( <i>Danthonia californica</i> )

**Wildlife**

Wildlife species of interest observed	None
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**Preliminary habitat restoration/management recommendations**

Overall ranking as a priority for restoration (high, moderate, or low)	Moderate
Short-term recommended actions	Remove the oceanspray ( <i>Holodiscus discolor</i> ) and small Douglas-firs ( <i>Pseudotsuga menziesii</i> ) encroaching on the meadow. Remove the standing dead trees along the meadow edge.
Long-term recommended actions	Connect the small meadow in the north portion of the site to the main meadow. Treat the non-natives in the meadow.

**Modified prairie habitat quality summary (USFWS 2010)**

Oak habitat criteria	Data	Objective	Meets objectives?
Oaks present?	No	Yes	No
Number of oaks greater than 15 inches DBH?	0	≥1	No

<b>Modified prairie habitat quality summary (USFWS 2010)</b>			
<b>Prairie habitat criteria</b>	<b>Data</b>	<b>Recovery Plan threshold</b>	<b>Meets threshold?</b>
Native herbaceous species cover	42	50% min	No
Woody species cover	1	15% max	Yes
Does any one woody species of management concern exceed 5% cover?	No	5% max	Yes
Prairie diversity	Native forb richness	N/A	No Data
	Native bunchgrass richness	N/A	No Data
	Total native herbaceous species richness	N/A	No Data
Do any non-native species exceed 50% cover within the relevé plot?	N/A	50%	No Data
Do any non-native species of particular concern exceed 5% cover?	N/A	5%	No Data

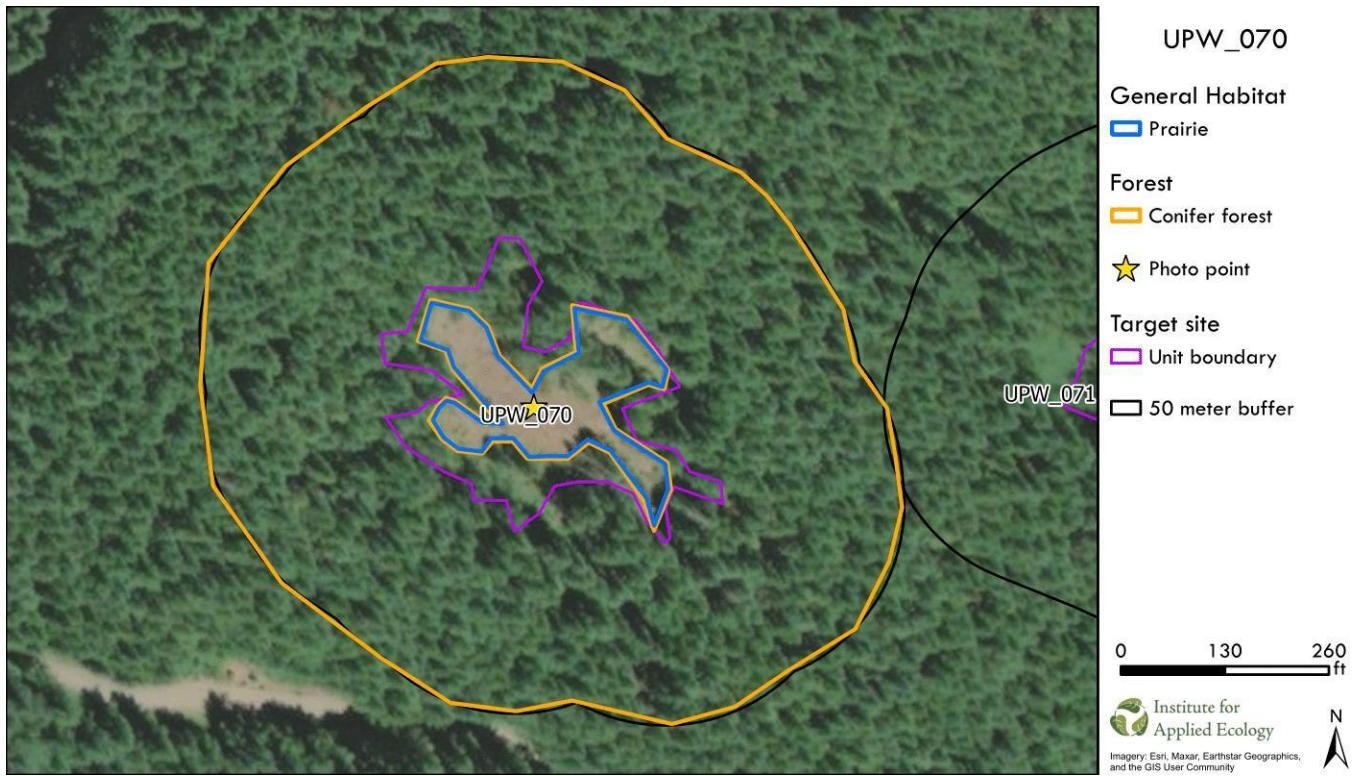


Figure H-14. Overview of UPW\_070 with habitat, forested buffer areas, and photopoint location.

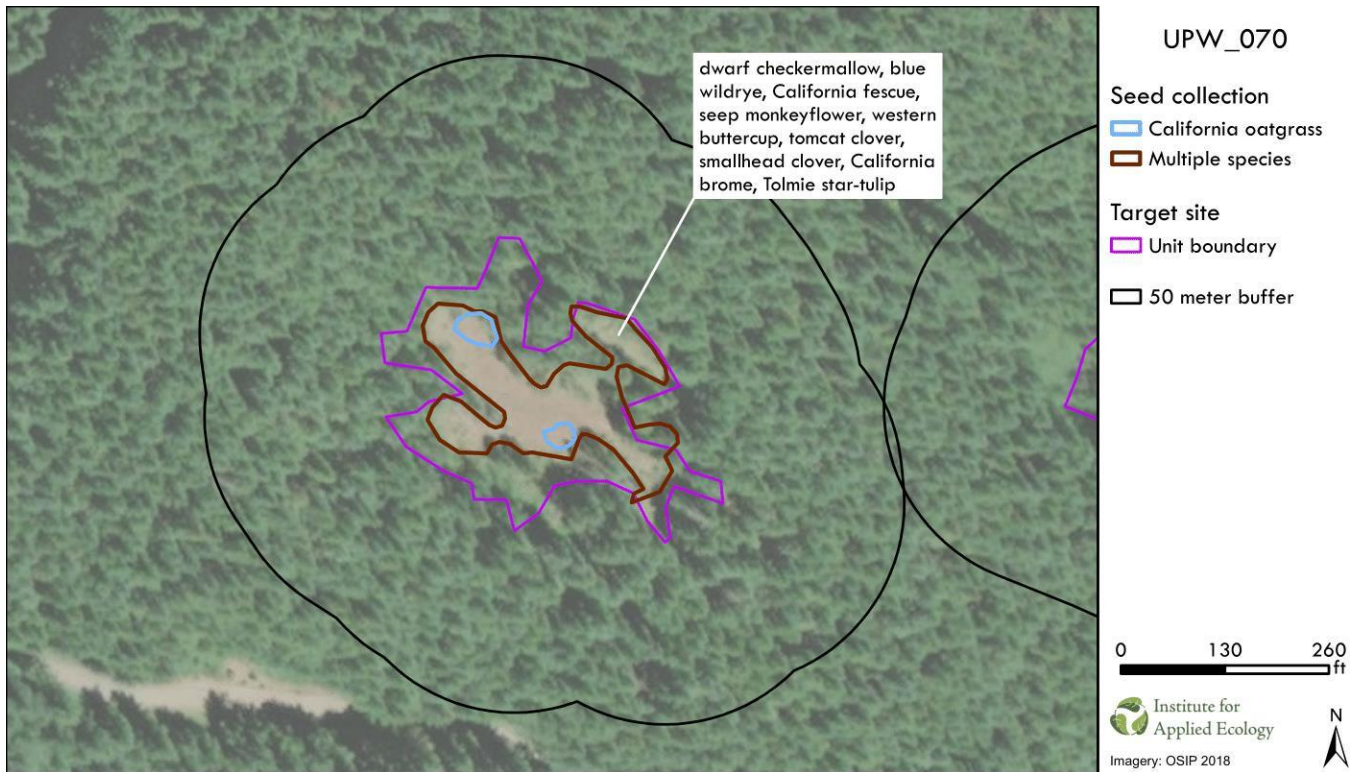


Figure H-15. Seed collection species observed.

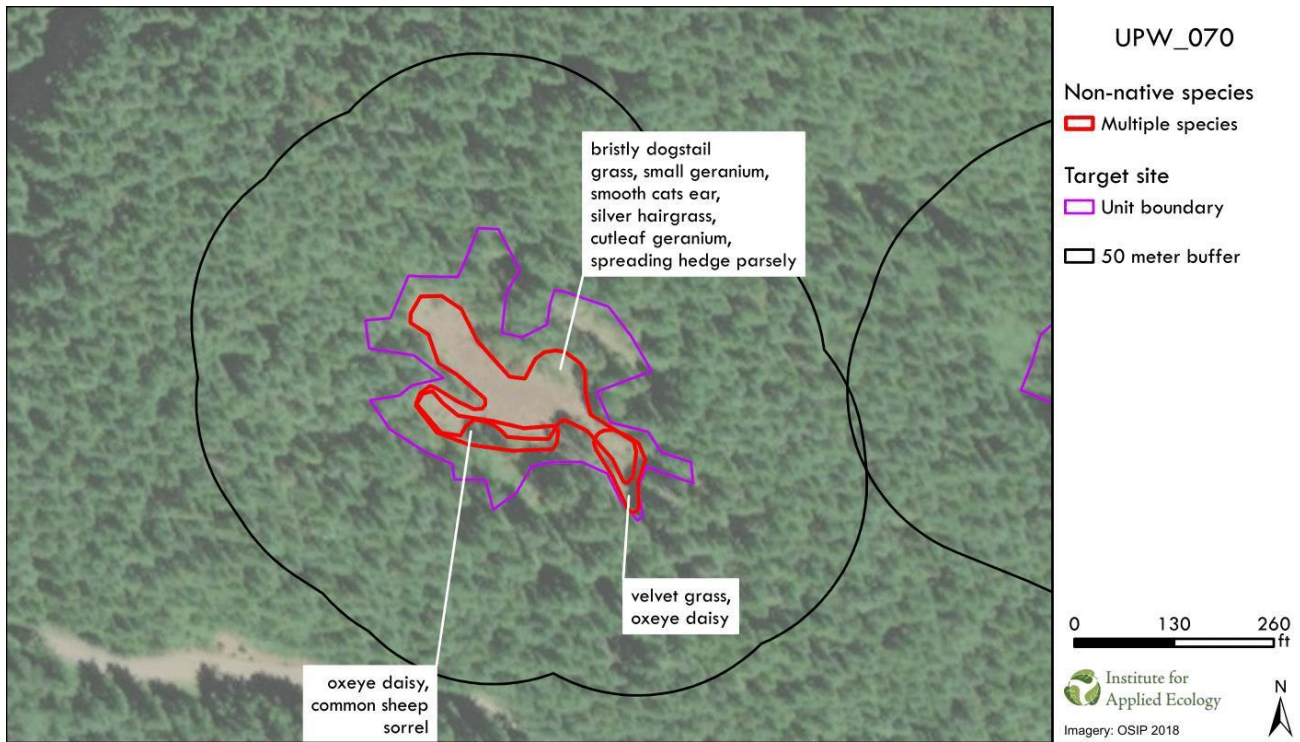


Figure H-16. Non-native species observed.



Figure H-17. Woody encroachment and human activity observed. Woody species of management concern observed in 2022 was poison oak.

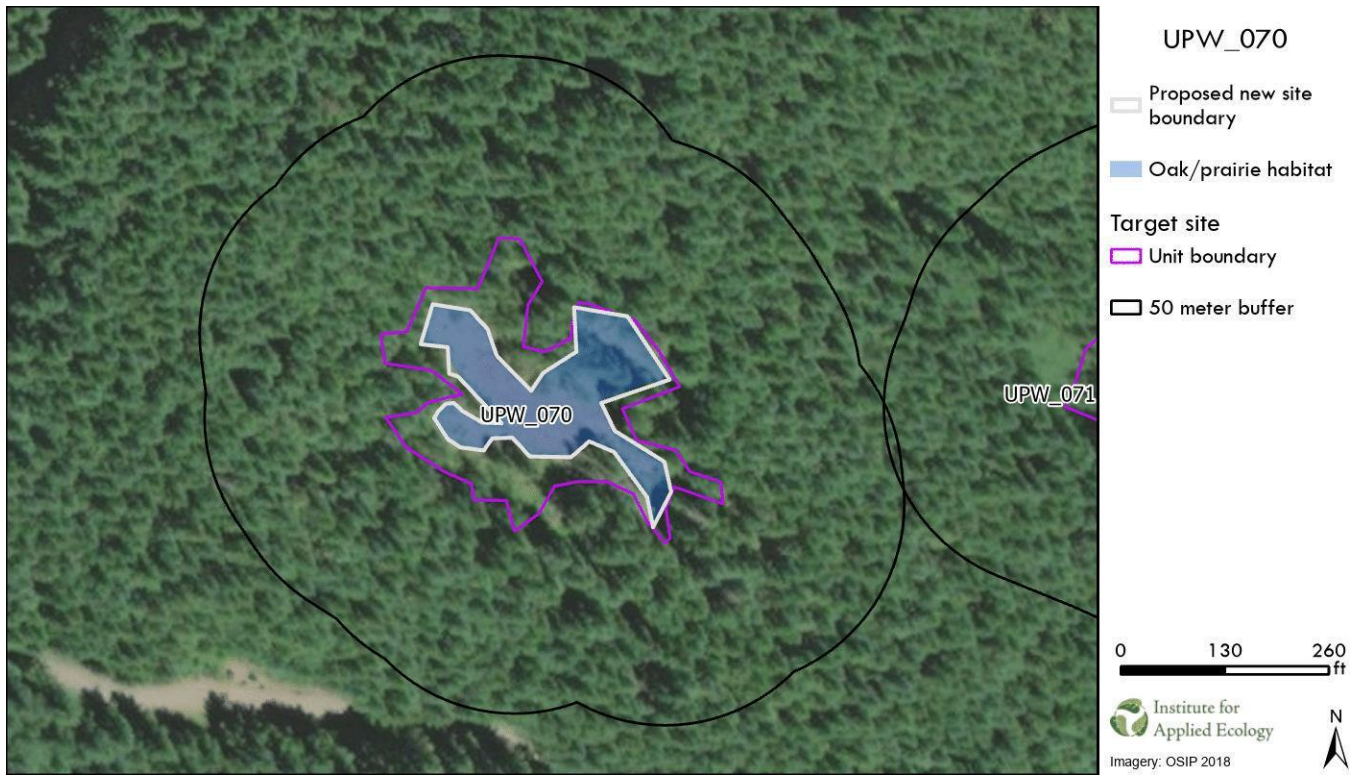


Figure H-18. Recommended changes to the unit boundary based on habitat and/or oaks present.

North:



East:



South:



West:



**Figure H-19.** UPW\_070 photopoints taken at -122.933426, 43.699247.

## UPW\_071

General site information	
Date surveyed	6/7/2022
Observers (affiliation)	Annamarie Pfeifer, Annie Lamas, Zade Clark-Henry (IAE)
Unit ID	UPW_071
Site name	Blue Mountain
BLM Field Office	Upper Willamette
County	Lane
Township, Range, Section	T21S, R02W, Sec33
Recovery zone (USFWS 2010)	Eugene East
Land ownership	BLM, Northwest Oregon District
Contact person and contact information	Chad Conklin cconklin@blm.gov, 541-683-6120 (office), 541-517-0631 (cell)
Directions	Access via Blue Mountain Rd. (21-2-33). No gates.
Photopoint coordinates	-122.927949, 43.699014

Habitat overview	
Unit area (acres)	4.41
Prairie and/or oak habitat present?	Yes
Habitat type (special habitat)	Prairie, shrubland, disturbed (dry meadow)
Habitat type notes	The open habitat is mostly comprised of disturbed areas dominated by shrubs, especially coyote brush ( <i>Baccharis pilularis</i> ) and bearbrush ( <i>Garrya fremontii</i> ).
Slope (degrees)	15
Aspect	SSE
Elevation (feet)	2450
What maintains site openness?	Fire disturbance, soils, hydrology
Evidence of human disturbance	Yes
Level of human disturbance	High
Type of human disturbance	Land management, old roadbed, firepit
Human disturbance notes	This site may have been an old quarry. There is evidence of recent camping.
Type of site	Open area surrounded by forest
Buffer or forested area description	Buffer is a second growth forest dominated by Douglas-fir ( <i>Pseudotsuga menziesii</i> ).
Do remnant oak or prairie species exist in the buffer or forested areas?	Yes
Remnant oak or prairie species observed (Alverson 2010)	Woodland strawberry ( <i>Fragaria vesca</i> ), toughleaf iris ( <i>Iris tenax</i> )
General notes	This site contains a small, heavily invaded prairie, while most of the site is comprised of dense shrub fields and old quarry roadbeds.

Woody species			
Overall live woody cover (%)	10		
Live native tree cover (%)	0	Live non-native tree cover (%)	0



Live native shrub cover (%)	7	Live non-native shrub cover (%)	3
Live tree cover from oaks (%)	0	Standing dead woody cover (%)	0
Number oaks >15 in DBH	0		
Number of large trees (>40 in DBH)	0		
Woody species encroaching on prairie habitat*+	Poison oak ( <i>Toxicodendron diversilobum</i> )*, Himalayan blackberry ( <i>Rubus bifrons</i> )*		
Would removal of encroaching woody species result in the need for wood to be hauled off-site?	No		
Woody species notes	The buffers were briefly surveyed due to little evidence of prairie and oak habitat.		

\*Woody species of management concern from the *Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington*.

+ Woody species of management concern that exceed 5% cover of the site.

Herbaceous non-native species	
Herbaceous non-native cover (%)	97
Most common non-native species	Ripgut brome ( <i>Bromus diandrus</i> ), soft brome ( <i>Bromus hordeaceus</i> ), bristly dogstail grass ( <i>Cynosurus echinatus</i> ), smooth cat's ear ( <i>Hypochaeris glabra</i> ), pale flax ( <i>Linum bienne</i> ), oxeye daisy ( <i>Leucanthemum vulgare</i> )

Herbaceous native species	
Herbaceous native cover (%)	3
Most common native species	Common yarrow ( <i>Achillea millefolium</i> ), blue wildrye ( <i>Elymus glaucus</i> ), grassy tarweed ( <i>Madia gracilis</i> )
Relevé survey?	No
T&E species present?	No
Seed collection potential?	Seed collection is not recommended at this site.

Wildlife	
Wildlife species of interest observed	None

Preliminary habitat restoration/management recommendations	
Overall ranking as a priority for restoration (high, moderate, or low)	Low
Short-term recommended actions	Hand pull poison oak ( <i>Toxicodendron diversilobum</i> ) in the meadow.
Long-term recommended actions	Implement prescribed burn to remove woody vegetation and support fire dependent species. Treat non-native grasses and oxeye daisy ( <i>Leucanthemum vulgare</i> ) and augment the meadow with native bunchgrasses and forbs.
Site accessibility issues	The road leads directly into the site.
Restoration action notes	We do not strongly recommend restoration at this site due to the relative lack of quality habitat, high level of disturbance, and lack of oaks.

Modified prairie habitat quality summary (USFWS 2010)			
Oak habitat criteria	Data	Objective	Meets objectives?

<b>Modified prairie habitat quality summary (USFWS 2010)</b>				
Oaks present?	No	Yes	No	
Number of oaks greater than 15 inches DBH?	0	≥1	No	
<b>Prairie habitat criteria</b>	<b>Data</b>	<b>Recovery Plan threshold</b>	<b>Meets threshold?</b>	
Native herbaceous species cover (%)	3	50% min	No	
Woody species cover (%)	10	15% max	Yes	
Does any one woody species of management concern exceed 5% cover?	No	5% max	Yes	
Prairie diversity	Native forb richness	N/A	7	No Data
	Native bunchgrass richness	N/A	1	No Data
	Total native herbaceous species richness	N/A	>10	No Data
Do any non-native species exceed 50% cover within the relevé plot?	N/A	50%	No Data	
Do any non-native species of particular concern exceed 5% cover?	N/A	5%	No Data	

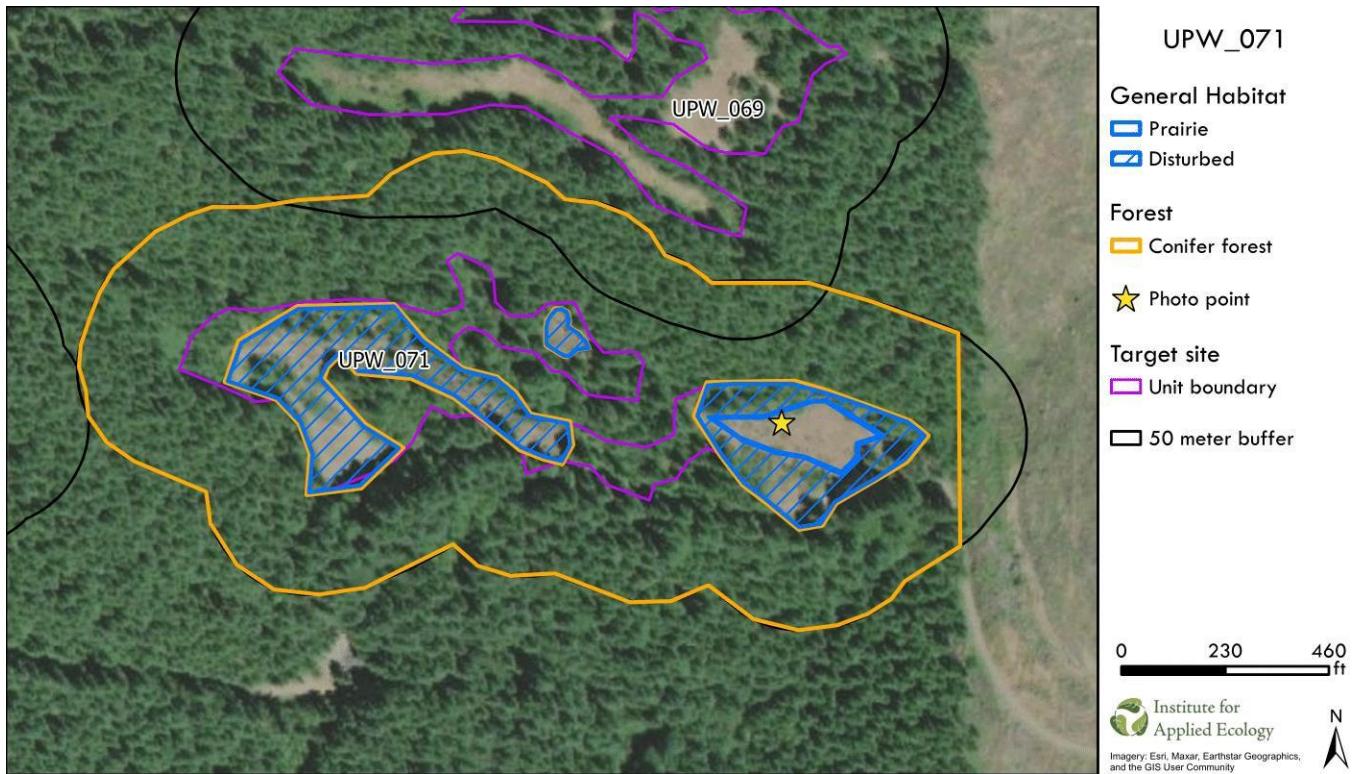


Figure H-20. Overview of UPW\_071 with habitat, forested buffer areas, and photopoint location.

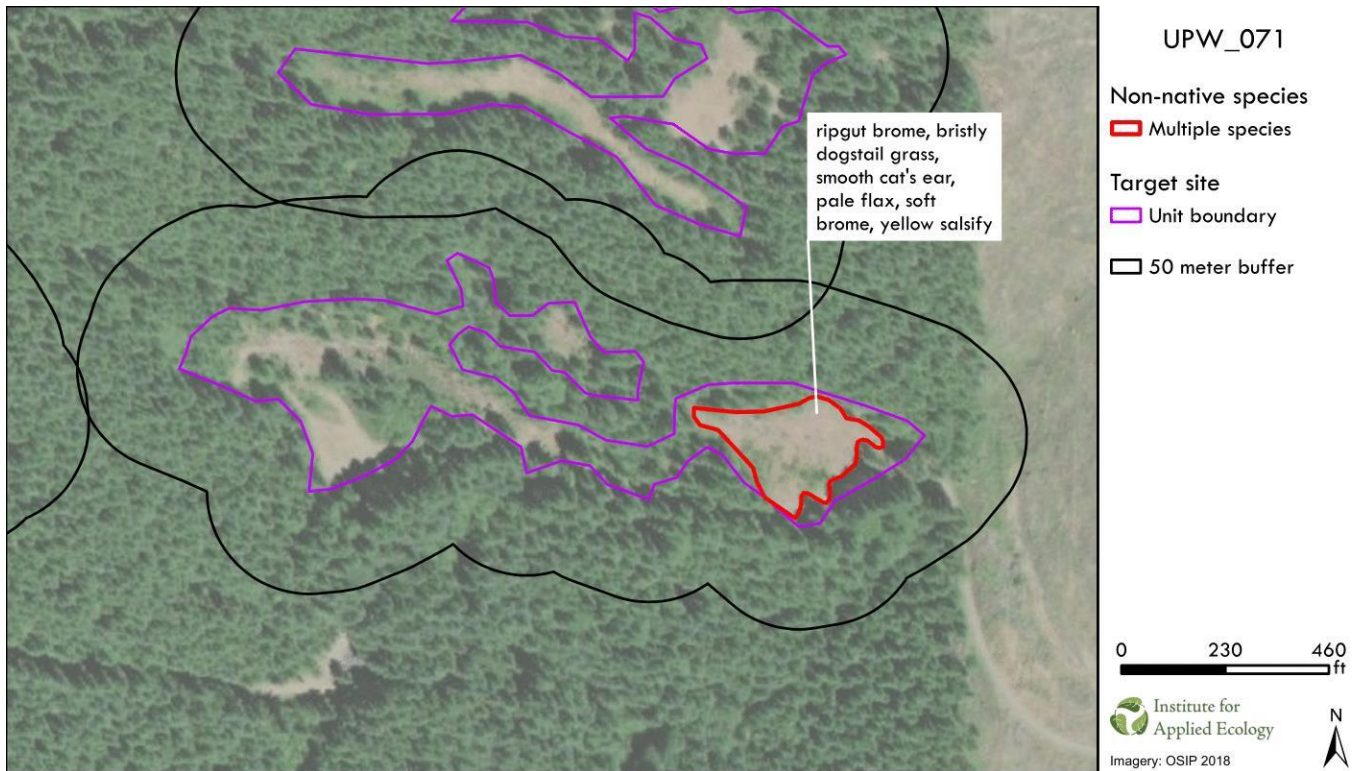


Figure H-21. Non-native species observed.

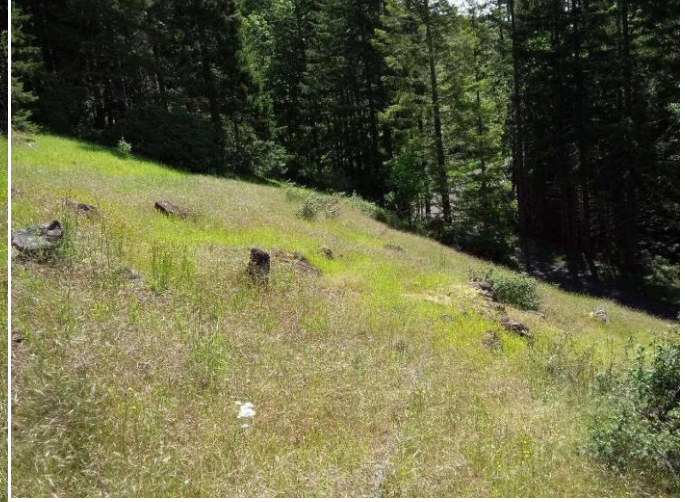


Figure H-22. Recommended changes to the unit boundary based on habitat and/or oaks present.

North:



East:



South:



West:



**Figure H-23.** UPW\_071 photopoints taken at -122.927949, 43.699013.

## COTTAGE GROVE LAKE

### UPW\_064

General site information	
Date surveyed	5/23/2022
Observers (affiliation)	Annamarie Pfeifer, Annie Lamas, Zade Clark-Henry (IAE)
Unit ID	UPW_064
Site name	Piper Creek Road
BLM Field Office	Upper Willamette
County	Lane
Township, Range, Section	T21S, R03W, Sec27
Recovery zone (USFWS 2010)	Eugene East
Land ownership	BLM, Northwest Oregon District
Contact person and contact information	Chad Conklin cconklin@blm.gov, 541-683-6120 (office), 541-517-0631 (cell)
Directions	Access via Reservoir Rd. and follow for about a mile.
Photopoint coordinates	-123.034690, 43.709938

Habitat overview	
Unit area (acres)	3.59
Prairie and/or oak habitat present?	Yes
Habitat type (special habitat)	Oak savanna (dry meadow)
Slope (degrees)	45
Aspect	S
Elevation (feet)	1050
What maintains site openness?	Hydrology, fire disturbance, soils
Evidence of human disturbance	No
Type of site	Open area surrounded by forest
Buffer or forested area description	Buffer is a second growth forest dominated by Douglas-fir ( <i>Pseudotsuga menziesii</i> ) and co-dominated by bigleaf maple ( <i>Acer macrophyllum</i> ).
Do remnant oak or prairie species exist in the buffer or forested areas?	Yes
Remnant oak or prairie species observed (Alverson 2010)	California fescue ( <i>Festuca californica</i> ), forest scurfpea ( <i>Rupertia physodes</i> ), woodland strawberry ( <i>Fragaria vesca</i> ), toughleaf iris ( <i>Iris tenax</i> ), Pacific hound's tongue ( <i>Cynoglossum grande</i> )

Woody species			
Overall live woody cover (%)	40		
Live native tree cover (%)	25	Live non-native tree cover (%)	0
Live native shrub cover (%)	14	Live non-native shrub cover (%)	1
Live tree cover from oaks (%)	23	Standing dead woody cover (%)	0
Number oaks >15 in DBH	0		
Number of large trees (>40 in DBH)	8		
Species of large trees	Douglas-fir ( <i>Pseudotsuga menziesii</i> )		

Average Van Pelt score	<2 (35-80 years)
Woody species encroaching on prairie habitat*+	Himalayan blackberry ( <i>Rubus bifrons</i> )*, poison oak ( <i>Toxicodendron diversilobum</i> )*+, oceanspray ( <i>Holodiscus discolor</i> ), Oregon grape ( <i>Berberis aquifolium</i> ), Scotch broom ( <i>Cytisus scoparius</i> )*
Would removal of encroaching woody species result in the need for wood to be hauled off-site?	No
Woody species notes	Woody shrubs encroaching strongly from forest edges and establishing in patches throughout all open areas, where soils permit. Maple only codominant in southern buffer.

\*Woody species of management concern from the *Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington*.

+ Woody species of management concern that exceed 5% cover of the site.

Herbaceous non-native species	
Herbaceous non-native cover (%)	93
Most common non-native species	Bristly dogstail grass ( <i>Cynosurus echinatus</i> ), ripgut brome ( <i>Bromus diandrus</i> ), soft brome ( <i>Bromus hordeaceus</i> ), smooth hawkbeard ( <i>Crepis capillaris</i> ), smooth cat's ear ( <i>Hypochaeris glabra</i> ), oxeye daisy ( <i>Leucanthemum vulgare</i> ), annual fescue ( <i>Vulpia</i> sp.)
Herbaceous non-native species notes	Non-native species do not generally extend into forested areas.

Herbaceous native species	
Herbaceous native cover (%)	7
Most common native species	Common yarrow ( <i>Achillea millefolium</i> ), smallhead clover ( <i>Trifolium microcephalum</i> ), tomcat clover ( <i>Trifolium willdenovii</i> ), dwarf checkermallow ( <i>Sidalcea virgata</i> ), tarweed ( <i>Madia</i> sp.)
Relevé survey?	No
T&E species present?	No
Seed collection potential?	Smallhead clover ( <i>Trifolium microcephalum</i> ), tomcat clover ( <i>Trifolium willdenovii</i> ), seep monkeyflower ( <i>Mimulus guttatus</i> ), shortspur seablush ( <i>Plectritis congesta</i> ), common yarrow ( <i>Achillea millefolium</i> ), smallflower bird's-foot trefoil ( <i>Acmispon parviflorus</i> ), California fescue ( <i>Festuca californica</i> ), American vetch ( <i>Vicia americana</i> ) toughleaf iris ( <i>Iris tenax</i> ssp. <i>tenax</i> ), tarweed ( <i>Madia</i> sp.), popcornflower ( <i>Plagiobothrys</i> sp.), maiden blue eyed Mary ( <i>Collinsia parviflora</i> ), dwarf checkermallow ( <i>Sidalcea virgata</i> )
Herbaceous native species notes	California fescue ( <i>Festuca californica</i> ) and American vetch ( <i>Vicia americana</i> ) are abundant along the northern edges of the meadow openings and extend into the Douglas-fir forest.

Wildlife	
Wildlife species of interest observed	None

Preliminary habitat restoration/management recommendations	
Overall ranking as a priority for restoration (high, moderate, or low)	Moderate

Short-term recommended actions	Pull patches of Scotch broom ( <i>Cytisus scoparius</i> ). Remove poison oak ( <i>Toxicodendron diversilobum</i> ) and Himalayan blackberry ( <i>Rubus bifrons</i> ). Remove oceanspray ( <i>Holodiscus discolor</i> ) and other shrubs from within open meadow. Release oaks from Douglas-fir suppression.
Long-term recommended actions	Clear Douglas-firs ( <i>Pseudotsuga menziesii</i> ) separating oak habitat to increase connectivity and improve meadow habitat. Treat non-native grasses in meadows and reseed with native species.
Site accessibility issues	A short hike through deep litter and slash, as well as a small stream crossing, is required to access the site. The site is steep, but the soils are intact.

Modified prairie habitat quality summary (USFWS 2010)				
Oak habitat criteria		Data	Objective	Meets objectives?
Oaks present?		Yes	Yes	Yes
Number of oaks greater than 15 inches DBH?		0	≥1	No
Prairie habitat criteria		Data	Recovery Plan threshold	Meets threshold?
Native herbaceous species cover (%)		7	50% min	No
Woody species cover (%)		40	15% max	No
Does any one woody species of management concern exceed 5% cover?		Yes	5% max	No
Prairie diversity	Native forb richness	N/A	7	No Data
	Native bunchgrass richness	N/A	1	No Data
	Total native herbaceous species richness	N/A	>10	No Data
Do any non-native species exceed 50% cover within the relevé plot?		N/A	50%	No Data
Do any non-native species of particular concern exceed 5% cover?		N/A	5%	No Data





Figure H-24. Overview of UPW\_064 with habitat, forested buffer areas, and photopoint location.

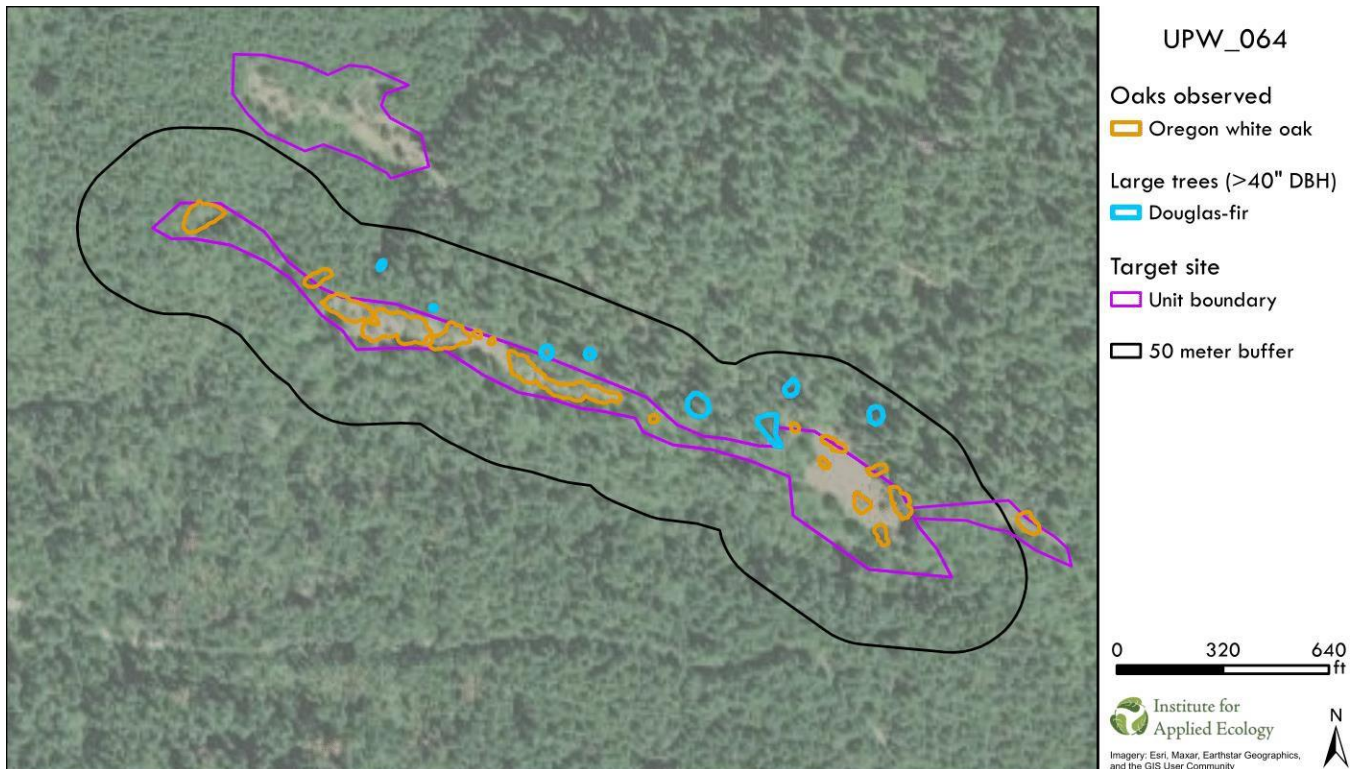


Figure H-25. Oaks, large trees, pines, and wildlife observed, if applicable.

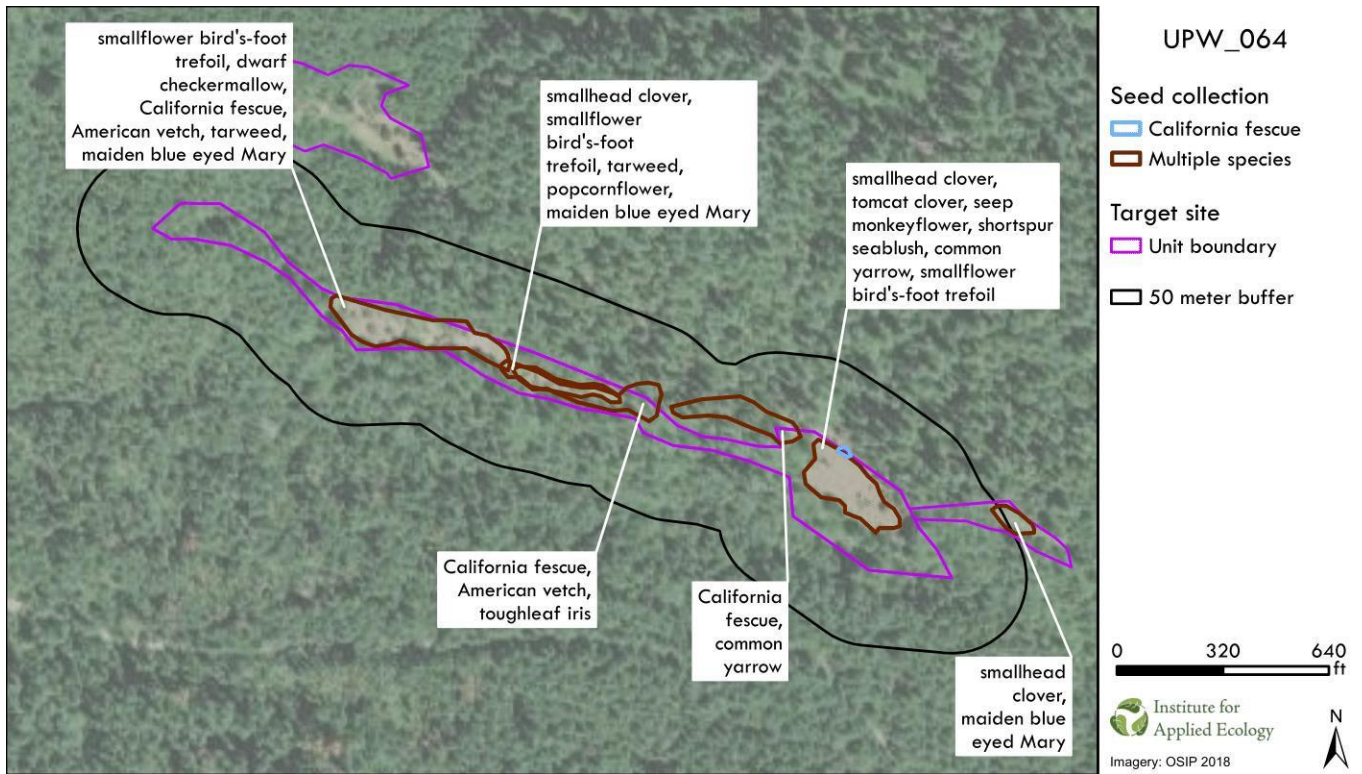


Figure H-26. Seed collection species observed.

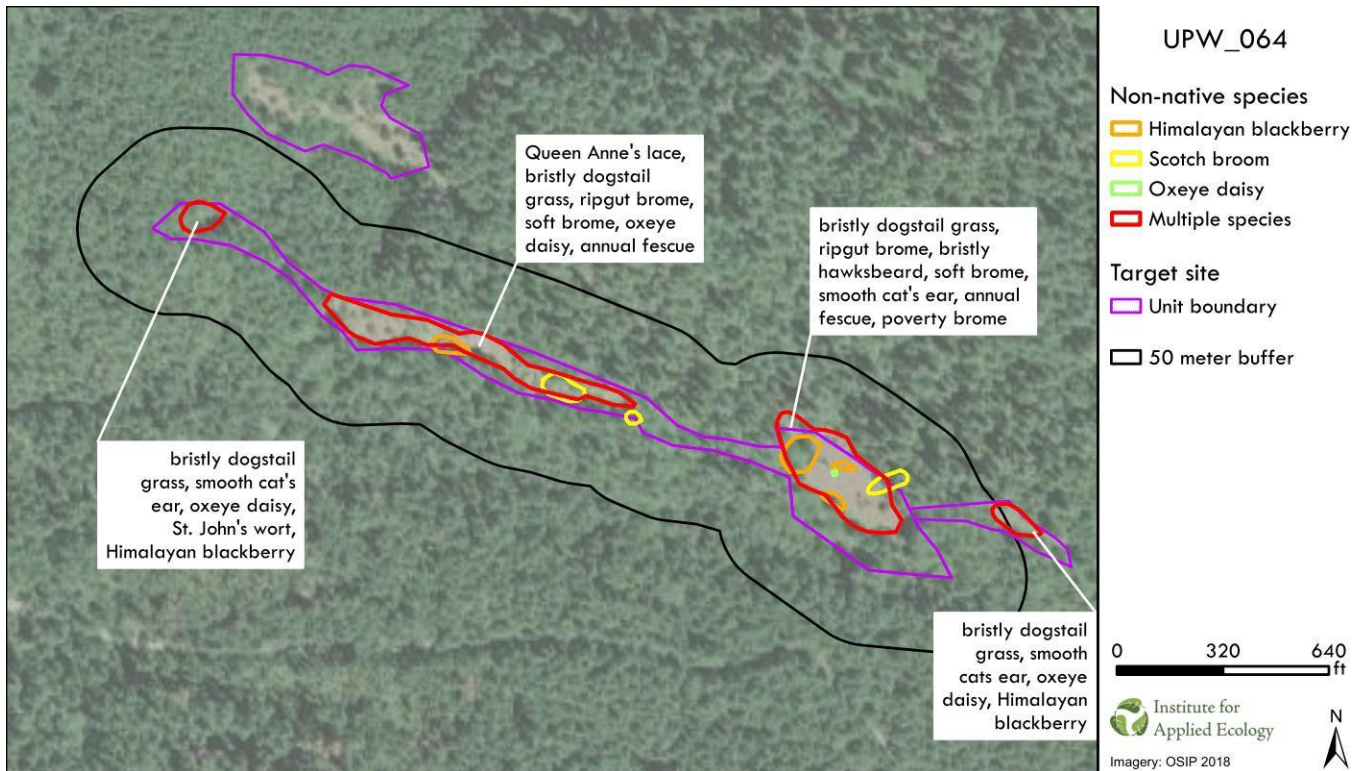
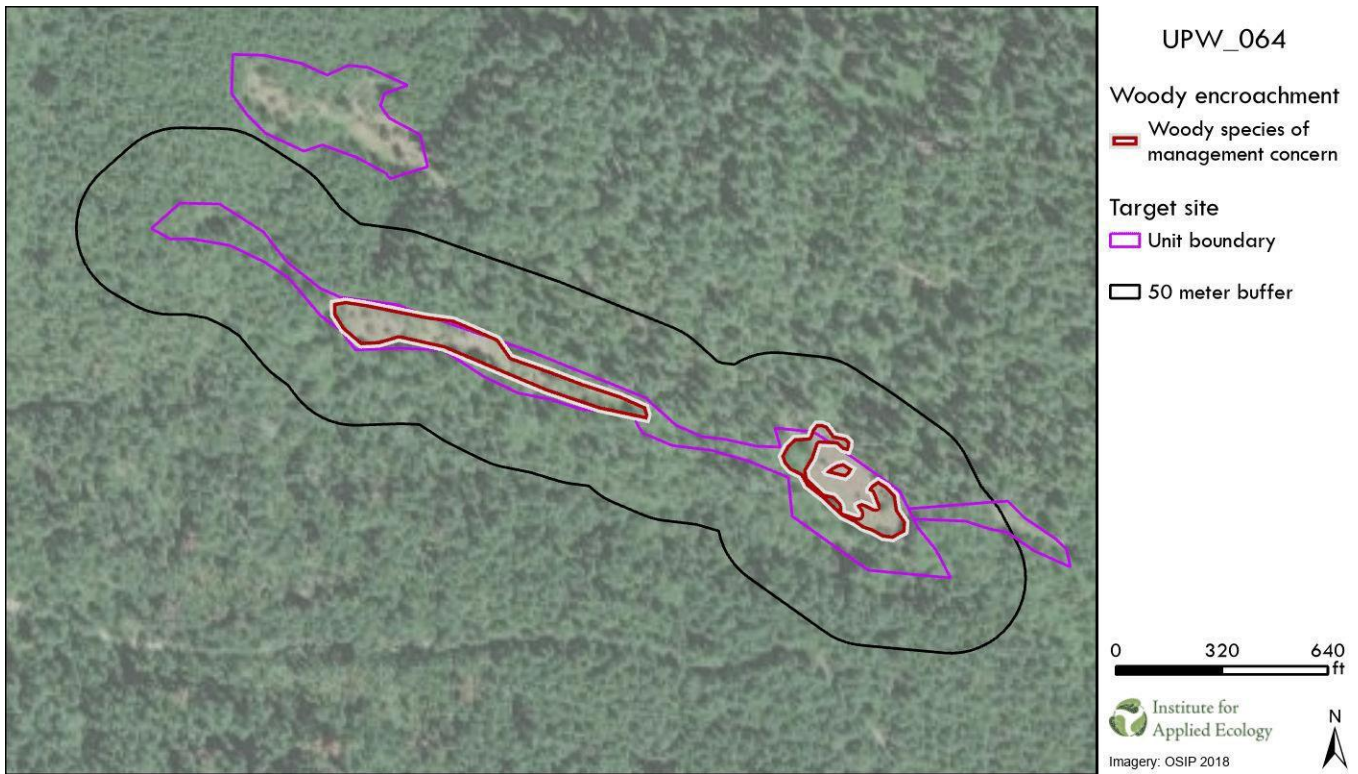


Figure H-27. Non-native species observed.



**Figure H-28.** Woody encroachment and human activity observed. Woody species of management concern observed in 2022 were poison oak, Himalayan blackberry, and Scotch broom.



**Figure H-29.** Recommended changes to the unit boundary based on habitat and/or oaks present.

North:



East:



South:



West:



**Figure H-30.** UPW\_064 photopoints taken at -123.034690, 43.709938.

## UPW\_067

General site information	
Date surveyed	7/13/2022
Observers (affiliation)	Annamarie Pfeifer, Annie Lamas, Zade Clark-Henry (IAE)
Unit ID	UPW_067
Site name	Twin Prairie
BLM Field Office	Upper Willamette
County	Lane
Township, Range, Section	T22S, R03W, Sec03
Recovery zone (USFWS 2010)	Eugene East
Land ownership	BLM, Northwest Oregon District
Contact person and contact information	Chad Conklin cconklin@blm.gov, 541-683-6120 (office), 541-517-0631 (cell)
Directions	Access through Wilson Creek (21-3-33). BLM lock is on the gate leading to the site.
Photopoint coordinates	-123.037448, 43.691930

Habitat overview	
Unit area (acres)	19.97
Prairie and/or oak habitat present?	Yes
Habitat type (special habitat)	Oak savanna (dry meadow)
Slope (degrees)	25
Aspect	S
Elevation (feet)	1650
What maintains site openness?	Land management, fire disturbance, hydrology, soils
Evidence of human disturbance	No
Human disturbance notes	Restoration activities are ongoing at this site. Thinned and girdled trees, cut shrubs, and planting of native species are evident.
Type of site	Open area surrounded by forest
Buffer or forested area description	Buffer is a second growth forest dominated by Douglas-fir ( <i>Pseudotsuga menziesii</i> ).
Do remnant oak or prairie species exist in the buffer or forested areas?	Yes
Remnant oak or prairie species observed (Alverson 2010)	Woodland strawberry ( <i>Fragaria vesca</i> ), Pacific hound's tongue ( <i>Cynoglossum grande</i> ), California fescue ( <i>Festuca californica</i> ), snowqueen ( <i>Synthyris reniformis</i> ), dwarf checkermallow ( <i>Sidalcea virgata</i> ), Oregon white oak ( <i>Quercus garryana</i> )
General notes	This site is undergoing active restoration. Due to ongoing restoration and shaggy horkelia ( <i>Horkelia congesta</i> var. <i>congesta</i> ) monitoring, we prioritized surveying the buffer and the oaks, with less emphasis on surveying the herbaceous community.

Woody species			
Overall live woody cover (%)	9		
Live native tree cover (%)	7	Live non-native tree cover (%)	
Live native shrub cover (%)	1	Live non-native shrub cover (%)	1

Live tree cover from oaks (%)	2	Standing dead woody cover (%)	1
Number oaks >15 in DBH	17		
Number of large trees (>40 in DBH)	23		
Species of large trees	Douglas-fir ( <i>Pseudotsuga menziesii</i> )		
Average Van Pelt score	2/3 (70-160 years)		
Woody species encroaching on prairie habitat*+	Scotch broom ( <i>Cytisus scoparius</i> )*, Himalayan blackberry ( <i>Rubus bifrons</i> )*, Douglas-fir ( <i>Pseudotsuga menziesii</i> ), oceanspray ( <i>Holodiscus discolor</i> ), incense cedar ( <i>Calocedrus decurrens</i> ), poison oak ( <i>Toxicodendron diversilobum</i> )*		
Would removal of encroaching woody species result in the need for wood to be hauled off-site?	Yes		
Woody species notes	There are multiple stands of conifers growing in the open meadow. Some of these are being treated to open habitat, others could be removed to connect habitat areas.		

\*Woody species of management concern from the *Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington*.

+ Woody species of management concern that exceed 5% cover of the site.

Herbaceous non-native species	
Herbaceous non-native cover (%)	90
Most common non-native species	Bristly dogstail grass ( <i>Cynosurus echinatus</i> ), hairy cat's ear ( <i>Hypochaeris radicata</i> ), common velvetgrass ( <i>Holcus lanatus</i> ), soft brome ( <i>Bromus hordeaceus</i> ), oxeye daisy ( <i>Leucanthemum vulgare</i> )
Herbaceous non-native species notes	The non-native herbaceous community at this site was surveyed coarsely due to existing knowledge of the site and species present. Patches of previously mapped non-native species were not remapped.

Herbaceous native species	
Herbaceous native cover (%)	10
Most common native species	Farewell-to-spring ( <i>Clarkia amoena</i> ), blue wildrye ( <i>Elymus glaucus</i> ), Roemer's fescue ( <i>Festuca roemerii</i> ), prairie Junegrass ( <i>Koeleria macrantha</i> ), grassy tarweed ( <i>Madia gracilis</i> )
Relevé survey?	Yes (see <a href="#">Table H-2</a> )
T&E species present?	Yes
Seed collection potential?	California fescue ( <i>Festuca californica</i> ), narrow leaf mule-ears ( <i>Wyethia angustifolia</i> ), blue wildrye ( <i>Elymus glaucus</i> ), grassy tarweed ( <i>Madia gracilis</i> ), Roemer's fescue ( <i>Festuca roemerii</i> ), California oatgrass ( <i>Danthonia californica</i> ), prairie Junegrass ( <i>Koeleria macrantha</i> ), winecup clarkia ( <i>Clarkia purpurea</i> ), harvest brodiaea ( <i>Aira caryophylla</i> ), common madia ( <i>Madia elegans</i> )
Herbaceous native species notes	There is detailed, ongoing monitoring of the shaggy horkelia ( <i>Horkelia congesta</i> var. <i>congesta</i> ) population. It was not monitored in this modified survey.

Wildlife	
Wildlife species of interest observed	Purple martin, wrentit

Preliminary habitat restoration/management recommendations	
Overall ranking as a priority for restoration (high, moderate, or low)	High
Site accessibility issues	This site is easily accessible from the old roadbed to the northeast of the site. Heavy machinery is not recommended due to the steepness of the slope and sensitivity of the shaggy horkelia ( <i>Horkelia congesta</i> var. <i>congesta</i> ) population.
Restoration action notes	There is already an active restoration plan in place. This survey instead focused on mapping oaks and more detailed mapping of the buffer area.

Modified prairie habitat quality summary (USFWS 2010)			
Oak habitat criteria	Data	Objective	Meets objectives?
Oaks present?	Yes	Yes	Yes
Number of oaks greater than 15 inches DBH?	17	≥1	Yes
Prairie habitat criteria	Data	Recovery Plan threshold	Meets threshold?
Native herbaceous species cover (%)	10	50% min	No
Woody species cover (%)	9	15% max	Yes
Does any one woody species of management concern exceed 5% cover?	No	5% max	Yes
Prairie diversity	Native forb richness	7	Yes
	Native bunchgrass richness	1	Yes
	Total native herbaceous species richness	13	Yes
Do any non-native species exceed 50% cover within the relevé plot?	No	50%	Yes
Do any non-native species of particular concern exceed 5% cover?	No	5%	Yes

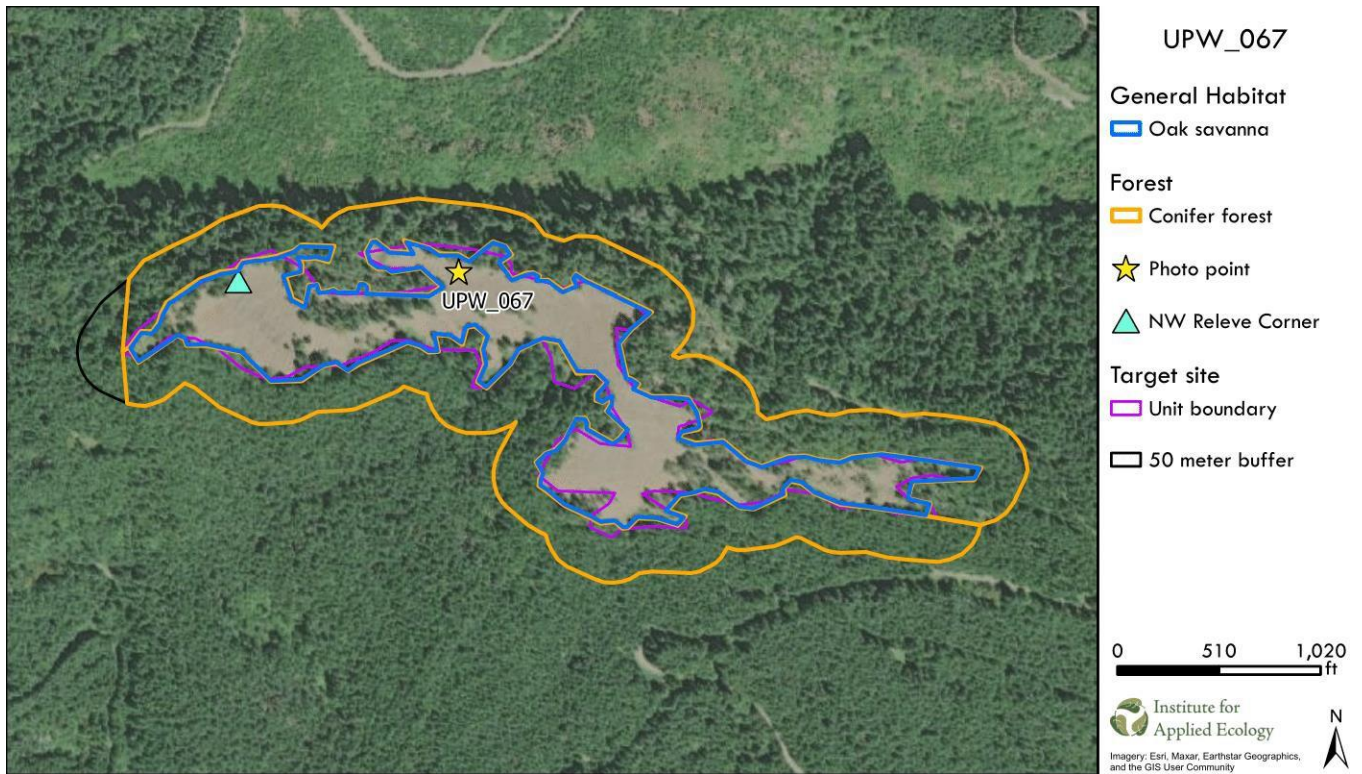
**Table H-2.** Relevé survey data. Braun-Blanquet cover scale: R = <5% and single individual, + = <5% and 2-20 individuals, 1 = <5% many individuals, 2 = 5-25%, 3 = 25-50%, 4 = 50-75%, 5 = 75-100%. The origin was listed as “unknown” for plants that were not identified to species and that have both native and non-native species in their genus.

Relevé data for UPW_067			
Scientific name	Common name	Origin	Braun-Blanquet cover score
<i>Aira caryophylla</i>	silver hairgrass	Invasive	1
<i>Bromus hordeaceus</i>	soft brome	Invasive	1
<i>Cynosurus echinatus</i>	bristly dogstail grass	Invasive	1
<i>Danthonia californica</i>	California oatgrass	Native	1
<i>Festuca roemerii</i>	Roemer's fescue	Native	3
<i>Holcus lanatus</i>	common velvetgrass	Invasive	+
<i>Koeleria macrantha</i>	prairie Junegrass	Native	1
<i>Vulpia bromoides</i>	brome fescue	Invasive	1
<i>Vulpia myuros</i>	rattail fescue	Invasive	1

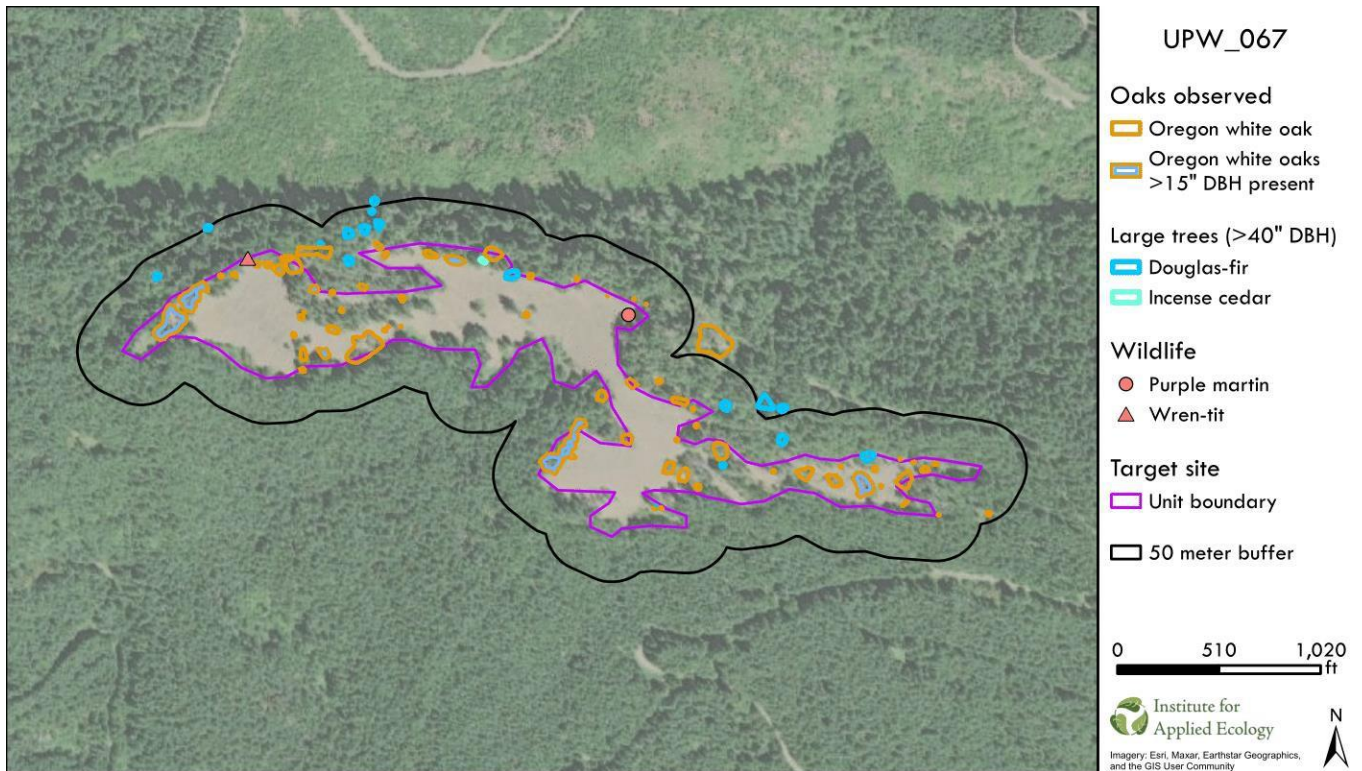
<b>Relevé data for UPW_067</b>			
<b>Scientific name</b>	<b>Common name</b>	<b>Origin</b>	<b>Braun-Blanquet cover score</b>
<i>Luzula comosa</i>	Pacific woodrush	Native	1
<i>Acmispon parviflorus</i>	bird's foot trefoil	Native	1
<i>Clarkia amoena</i>	farewell-to-spring	Native	1
<i>Clarkia purpurea</i>	winecup clarkia	Native	+
<i>Calochortus tolmiei</i>	Tolmie star-tulip	Native	1
<i>Daucus pusillus</i>	American wild carrot	Native	1
<i>Eriophyllum lanatum</i>	common woolly sunflower	Native	1
<i>Hypochaeris glabra</i>	smooth cat's ear	Invasive	1
<i>Linum bienne</i>	pale flax	Invasive	1
<i>Ranunculus occidentalis</i>	western buttercup	Native	+
<i>Brodiaea elegans</i>	harvest brodiaea	Native	1
<i>Horkelia congesta</i>	shaggy horkelia	Native	+
<i>Galium divaricatum</i>	Lamarck's bedstraw	Invasive	1

<b>Relevé substrate (%)</b>			
<b>Bare</b>	<b>Moss/Lichen</b>	<b>Rock</b>	<b>Thatch</b>
0	12	0	3





**Figure H-31.** Overview of UPW\_067 with habitat, forested buffer areas, photopoint, and relevé plot location.



**Figure H-32.** Oaks, large trees, pines, and wildlife observed, if applicable.

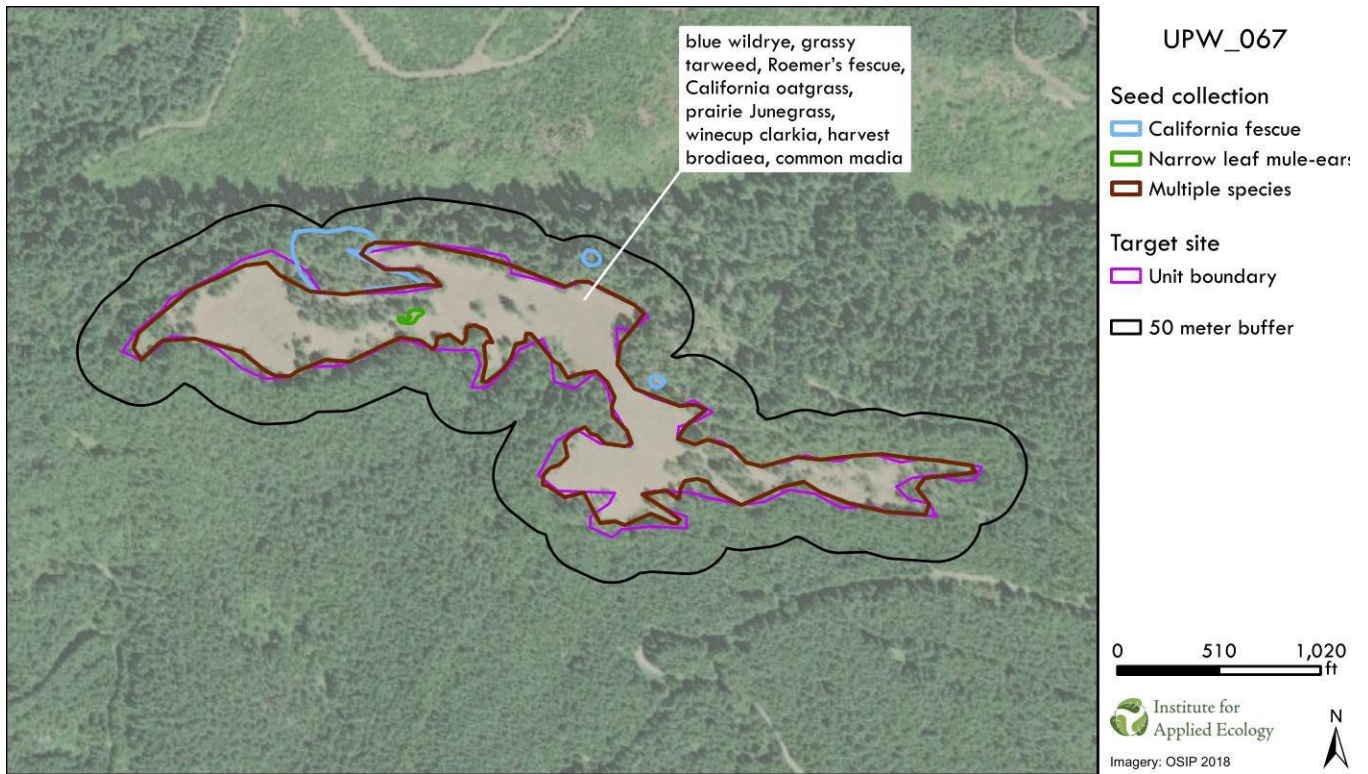


Figure H-33. Seed collection species observed.

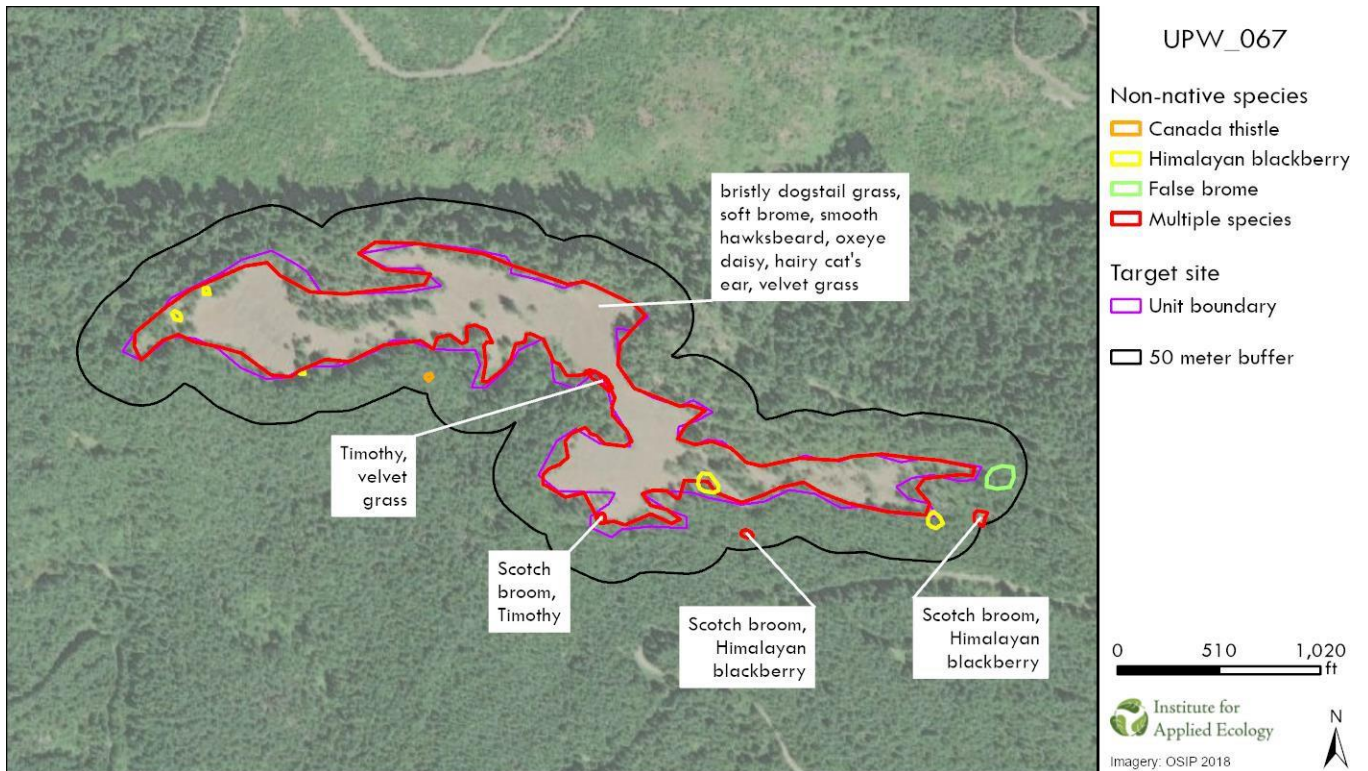


Figure H-34. Non-native species observed.

North:



East:



South:



West:



**Figure H-35.** UPW\_067 photopoints taken at -123.037448, 43.691930.

## CRAWFORDSVILLE

### UPW\_019

General site information	
Date surveyed	5/18/2022
Observers (affiliation)	Annamarie Pfeifer, Annie Lamas, Zade Clark-Henry (IAE)
Unit ID	UPW_019
Site name	Grassy Mountain
BLM Field Office	Upper Willamette
County	Lane
Township, Range, Section	T15S, R01W, Sec11
Recovery zone (USFWS 2010)	Eugene East
Land ownership	BLM, Northwest Oregon District
Contact person and contact information	Chad Conklin cconklin@blm.gov, 541-683-6120 (office), 541-517-0631 (cell)
Directions	Access from the south. Hike uphill through forest.
Photopoint coordinates	-122.780373, 44.274130

Habitat overview	
Unit area (acres)	19.93
Prairie and/or oak habitat present?	Yes
Habitat type (special habitat)	Oak savanna, rock meadow (dry meadow)
Habitat type notes	The open area is comprised of shallow, dry soils with wet seeps and exposed rock. Oaks were primarily observed along the southern and western site edges, consisting of many large, old trees.
Slope (degrees)	40
Aspect	SSW
Elevation (feet)	2100
What maintains site openness?	Fire disturbance, hydrology, soils
Evidence of human disturbance	No
Type of site	Open area surrounded by forest
Buffer or forested area description	The buffer is a second growth forest dominated by Douglas-fir ( <i>Pseudotsuga menziesii</i> ) and co-dominated by western hemlock ( <i>Tsuga heterophylla</i> ).
Do remnant oak or prairie species exist in the buffer or forested areas?	Yes
Remnant oak or prairie species observed (Alverson 2010)	Woodland strawberry ( <i>Fragaria vesca</i> )

Woody species			
Overall live woody cover (%)	4		
Live native tree cover (%)	2	Live non-native tree cover (%)	0
Live native shrub cover (%)	1	Live non-native shrub cover (%)	1
Live tree cover from oaks (%)	2	Standing dead woody cover (%)	1
Number oaks >15 in DBH	10		

Number of large trees (>40 in DBH)	40
Species of large trees	Douglas-fir ( <i>Pseudotsuga menziesii</i> )
Average Van Pelt score	2/3 (70-160 years)
Woody species encroaching on prairie habitat*+	Poison oak ( <i>Toxicodendron diversilobum</i> )*, Scotch broom ( <i>Cytisus scoparius</i> )*
Would removal of encroaching woody species result in the need for wood to be hauled off-site?	No
Woody species notes	Very little woody vegetation is present in the meadow. Oaks along the forest edges are often partially suppressed by conifers and Pacific madrones ( <i>Arbutus menziesii</i> ). Poison oak ( <i>Toxicodendron diversilobum</i> ) is creeping into the meadow from the forest edges.

\*Woody species of management concern from the *Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington*.

+ Woody species of management concern that exceed 5% cover of the site.

#### Herbaceous non-native species

Herbaceous non-native cover (%)	80
Most common non-native species	Bristly dogstail grass ( <i>Cynosurus echinatus</i> ), silver hairgrass ( <i>Aira caryophyllea</i> ), common velvetgrass ( <i>Holcus lanatus</i> ), smooth cat's ear ( <i>Hypochaeris glabra</i> ), hairy cat's ear ( <i>Hypochaeris radicata</i> )

#### Herbaceous native species

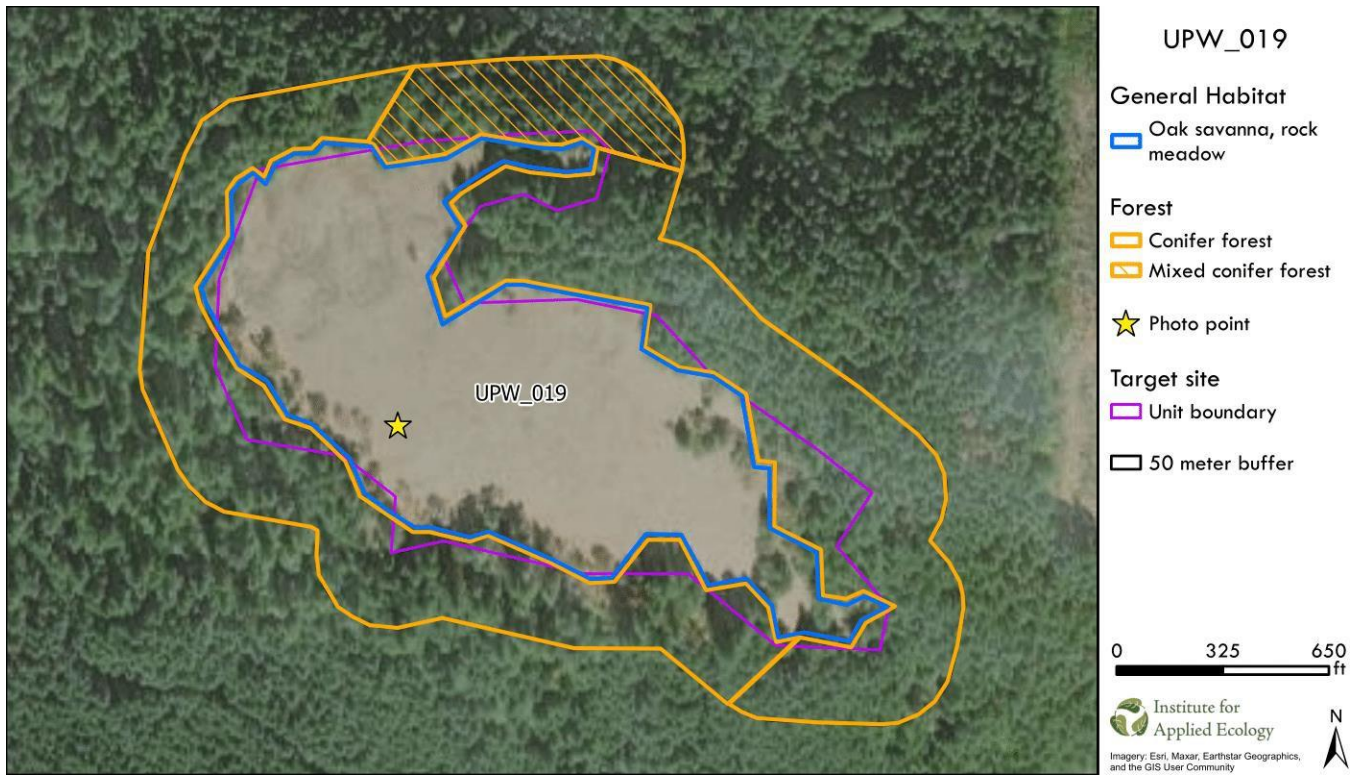
Herbaceous native cover (%)	20
Most common native species	Clarkia ( <i>Clarkia sp.</i> ), Tolmie star-tulip ( <i>Calochortus tolmiei</i> ), common woolly sunflower ( <i>Eriophyllum lanatum</i> ), Roemer's fescue ( <i>Festuca roemerii</i> ), seep monkeyflower ( <i>Mimulus guttatus</i> ), shortspur seablush ( <i>Plectritis congesta</i> ), tarweed ( <i>Madia sp.</i> ), wild clover ( <i>Trifolium sp.</i> ), common biscuitroot ( <i>Lomatium utriculatum</i> )
Relevé survey?	No
T&E species present?	No
Seed collection potential?	Tolmie star-tulip ( <i>Calochortus tolmiei</i> ), western buttercup ( <i>Ranunculus occidentalis</i> ), Roemer's fescue ( <i>Festuca roemerii</i> ), common woolly sunflower ( <i>Eriophyllum lanatum</i> ), shortspur seablush ( <i>Plectritis congesta</i> ), common lomatium ( <i>Lomatium utriculatum</i> ), seep monkeyflower ( <i>Mimulus guttatus</i> ), blue wildrye ( <i>Elymus glaucus</i> ), common yarrow ( <i>Achillea millefolium</i> ), woodland strawberry ( <i>Fragaria vesca</i> ), Pacific woodrush ( <i>Luzula comosa</i> )
Herbaceous native species notes	The native species present were often unidentifiable due to lack of necessary features. Higher diversity and abundance may occur later in the season, but overall diversity was relatively low at the time of visit.

#### Wildlife

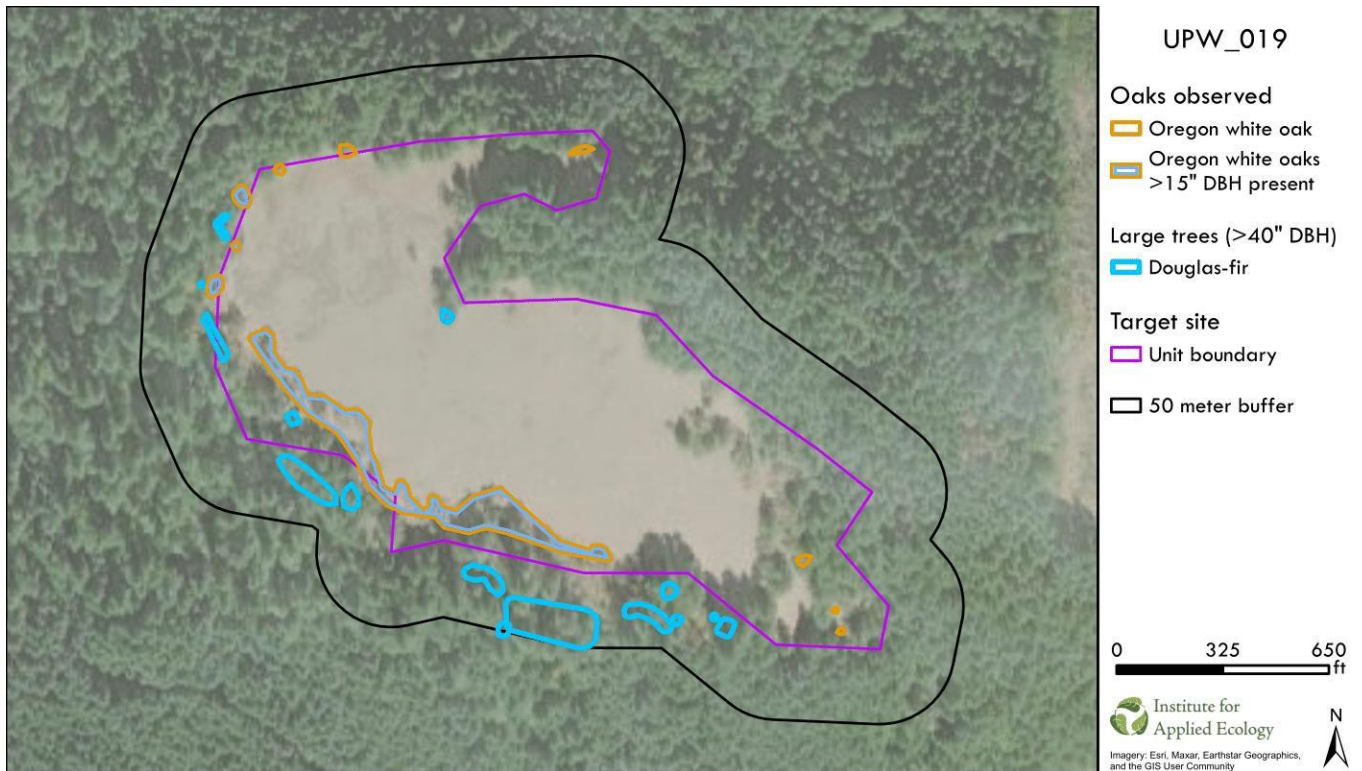
Wildlife species of interest observed	None
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Preliminary habitat restoration/management recommendations	
Overall ranking as priority for restoration (high, moderate, or low)	High
Short-term recommended actions	Treat Scotch broom ( <i>Cytisus scoparius</i> ) patches and poison oak ( <i>Toxicodendron diversilobum</i> ) encroaching into the meadow.
Long-term recommended actions	Treat annual grasses in the meadow. Implement prescribed burning to manage woody vegetation and thatch accumulation. Cut or girdle conifers suppressing oaks. Manage the site to conserve native herbaceous species and open habitat.
Site accessibility issues	The site is very steep and requires a hike through dense woods on a steep slope to reach the meadow. Consider accessing the site from the north if possible.

Modified prairie habitat quality summary (USFWS 2010)				
Oak habitat criteria		Data	Objective	Meets objectives?
Oaks present?		Yes	Yes	Yes
Number of oaks greater than 15 inches DBH?		10	≥1	Yes
Prairie habitat criteria		Data	Recovery Plan threshold	Meets threshold?
Native herbaceous species cover (%)		20	50% min	No
Woody species cover (%)		4	15% max	Yes
Does any one woody species of management concern exceed 5% cover?		No	5% max	Yes
Prairie diversity	Native forb richness	N/A	7	No Data
	Native bunchgrass richness	N/A	1	No Data
	Total native herbaceous species richness	N/A	>10	No Data
Do any non-native species exceed 50% cover within the relevé plot?		N/A	50%	No Data
Do any non-native species of particular concern exceed 5% cover?		N/A	5%	No Data



**Figure H-36.** Overview of UPW\_019 with habitat, forested buffer areas, and photopoint location.



**Figure H-37.** Oaks, large trees, pines, and wildlife observed, if applicable.

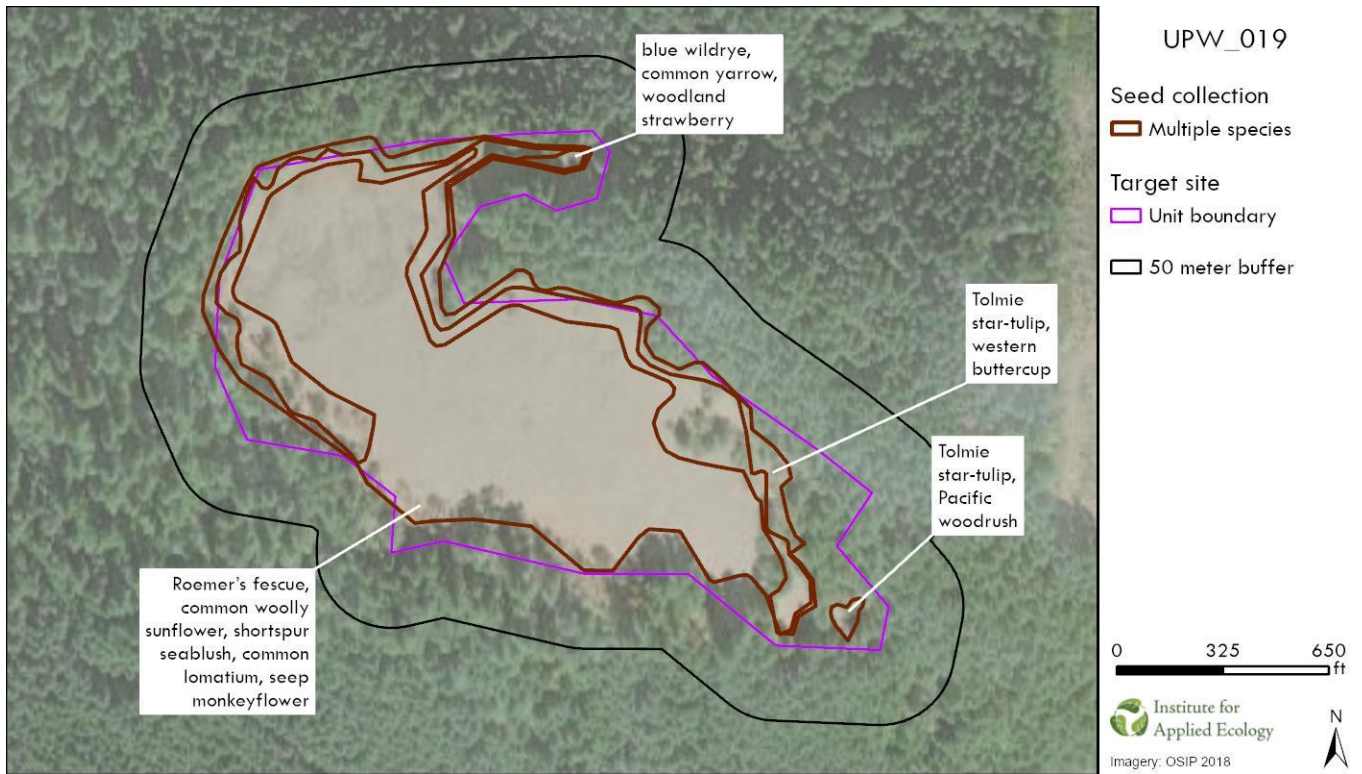


Figure H-38. Seed collection species observed.

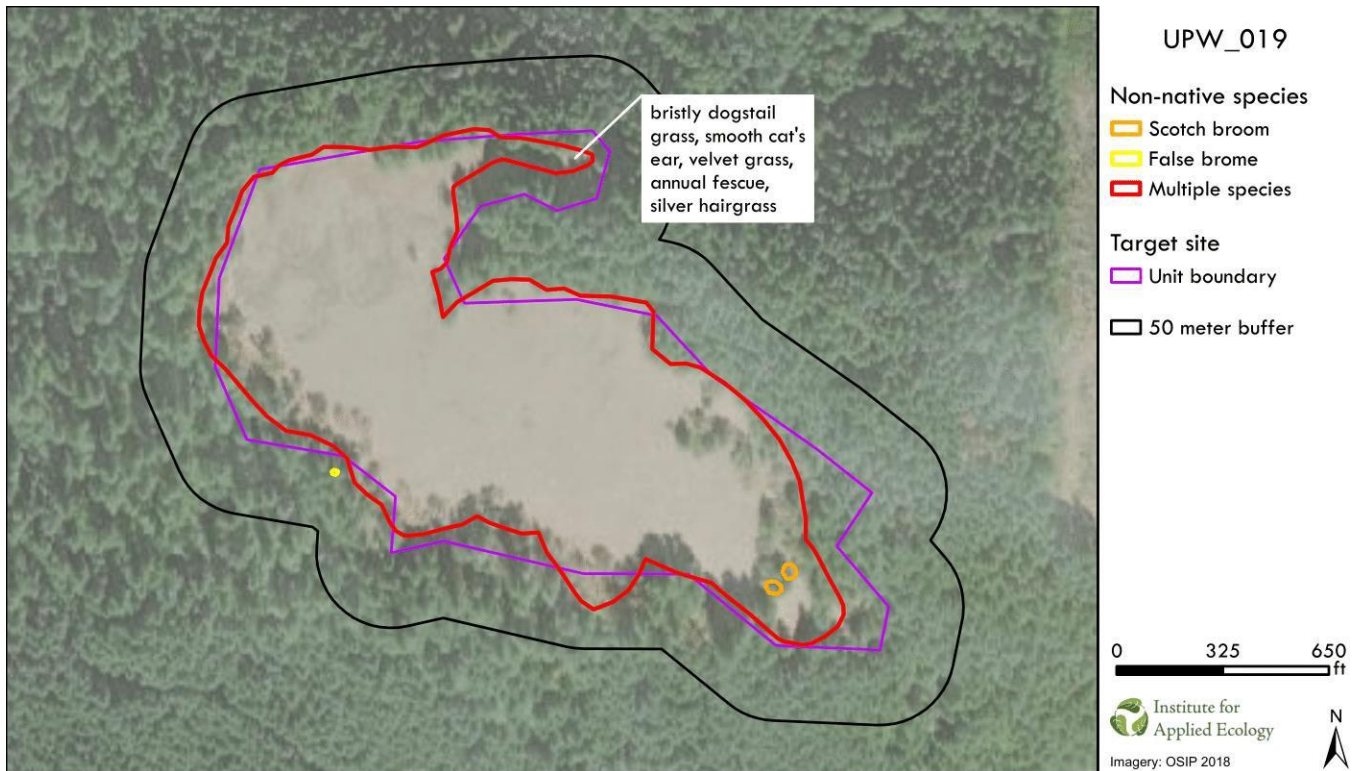
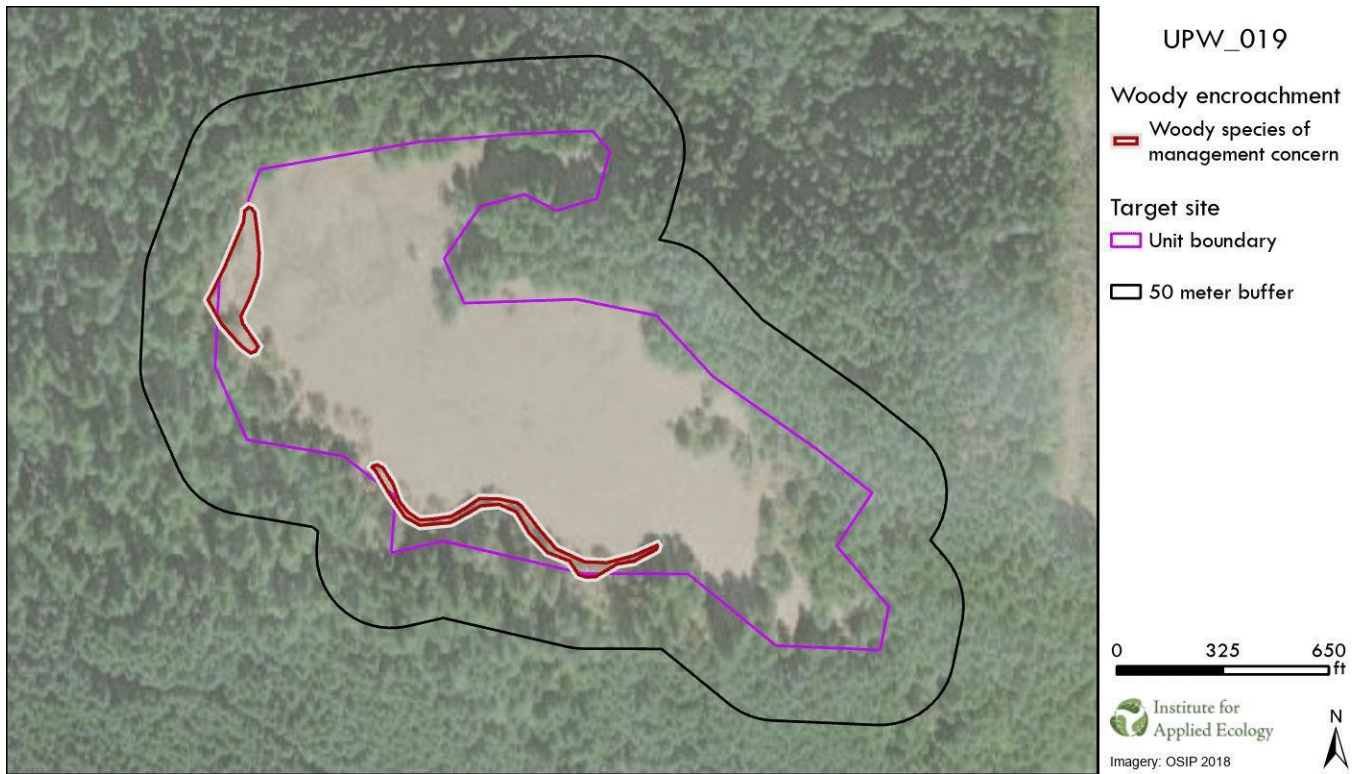
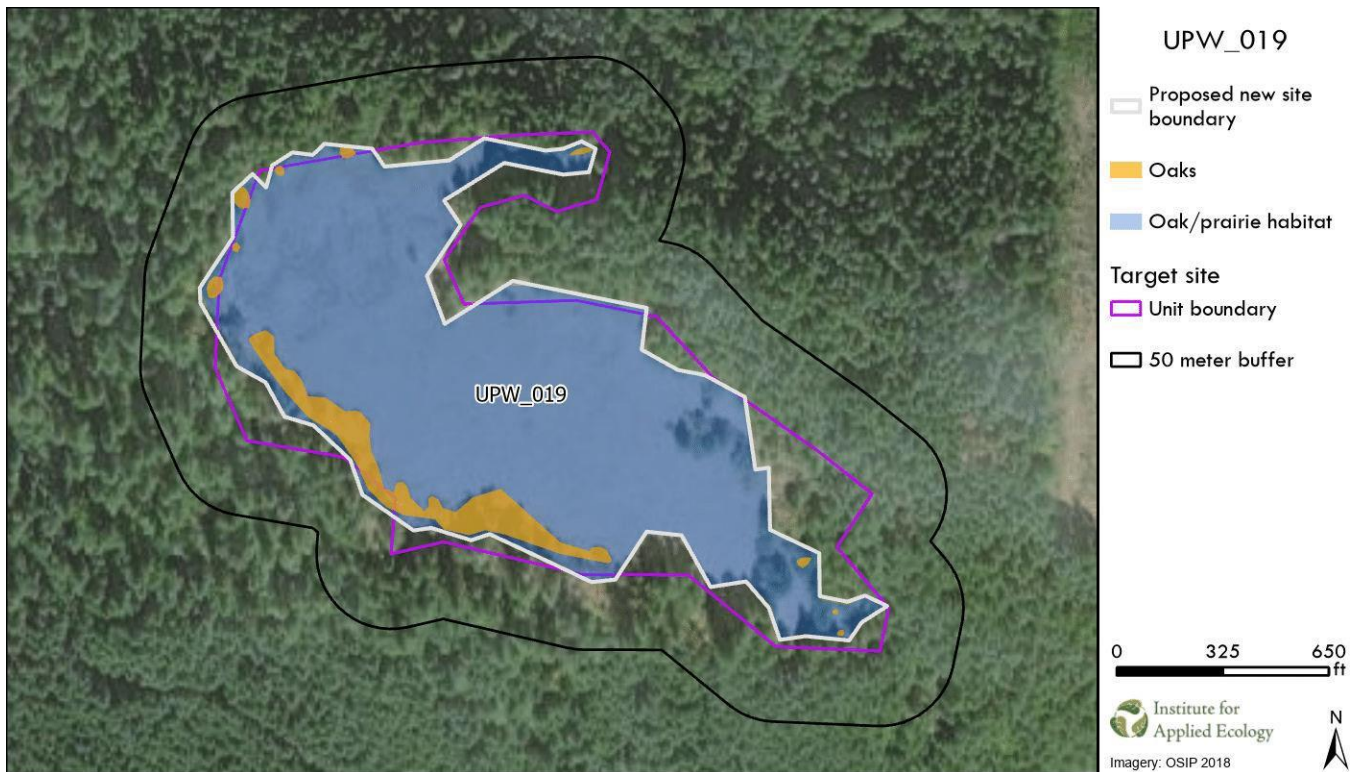


Figure H-39. Non-native species observed.





**Figure H-40.** Woody encroachment and human activity observed. Woody species of management concern observed in 2022 was poison oak.



**Figure H-41.** Recommended changes to the unit boundary based on habitat and/or oaks present.

North:



East:



South:



West:



**Figure H-42.** UPW\_019 photopoints taken at -122.780373, 44.274130.

## DORENA LAKE

## UPW\_088

General site information	
Date surveyed	5/25/2022
Observers (affiliation)	Annamarie Pfeifer, Annie Lamas, Zade Clark-Henry (IAE)
Unit ID	UPW_088
Site name	Cerro Gordo
BLM Field Office	Upper Willamette
County	Lane
Township, Range, Section	T20S, R02W, Sec29
Recovery zone (USFWS 2010)	Eugene East
Land ownership	BLM, Northwest Oregon District
Contact person and contact information	Chad Conklin cconklin@blm.gov, 541-683-6120 (office), 541-517-0631 (cell)
Directions	The site can be accessed from the southwest by parking on Gordo Rd. and hiking through the forest. Access is also available from the southeast by parking on Cerro Gordo Rd. and hiking through a steep clearcut.
Photopoint coordinates	-122.954677, 43.808391

Habitat overview	
Unit area (acres)	19.96
Prairie and/or oak habitat present?	Yes
Habitat type (special habitat)	Oak savanna (dry meadow)
Habitat type notes	The habitat is interrupted by patches of large Douglas-fir ( <i>Pseudotsuga menziesii</i> ) and incense cedar ( <i>Calocedrus decurrens</i> ).
Slope (degrees)	15
Aspect	SSW
Elevation (feet)	1900
What maintains site openness?	Fire disturbance, soils, hydrology
Evidence of human disturbance	Yes
Level of human disturbance	High
Type of human disturbance	Logging
Human disturbance notes	Logging recently occurred on the north and east sides of the site.
Type of site	Open area surrounded by forest
Buffer or forested area description	Buffer is a second growth forest dominated by Douglas-fir ( <i>Pseudotsuga menziesii</i> ).
Do remnant oak or prairie species exist in the buffer or forested areas?	Yes
Remnant oak or prairie species observed (Alverson 2010)	Tolmie star-tulip ( <i>Calochortus tolmiei</i> ), woodland strawberry ( <i>Fragaria vesca</i> ), blue wildrye ( <i>Elymus glaucus</i> ), western buttercup ( <i>Ranunculus occidentalis</i> ), toughleaf iris ( <i>Iris tenax</i> ), Oregon white oak ( <i>Quercus garryana</i> )

General notes	The clearcut to the east of the site should not be included in the habitat area. Oaks in the meadow habitat continue into private property to the north of the site.
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Woody species			
Overall live woody cover (%)	5		
Live native tree cover (%)	4	Live non-native tree cover (%)	0
Live native shrub cover (%)	1	Live non-native shrub cover (%)	0
Live tree cover from oaks (%)	1	Standing dead woody cover (%)	0
Number oaks >15 in DBH	5		
Number of large trees (>40 in DBH)	4		
Species of large trees	incense cedar ( <i>Calocedrus decurrens</i> ), Douglas-fir ( <i>Pseudotsuga menziesii</i> )		
Average Van Pelt score	2/3 (70-160 years)		
Woody species encroaching on prairie habitat*+	Poison oak ( <i>Toxicodendron diversilobum</i> )*, incense cedar ( <i>Calocedrus decurrens</i> ), Himalayan blackberry ( <i>Rubus bifrons</i> )*, Scotch broom ( <i>Cytisus scoparius</i> )*		
Would removal of encroaching woody species result in the need for wood to be hauled off-site?	Yes		
Woody species notes	Incense cedar ( <i>Calocedrus decurrens</i> ) is actively establishing in the meadow and along the forest edges. If large incense cedars within the meadow are cut, they should be removed from the area.		

\*Woody species of management concern from the *Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington*.

+ Woody species of management concern that exceed 5% cover of the site.

Herbaceous non-native species	
Herbaceous non-native cover (%)	93
Most common non-native species	Ripgut brome ( <i>Bromus diandrus</i> ), cheatgrass ( <i>Bromus tectorum</i> ), bristly dogstail grass ( <i>Cynosurus echinatus</i> ), hairy cat's ear ( <i>Hypochaeris radicata</i> ), smooth cat's ear ( <i>Hypochaeris glabra</i> ), annual fescue ( <i>Vulpia</i> sp.)

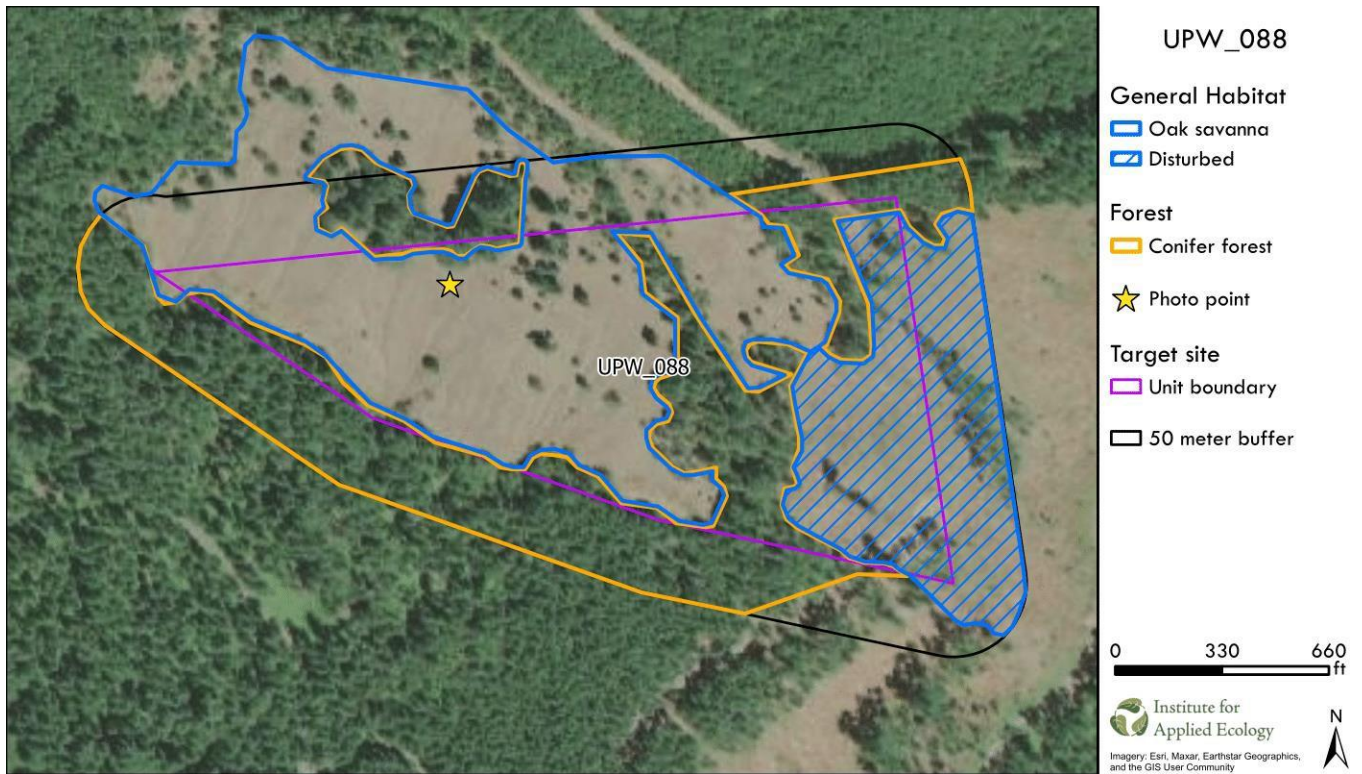
Herbaceous native species	
Herbaceous native cover (%)	7
Most common native species	Roemer's fescue ( <i>Festuca roemerii</i> ), seep monkeyflower ( <i>Mimulus guttatus</i> ), smallhead clover ( <i>Trifolium microcephalum</i> ), Lemmon's needlegrass ( <i>Achnatherum lemmonii</i> ), clarkia ( <i>Clarkia</i> sp.), American wild carrot ( <i>Daucus pusillus</i> ), hairy Indian paintbrush ( <i>Castilleja tenuis</i> ), attenuate Indian paintbrush ( <i>Castilleja attenuata</i> )
Relevé survey?	No
T&E species present?	No
Seed collection potential?	Common yarrow ( <i>Achillea millefolium</i> ), Tolmie star-tulip ( <i>Calochortus tolmiei</i> ), Roemer's fescue ( <i>Festuca roemerii</i> ), western buttercup ( <i>Ranunculus occidentalis</i> ), common woolly sunflower ( <i>Eriophyllum lanatum</i> ), seep monkeyflower ( <i>Mimulus guttatus</i> ), shortspur seablush ( <i>Plectritis congesta</i> ), California poppy ( <i>Eschscholzia californica</i> ), wholeleaf saxifrage ( <i>Micranthes integrifolia</i> ), American wild carrot ( <i>Daucus pusillus</i> ), smallhead clover ( <i>Trifolium microcephalum</i> ), tomcat

	clover ( <i>Trifolium willdenovii</i> ), Lemmon's needlegrass ( <i>Achnatherum lemmonii</i> ), common lomatium ( <i>Lomatium utriculatum</i> ), hairy Indian paintbrush ( <i>Castilleja tenuis</i> ), attenuate Indian paintbrush ( <i>Castilleja attenuata</i> ), prairie Junegrass ( <i>Koeleria macrantha</i> ), blue wildrye ( <i>Elymus glaucus</i> )
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<b>Wildlife</b>	
Wildlife species of interest observed	None

<b>Preliminary habitat restoration/management recommendations</b>	
Overall ranking as a priority for restoration (high, moderate, or low)	High
Short-term recommended actions	Remove incense cedars ( <i>Calocedrus decurrens</i> ) encroaching on meadow habitat. Pull poison oak ( <i>Toxicodendron diversilobum</i> ), Himalayan blackberry ( <i>Rubus bifrons</i> ), and Scotch broom ( <i>Cytisus scoparius</i> ) patches. Release oaks from conifer and shrub suppression.
Long-term recommended actions	Treat non-native grasses. Clear trees bisecting habitat areas. Consider communicating with landowner to north of site to conserve continuous habitat. Augment meadow habitat with additional native forb species and amplify native bunchgrasses. Implement prescribed burning.
Site accessibility issues	The site may be accessible via a logging road to the northeast. Otherwise, the site is accessible from the south up a steep hill.

<b>Modified prairie habitat quality summary (USFWS 2010)</b>				
<b>Oak habitat criteria</b>		<b>Data</b>	<b>Objective</b>	<b>Meets objectives?</b>
Oaks present?		Yes	Yes	Yes
Number of oaks greater than 15 inches DBH?		5	≥1	Yes
<b>Prairie habitat criteria</b>		<b>Data</b>	<b>Recovery Plan threshold</b>	<b>Meets threshold?</b>
Native herbaceous species cover (%)		7	50% min	No
Woody species cover (%)		5	15% max	Yes
Does any one woody species of management concern exceed 5% cover?		No	5% max	Yes
Prairie diversity	Native forb richness	N/A	7	No Data
	Native bunchgrass richness	N/A	1	No Data
	Total native herbaceous species richness	N/A	>10	No Data
Do any non-native species exceed 50% cover within the relevé plot?		N/A	50%	No Data
Do any non-native species of particular concern exceed 5% cover?		N/A	5%	No Data



**Figure H-43.** Overview of UPW\_088 with habitat, forested buffer areas, and photopoint location.



**Figure H-44.** Oaks, large trees, pines, and wildlife observed, if applicable.

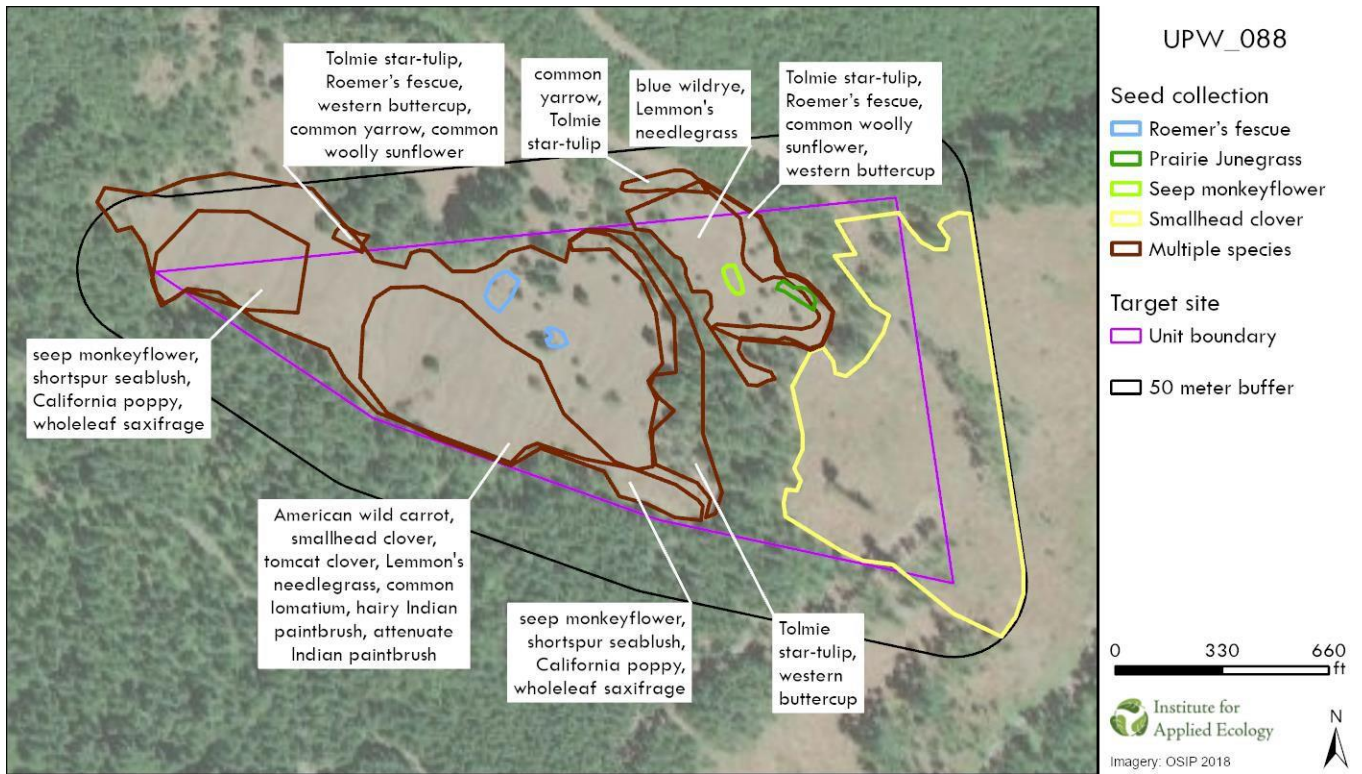


Figure H-45. Seed collection species observed.

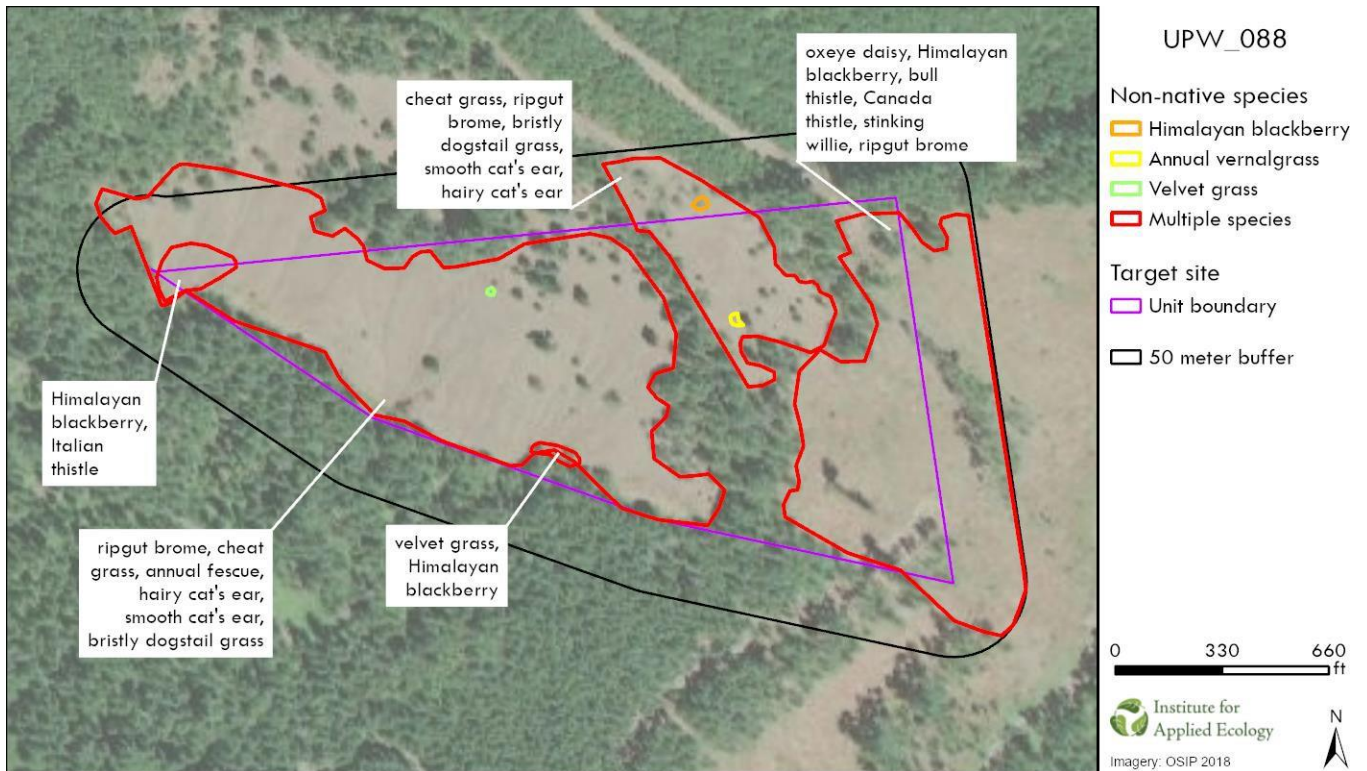
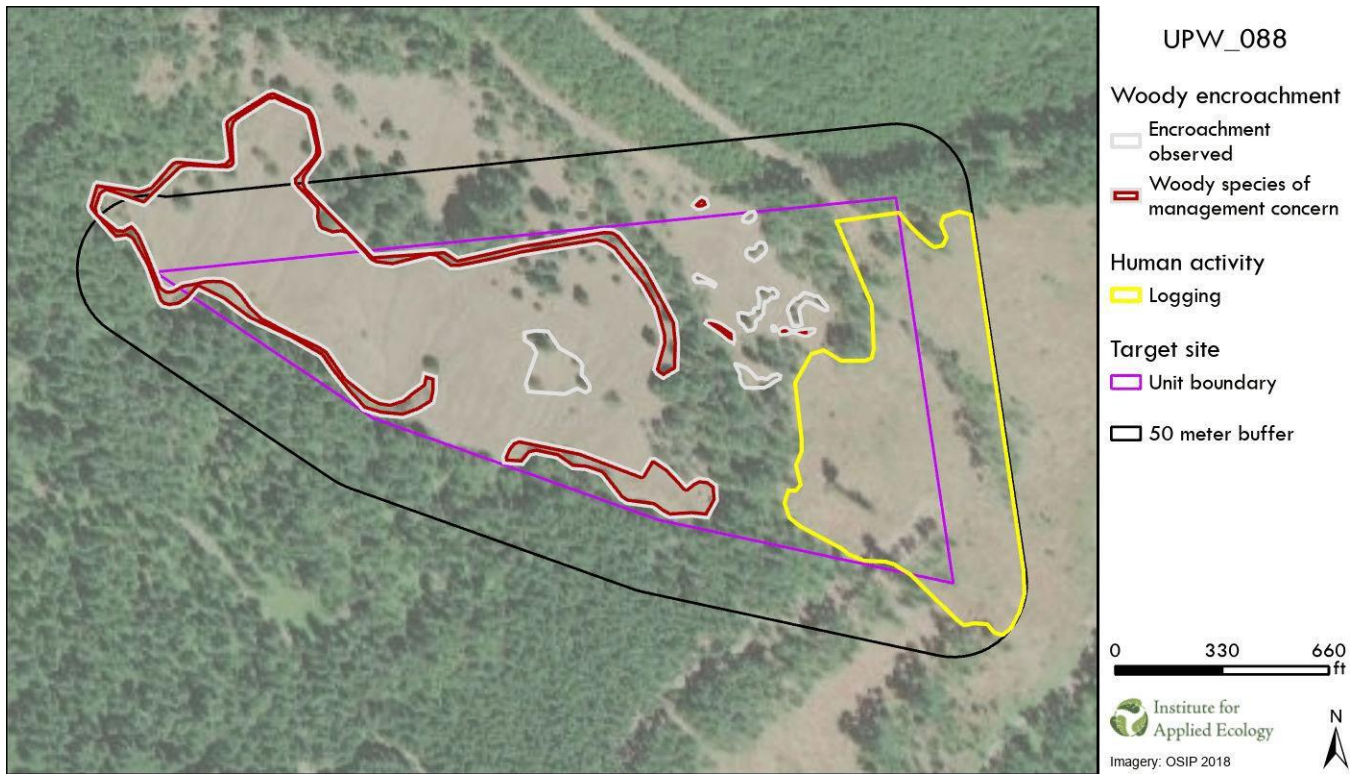
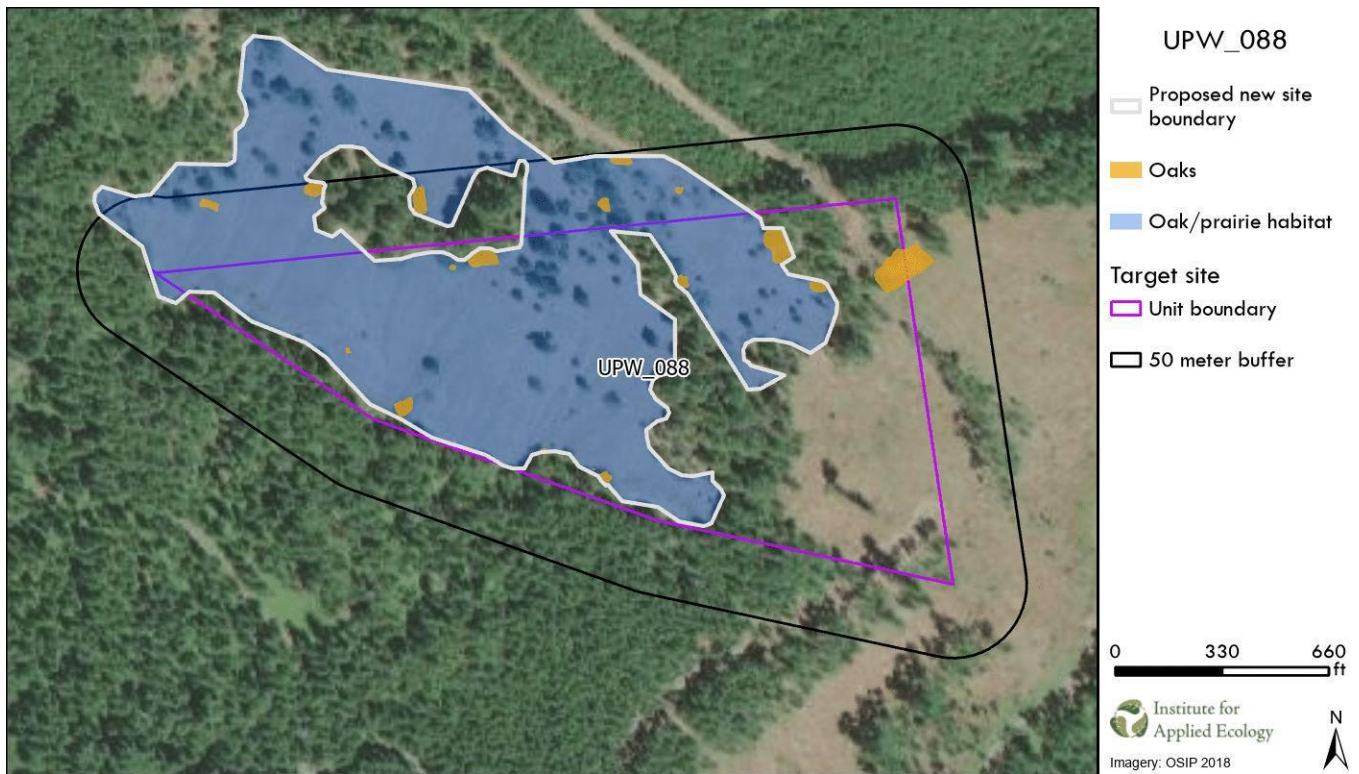


Figure H-46. Non-native species observed.



**Figure H-47.** Woody encroachment and human activity observed. Woody species of management concern observed in 2022 were poison oak, Himalayan blackberry, and Scotch broom.



**Figure H-48.** Recommended changes to the unit boundary based on habitat and/or oaks present.



North:



East:



South:



West:



**Figure H-49.** UPW\_088 photopoints taken at -122.954677, 43.808391.

## KLOSTER MOUNTAIN

### UPW\_052

General site information	
Date surveyed	6/1/2022
Observers (affiliation)	Annamarie Pfeifer, Annie Lamas, Zade Clark-Henry (IAE)
Unit ID	UPW_052
Site name	Middle Creek
BLM Field Office	Upper Willamette
County	Lane
Township, Range, Section	T20S, R01W, Sec05
Recovery zone (USFWS 2010)	Eugene East
Land ownership	BLM, Northwest Oregon District
Contact person and contact information	Chad Conklin cconklin@blm.gov, 541-683-6120 (office), 541-517-0631 (cell)
Directions	Follow BLM 19-1-33.0 to the south of the site. Park on the road. Access requires a short uphill hike to the site, roughly a quarter mile.
Photopoint coordinates	-122.844368, 43.865865

Habitat overview	
Unit area (acres)	2.50
Prairie and/or oak habitat present?	Yes
Habitat type (special habitat)	Oak savanna (dry meadow)
Habitat type notes	Dry meadow with some very wet seep areas.
Slope (degrees)	15
Aspect	SW
Elevation (feet)	1820
What maintains site openness?	Fire disturbance, hydrology, soils
Evidence of human disturbance	No
Type of site	Open area surrounded by forest
Buffer or forested area description	Buffer is a second growth forest dominated by Douglas-fir ( <i>Pseudotsuga menziesii</i> ).
Do remnant oak or prairie species exist in the buffer or forested areas?	Yes
Remnant oak or prairie species observed (Alverson 2010)	Pacific hound's tongue ( <i>Cynoglossum grande</i> ), toughleaf iris ( <i>Iris tenax</i> ), California fescue ( <i>Festuca californica</i> ), Oregon white oak ( <i>Quercus garryana</i> )

Woody species			
Overall live woody cover (%)	10		
Live native tree cover (%)	3	Live non-native tree cover (%)	0
Live native shrub cover (%)	7	Live non-native shrub cover (%)	0
Live tree cover from oaks (%)	3	Standing dead woody cover (%)	0
Number oaks >15 in DBH	2		
Number of large trees (>40 in DBH)	10		

Species of large trees	incense cedar ( <i>Calocedrus decurrens</i> ), Douglas-fir ( <i>Pseudotsuga menziesii</i> )
Average Van Pelt score	<2 (35-80 years)
Woody species encroaching on prairie habitat*+	Poison oak ( <i>Toxicodendron diversilobum</i> ) <sup>+</sup> , oceanspray ( <i>Holodiscus discolor</i> )
Would removal of encroaching woody species result in the need for wood to be hauled off-site?	No
Woody species notes	Incense cedar ( <i>Calocedrus decurrens</i> ) is also encroaching on the habitat.

\*Woody species of management concern from the *Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington*.

+ Woody species of management concern that exceed 5% cover of the site.

Herbaceous non-native species	
Herbaceous non-native cover (%)	75
Most common non-native species	Bristly dogstail grass ( <i>Cynosurus echinatus</i> ), ripgut brome ( <i>Bromus diandrus</i> ), smooth cat's ear ( <i>Hypochaeris glabra</i> ), soft brome ( <i>Bromus hordeaceus</i> ), annual fescue ( <i>Vulpia</i> sp.)

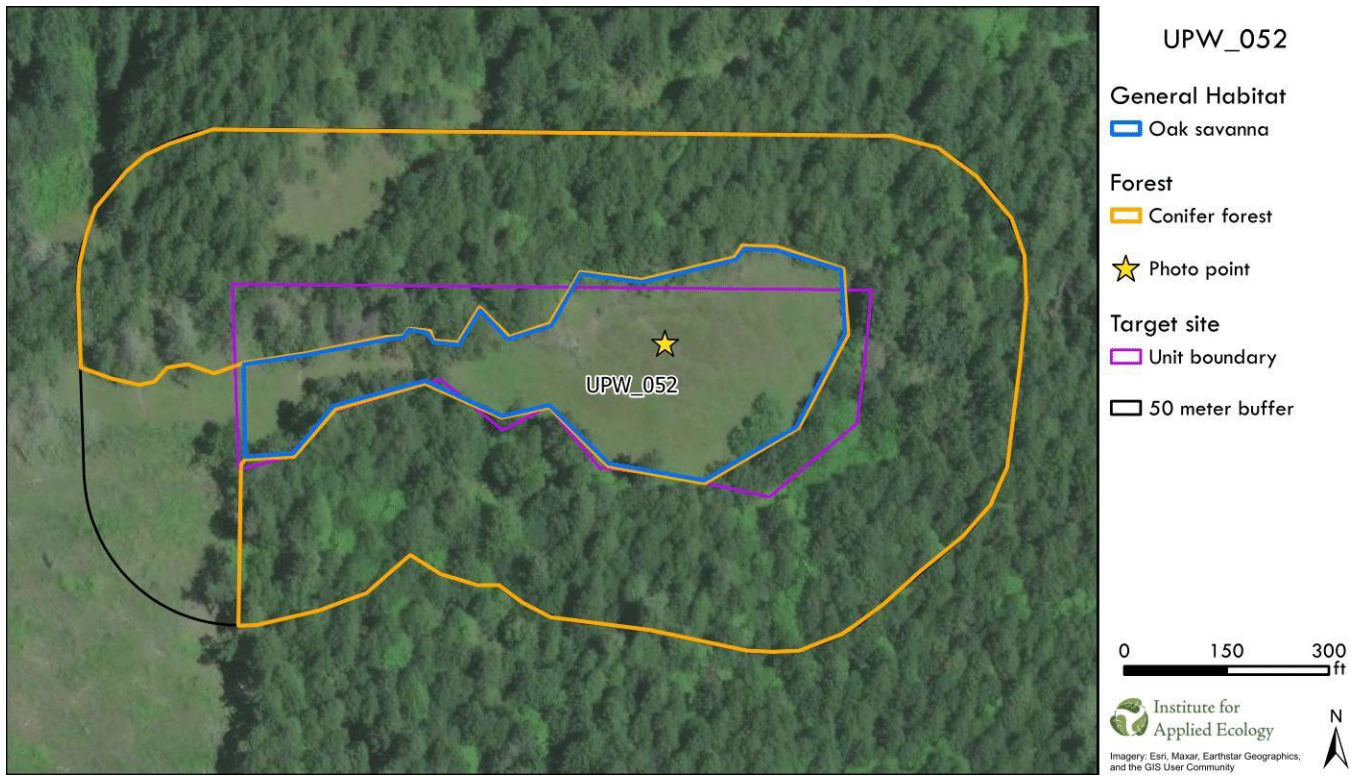
Herbaceous native species	
Herbaceous native cover (%)	25
Most common native species	Seep monkeyflower ( <i>Mimulus guttatus</i> ), tomcat clover ( <i>Trifolium willdenovii</i> ), smallhead clover ( <i>Trifolium microcephalum</i> ), common woolly sunflower ( <i>Eriophyllum lanatum</i> ), shortspur seablush ( <i>Plectritis congesta</i> )
Relevé survey?	No
T&E species present?	No
Seed collection potential?	California brome ( <i>Bromus carinatus</i> ), common lomatium ( <i>Lomatium utriculatum</i> ), common woolly sunflower ( <i>Eriophyllum lanatum</i> ), Lemmon's needlegrass ( <i>Achnatherum lemmonii</i> ), western buttercup ( <i>Ranunculus occidentalis</i> ), seep monkeyflower ( <i>Mimulus guttatus</i> ), shortspur seablush ( <i>Plectritis congesta</i> ), tomcat clover ( <i>Trifolium willdenovii</i> ), smallhead clover ( <i>Trifolium microcephalum</i> ), grassy tarweed ( <i>Madia gracilis</i> ), blue wildrye ( <i>Elymus glaucus</i> ), death camas ( <i>Toxicoscordion venenosum</i> ), Tolmie star-tulip ( <i>Calochortus tolmiei</i> ), whitetip clover ( <i>Trifolium variegatum</i> )
Herbaceous native species notes	Relatively high native cover and diversity observed.

Wildlife	
Wildlife species of interest observed	None

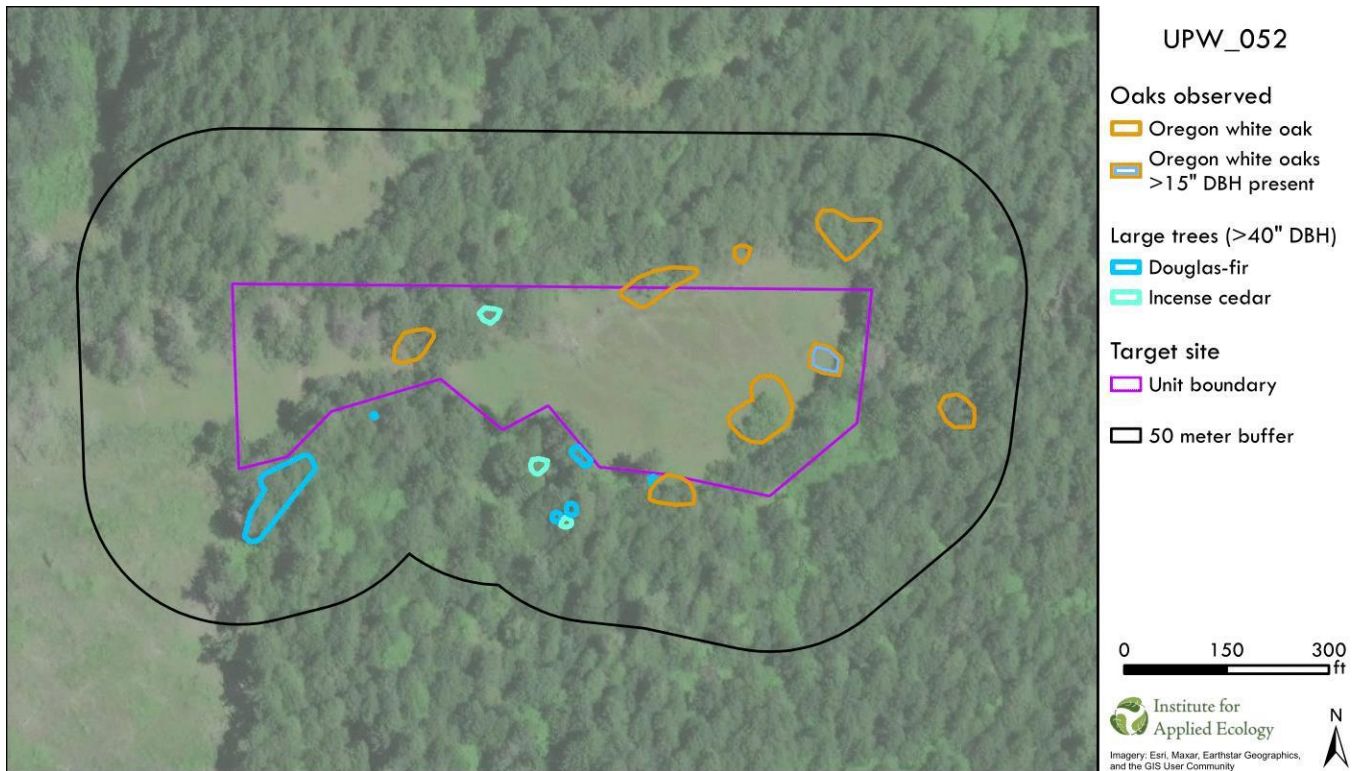
Preliminary habitat restoration/management recommendations	
Overall ranking as a priority for restoration (high, moderate, or low)	Moderate
Short-term recommended actions	Pull poison oak ( <i>Toxicodendron diversilobum</i> ) and incense cedar ( <i>Calocedrus decurrens</i> ) encroaching into the meadow. Cut back Douglas-fir ( <i>Pseudotsuga menziesii</i> ) to release oaks. Pull patches of

	Italian thistle ( <i>Carduus pycnocephalus</i> ) in the southern part of the meadow.
Long-term recommended actions	Treat annual grasses.
Site accessibility issues	Unless the site is accessible via the private logging road to the west of the site, heavy machinery is not recommended for site restoration.
Restoration action notes	Several thistle species are present, and some may be native. A relevé was not completed because most of the diversity was represented in the seed collection and non-native layers.

Modified prairie habitat quality summary (USFWS 2010)				
Oak habitat criteria		Data	Objective	Meets objectives?
Oaks present?		Yes	Yes	Yes
Number of oaks greater than 15 inches DBH?		2	≥1	Yes
Prairie habitat criteria		Data	Recovery Plan threshold	Meets threshold?
Native herbaceous species cover (%)		25	50% min	No
Woody species cover (%)		10	15% max	Yes
Does any one woody species of management concern exceed 5% cover?		Yes	5% max	No
Prairie diversity	Native forb richness	N/A	7	No Data
	Native bunchgrass richness	N/A	1	No Data
	Total native herbaceous species richness	N/A	>10	No Data
Do any non-native species exceed 50% cover within the relevé plot?		N/A	50%	No Data
Do any non-native species of particular concern exceed 5% cover?		N/A	5%	No Data



**Figure H-50.** Overview of UPW\_052 with habitat, forested buffer areas, and photopoint location.



**Figure H-51.** Oaks, large trees, pines, and wildlife observed, if applicable.

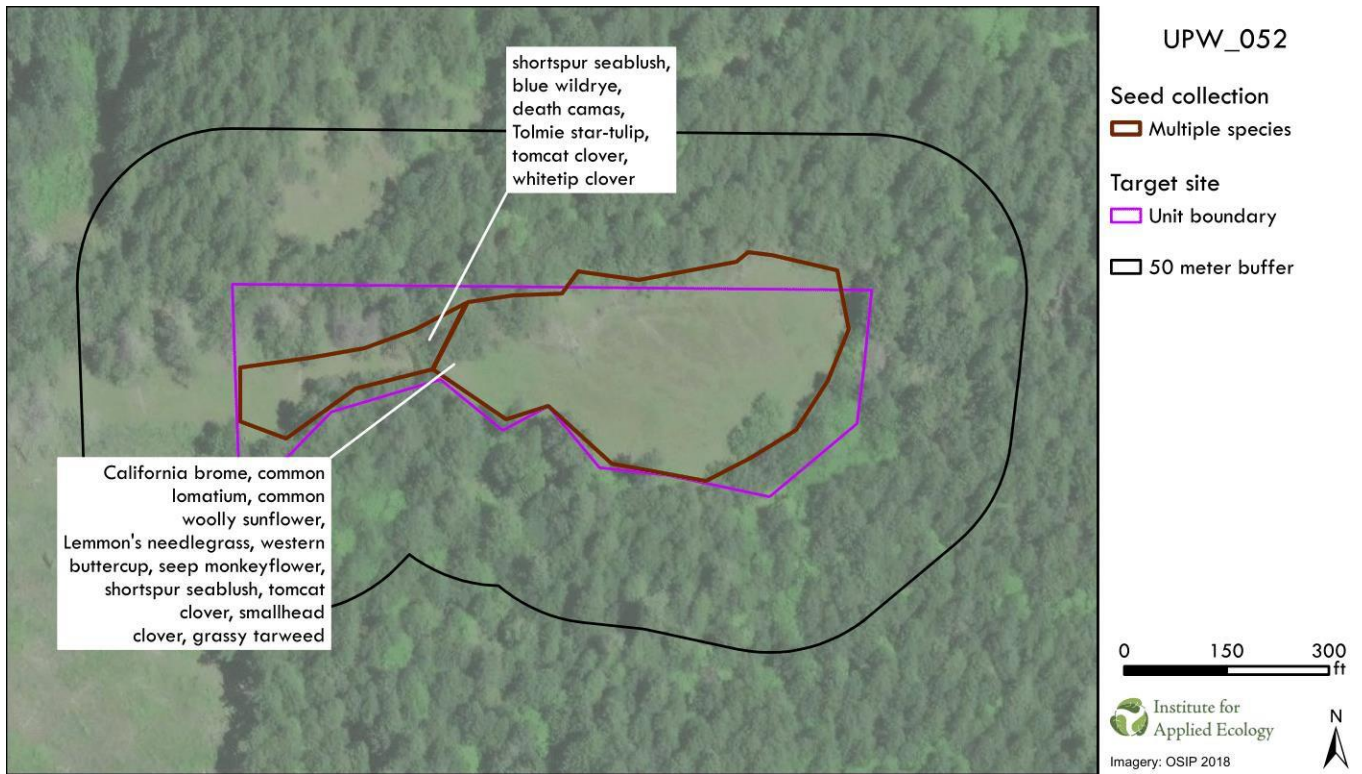


Figure H-52. Seed collection species observed.

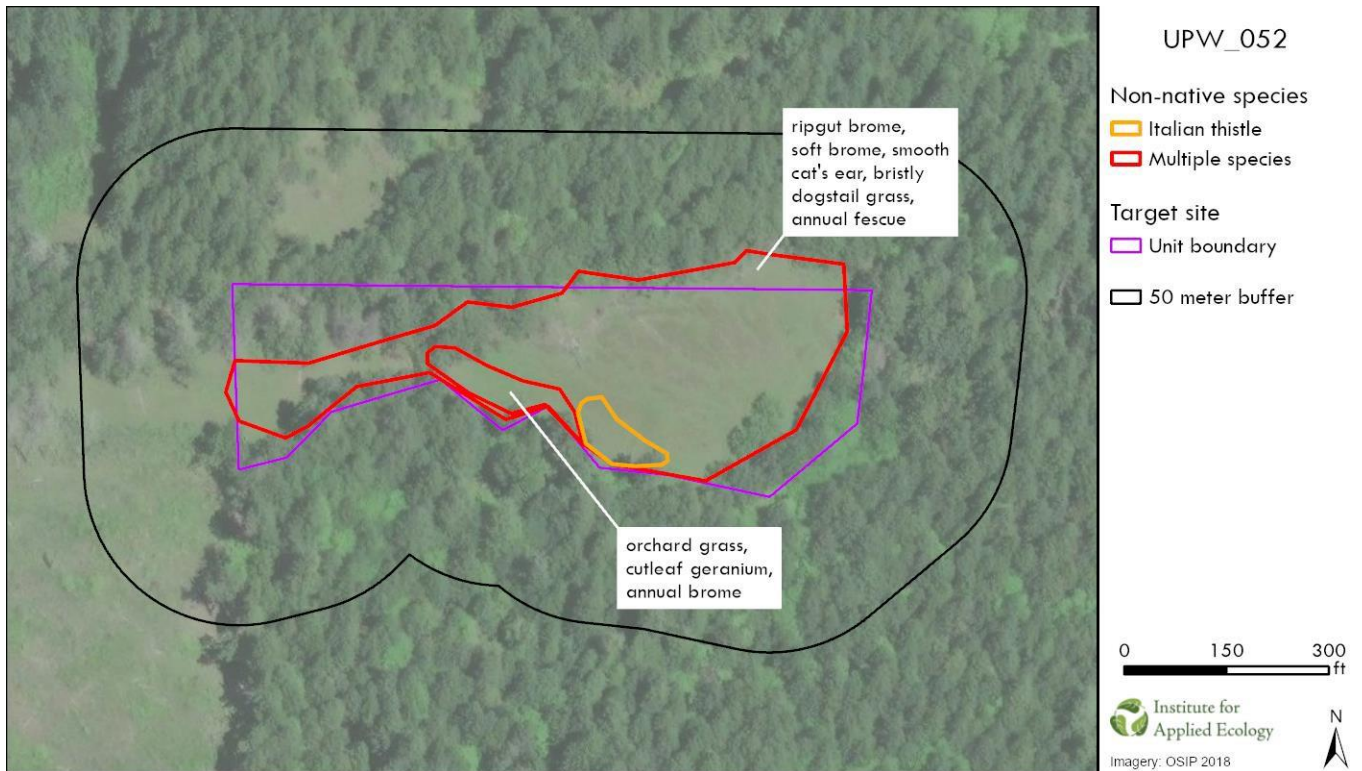
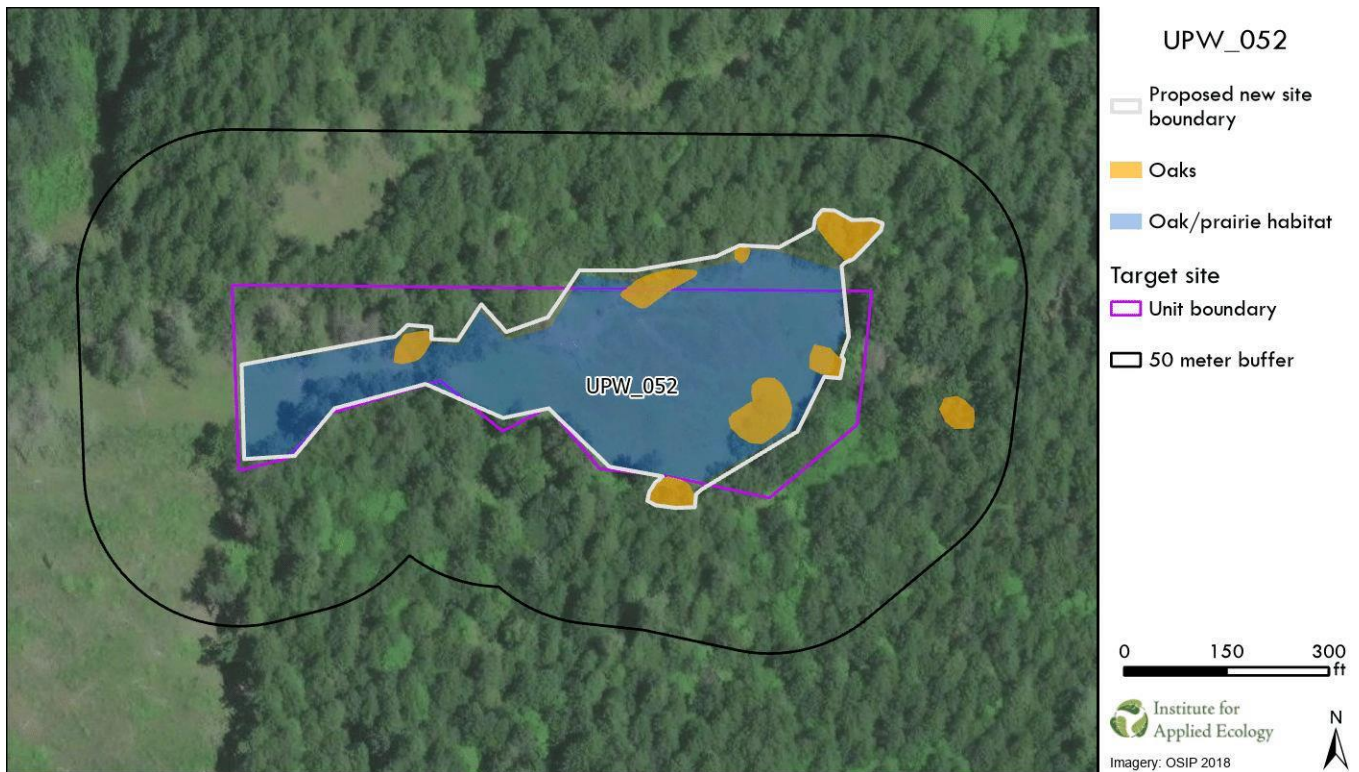


Figure H-53. Non-native species observed.



**Figure H-54.** Woody encroachment and human activity observed. Woody species of management concern observed in 2022 was poison oak.



**Figure H-55.** Recommended changes to the unit boundary based on habitat and/or oaks present.

North:



East:



South:



West:



**Figure H-56.** UPW\_052 photopoints taken at -122.844368, 43.865865.



## UPW\_053

General site information	
Date surveyed	6/6/2022
Observers (affiliation)	Annamarie Pfeifer, Annie Lamas, Zade Clark-Henry (IAE)
Unit ID	UPW_053
Site name	Middle Creek
BLM Field Office	Upper Willamette
County	Lane
Township, Range, Section	T20S, R01W, Sec05
Recovery zone (USFWS 2010)	Eugene East
Land ownership	BLM, Northwest Oregon District
Contact person and contact information	Chad Conklin cconklin@blm.gov, 541-683-6120 (office), 541-517-0631 (cell)
Directions	Follow BLM 19-1-33.0 to just south of site. Short hike through steep conifer forest.
Photopoint coordinates	-122.834002, 43.863493

Habitat overview	
Unit area (acres)	4.68
Prairie and/or oak habitat present?	Yes
Habitat type (special habitat)	Oak savanna, rock meadow, shrubland (dry meadow, cliff)
Habitat type notes	The western and center meadows are oak savanna/dry meadow, dominated primarily by herbaceous species. The eastern meadow is much rockier, with a relatively high cover of woody shrubs and sparse herbaceous vegetation.
Slope (degrees)	30
Aspect	SSE
Elevation (feet)	1250
What maintains site openness?	Fire disturbance, hydrology, soils
Evidence of human disturbance	No
Type of site	Open area surrounded by forest
Buffer or forested area description	Buffer is a second growth forest dominated by Douglas-fir ( <i>Pseudotsuga menziesii</i> ).
Do remnant oak or prairie species exist in the buffer or forested areas?	Yes
Remnant oak or prairie species observed (Alverson 2010)	Pacific hound's tongue ( <i>Cynoglossum grande</i> ), woodland strawberry ( <i>Fragaria vesca</i> ), forest scurfpea ( <i>Rupertia physodes</i> ), snowqueen ( <i>Synthyris reniformis</i> )
General notes	This site is divided into three meadows along a south-facing slope, separated by Douglas-fir ( <i>Pseudotsuga menziesii</i> ) stands and bound by dense oak patches. The habitat and species composition varies somewhat per meadow.

Woody species			
Overall live woody cover (%)	25		
Live native tree cover (%)	15	Live non-native tree cover (%)	0

Live native shrub cover (%)	10	Live non-native shrub cover (%)	0
Live tree cover from oaks (%)	12	Standing dead woody cover (%)	0
Number oaks >15 in DBH	2		
Number of large trees (>40 in DBH)	11		
Species of large trees	Douglas-fir ( <i>Pseudotsuga menziesii</i> )		
Average Van Pelt score	2/3 (70-160 years)		
Woody species encroaching on prairie habitat*+	Poison oak ( <i>Toxicodendron diversilobum</i> ) <sup>+</sup> , oceanspray ( <i>Holodiscus discolor</i> ), serviceberry ( <i>Amelanchier alnifolia</i> ), incense cedar ( <i>Calocedrus decurrens</i> )		
Would removal of encroaching woody species result in the need for wood to be hauled off-site?	No		
Woody species notes	Each meadow is being encroached by poison oak ( <i>Toxicodendron diversilobum</i> ) from the forest edges. The eastern meadow is dominated by woody vegetation, primarily oaks and poison oak.		

\*Woody species of management concern from the *Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington*.

+ Woody species of management concern that exceed 5% cover of the site.

Herbaceous non-native species	
Herbaceous non-native cover (%)	80
Most common non-native species	Bristly dogstail grass ( <i>Cynosurus echinatus</i> ), ripgut brome ( <i>Bromus diandrus</i> ), annual fescue ( <i>Vulpia</i> sp.), smooth hawksbeard ( <i>Crepis capillaris</i> ), Italian ryegrass ( <i>Lolium multiflorum</i> )
Herbaceous non-native species notes	Medusahead grass ( <i>Taeniatherum caput-medusae</i> ) is present in the center meadow in two dense patches.

Herbaceous native species	
Herbaceous native cover (%)	20
Most common native species	Clarkia ( <i>Clarkia</i> sp.), common woolly sunflower ( <i>Eriophyllum lanatum</i> ), blue wildrye ( <i>Elymus glaucus</i> ), Tolmie star-tulip ( <i>Calochortus tolmiei</i> ), smallhead clover ( <i>Trifolium microcephalum</i> )
Relevé survey?	Yes (see <a href="#">Table H-3</a> )
T&E species present?	No
Seed collection potential?	Common woolly sunflower ( <i>Eriophyllum lanatum</i> ), smallhead clover ( <i>Trifolium microcephalum</i> ), smallflower bird's-foot trefoil ( <i>Acmispon parviflorus</i> ), American wild carrot ( <i>Daucus pusillus</i> ), tomcat clover ( <i>Trifolium willdenovii</i> ), Common lomatium ( <i>Lomatium utriculatum</i> ), California oatgrass ( <i>Danthonia californica</i> ), Tolmie star-tulip ( <i>Calochortus tolmiei</i> ), Lemmon's needlegrass ( <i>Achnatherum lemmonii</i> ), shortspur seablush ( <i>Plectritis congesta</i> ), western buttercup ( <i>Ranunculus occidentalis</i> ), blue wildrye ( <i>Elymus glaucus</i> ), common yarrow ( <i>Achillea millefolium</i> ), prairie Junegrass ( <i>Koeleria macrantha</i> ), Menzies' larkspur ( <i>Delphinium menziesii</i> ), goldback fern ( <i>Pentagramma triangularis</i> ), California brome ( <i>Bromus carinatus</i> ), maiden blue eyed Mary ( <i>Collinsia parviflora</i> ), grassy tarweed ( <i>Madia gracilis</i> ), ookow ( <i>Dichelostemma congestum</i> ), common madia ( <i>Madia elegans</i> )

Wildlife	
Wildlife species of interest observed	None

Preliminary habitat restoration/management recommendations	
Overall ranking as a priority for restoration (high, moderate, or low)	High
Short-term recommended actions	Pull the poison oak ( <i>Toxicodendron diversilobum</i> ) encroaching on the open meadow habitat. Cut and remove the small conifers from the meadow.
Long-term recommended actions	Treat the non-native grasses and forbs. Implement prescribed burns to maintain openness and support fire-dependent species. Seed additional native species to supplement existing populations. Create corridors through conifer stands separating meadow habitats to increase connectivity.
Site accessibility issues	This site is directly adjacent to the road but requires a short hike up a steep hill through the road. The site overall is relatively steep with loose, shallow soils. Heavy machinery is not recommended for restoration activities.

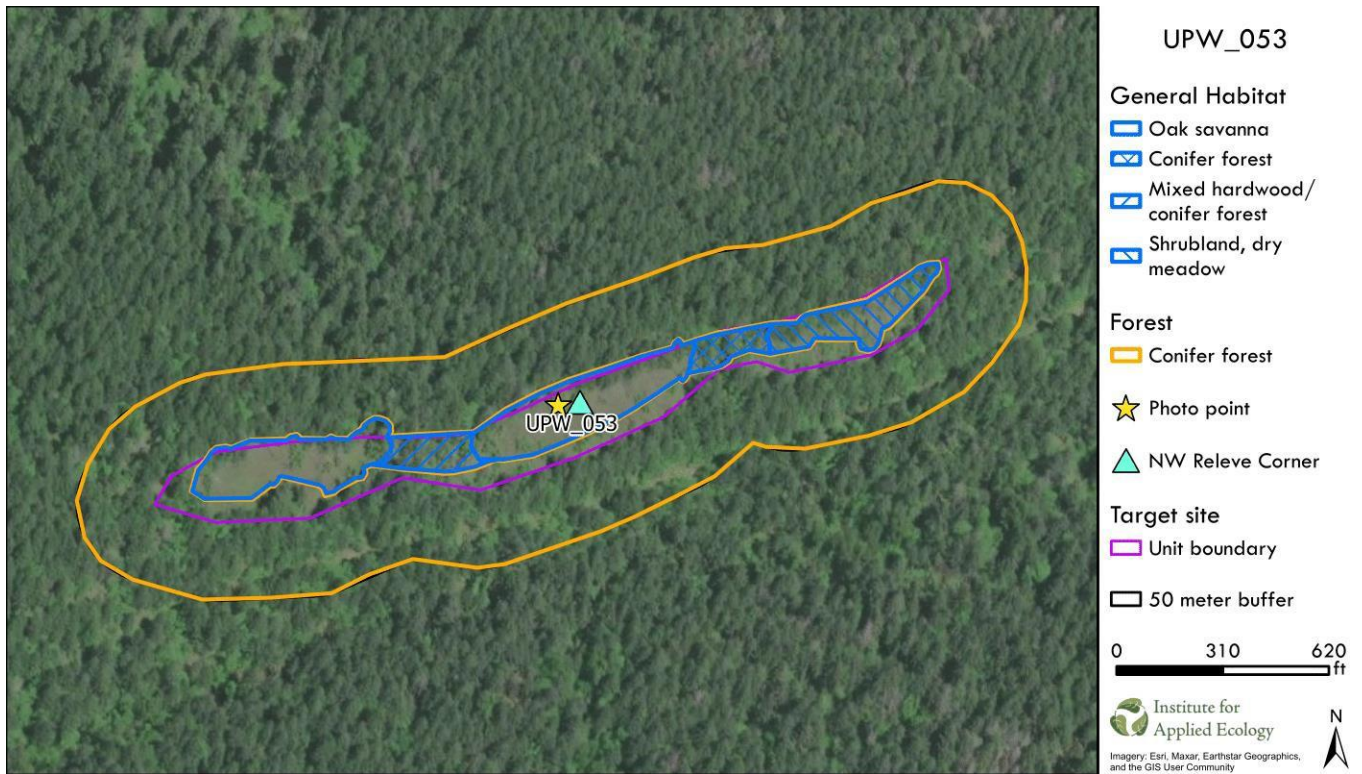
Modified prairie habitat quality summary (USFWS 2010)			
Oak habitat criteria	Data	Objective	Meets objectives?
Oaks present?	Yes	Yes	Yes
Number of oaks greater than 15 inches DBH?	2	≥1	Yes
Prairie habitat criteria	Data	Recovery Plan threshold	Meets threshold?
Native herbaceous species cover (%)	20	50% min	No
Woody species cover (%)	25	15% max	No
Does any one woody species of management concern exceed 5% cover?	Yes	5% max	No
Prairie diversity	Native forb richness	7	Yes
	Native bunchgrass richness	1	Yes
	Total native herbaceous species richness	>10	Yes
Do any non-native species exceed 50% cover within the relevé plot?	No	50%	Yes
Do any non-native species of particular concern exceed 5% cover?	No	5%	Yes

**Table H-3.** Relevé survey data. Braun-Blanquet cover scale: R = <5% and single individual, + = <5% and 2-20 individuals, 1 = <5% many individuals, 2 = 5-25%, 3 = 25-50%, 4 = 50-75%, 5 = 75-100%. The origin was listed as “unknown” for plants that were not identified to species and that have both native and non-native species in their genus.

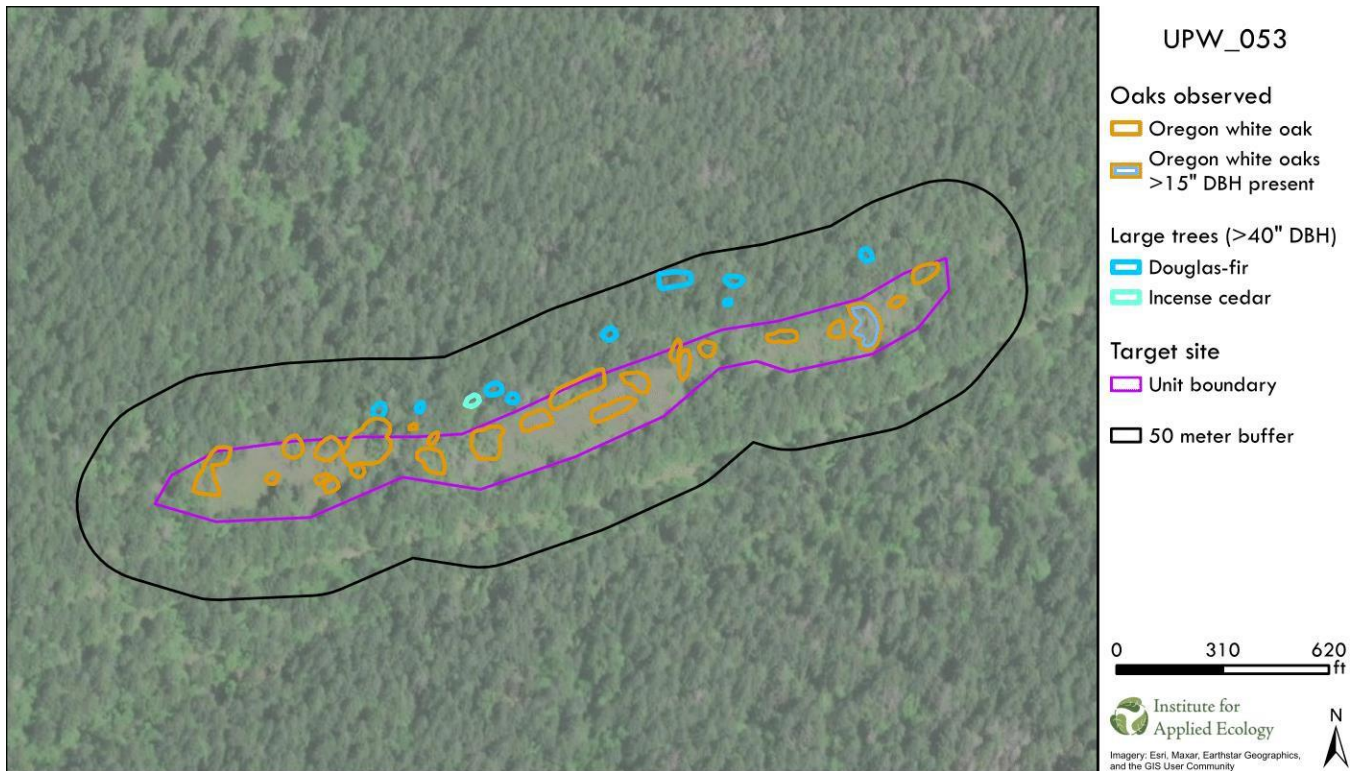
Relevé data for UPW_053			
Scientific name	Common name	Origin	Braun-Blanquet cover score
<i>Toxicodendron diversilobum</i>	poison oak	Native	+
<i>Aira caryophylllea</i>	silver hairgrass	Invasive	1
<i>Bromus diandrus</i>	ripgut brome	Invasive	1
<i>Bromus sterilis</i>	poverty brome	Invasive	1

<b>Relevé data for UPW_053</b>			
<b>Scientific name</b>	<b>Common name</b>	<b>Origin</b>	<b>Braun-Blanquet cover score</b>
<i>Cynosurus echinatus</i>	bristly dogstail grass	Invasive	2
<i>Danthonia californica</i>	California oatgrass	Native	1
<i>Elymus glaucus</i>	blue wildrye	Native	1
<i>Vulpia bromoides</i>	brome fescue	Invasive	1
<i>Achillea millefolium</i>	common yarrow	Native	1
<i>Acmispon parviflorus</i>	bird's foot trefoil	Native	1
<i>Calochortus tolmiei</i>	Tolmie star-tulip	Native	+
<i>Clarkia amoena</i>	Farewell-to-spring	Native	1
<i>Clarkia purpurea</i>	winecup clarkia	Native	1
<i>Crepis capillaris</i>	smooth hawksbeard	Invasive	1
<i>Daucus pusillus</i>	American wild carrot	Native	1
<i>Dichelostemma congestum</i>	ookow	Native	+
<i>Eriophyllum lanatum</i>	common woolly sunflower	Native	2
<i>Galium parisiense</i>	wall bedstraw	Invasive	1
<i>Geranium dissectum</i>	cutleaf geranium	Invasive	+
<i>Madia gracilis</i>	grassy tarweed	Native	2
<i>Sonchus asper</i>	spiny sowthistle	Invasive	+
<i>Torilis arvensis</i>	spreading hedgeparsley	Invasive	1
<i>Vicia sativa</i>	garden vetch	Invasive	2
<i>Trifolium willdenovii</i>	tomcat clover	Native	+
<i>Pentagramma triangularis</i>	goldback fern	Native	R
<i>Trifolium microcephalum</i>	smallhead clover	Native	1
<i>Lonicera hispidula</i>	pink honeysuckle	Native	2
<i>Arbutus menziesii</i>	Pacific Madrone	Native	1
<i>Bromus marginatus</i>	mountain brome	Native	R
<i>Parentucellia viscosa</i>	yellow glandweed	Invasive	+
<i>Vicia hirsuta</i>	tiny vetch	Invasive	1
<i>Castilleja hispida</i>	harsh Indian paintbrush	Native	1
<i>Triodanis perfoliata</i>	clasping Venus' looking-glass	Native	1

<b>Relevé substrate (%)</b>			
<b>Bare</b>	<b>Moss/Lichen</b>	<b>Rock</b>	<b>Thatch</b>
1.5	2	2.5	2



**Figure H-57.** Overview of UPW\_053 with habitat, forested buffer areas, photopoint, and relevé plot location.



**Figure H-58.** Oaks, large trees, pines, and wildlife observed, if applicable.

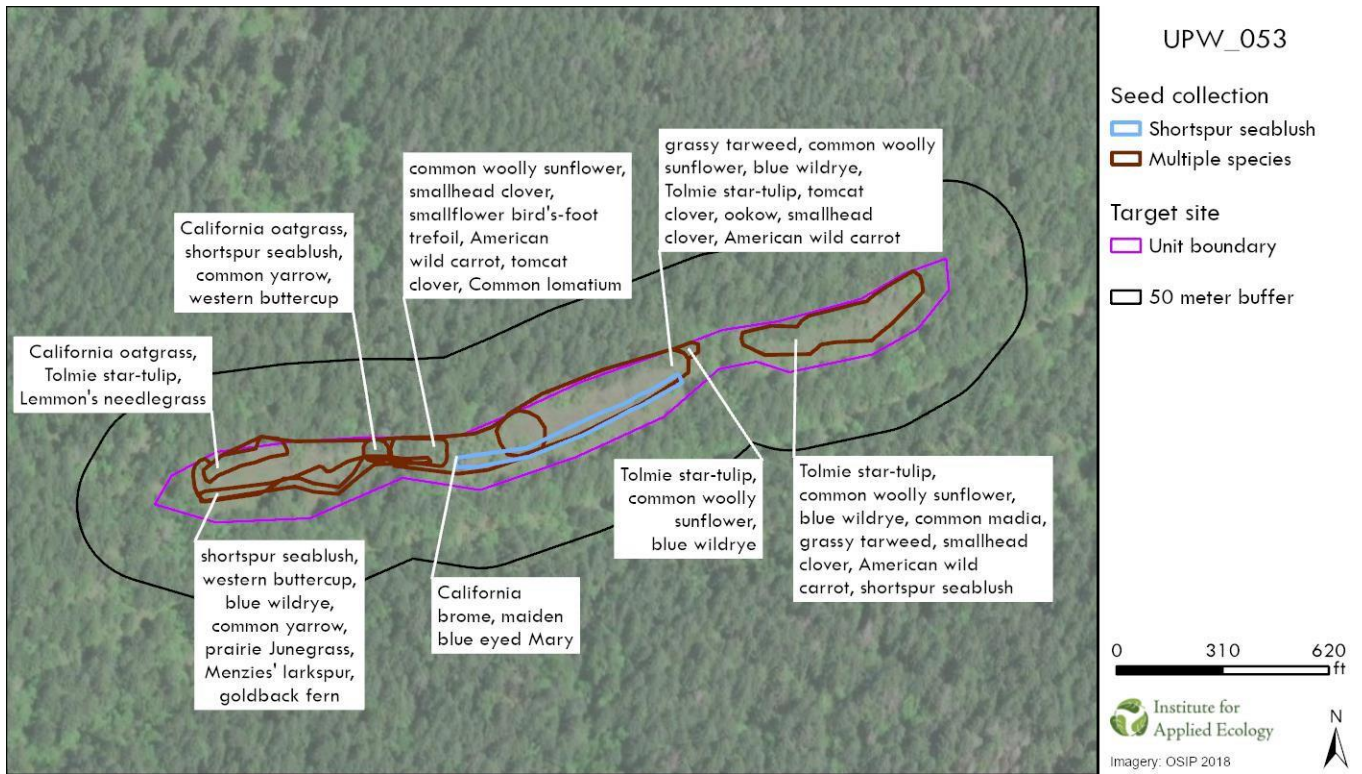


Figure H-59. Seed collection species observed.

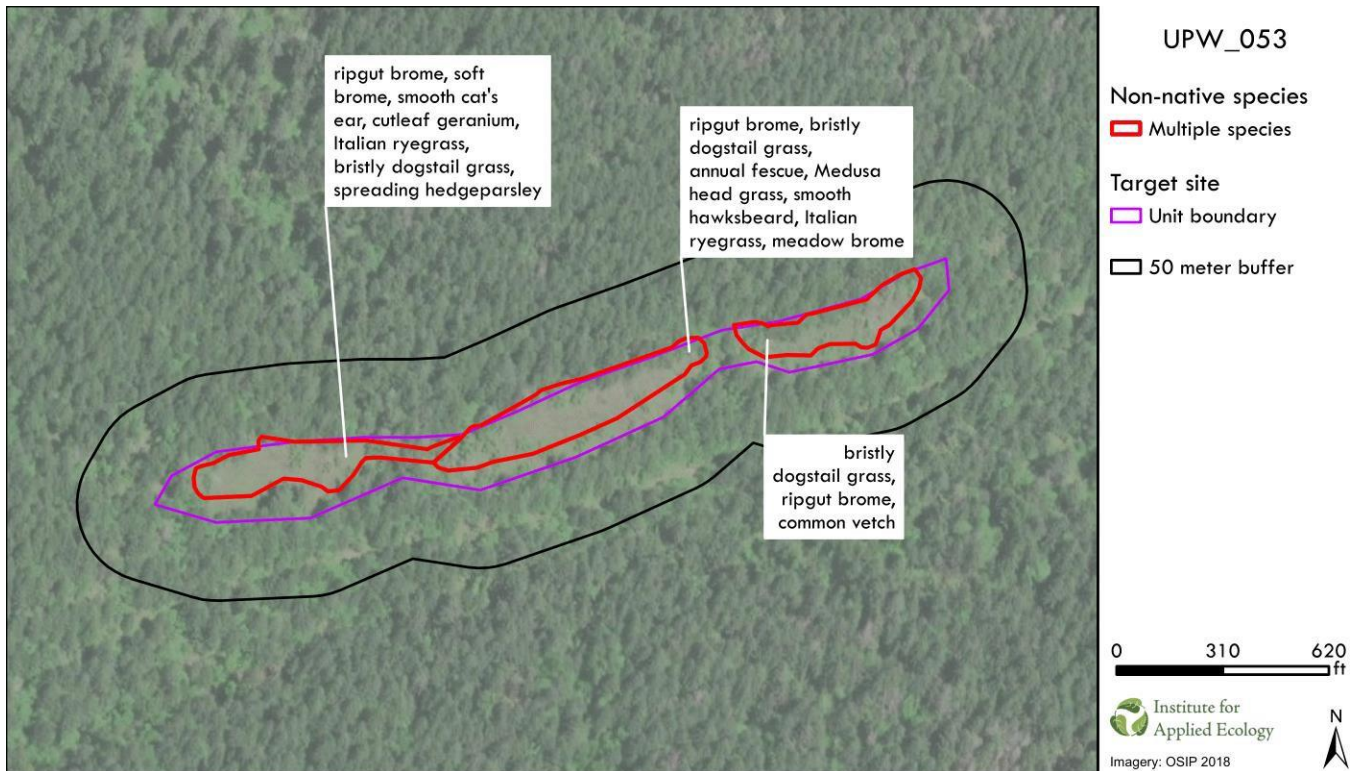


Figure H-60. Non-native species observed.



Figure H-61. Woody encroachment and human activity observed. Woody species of management concern observed in 2022 was poison oak.

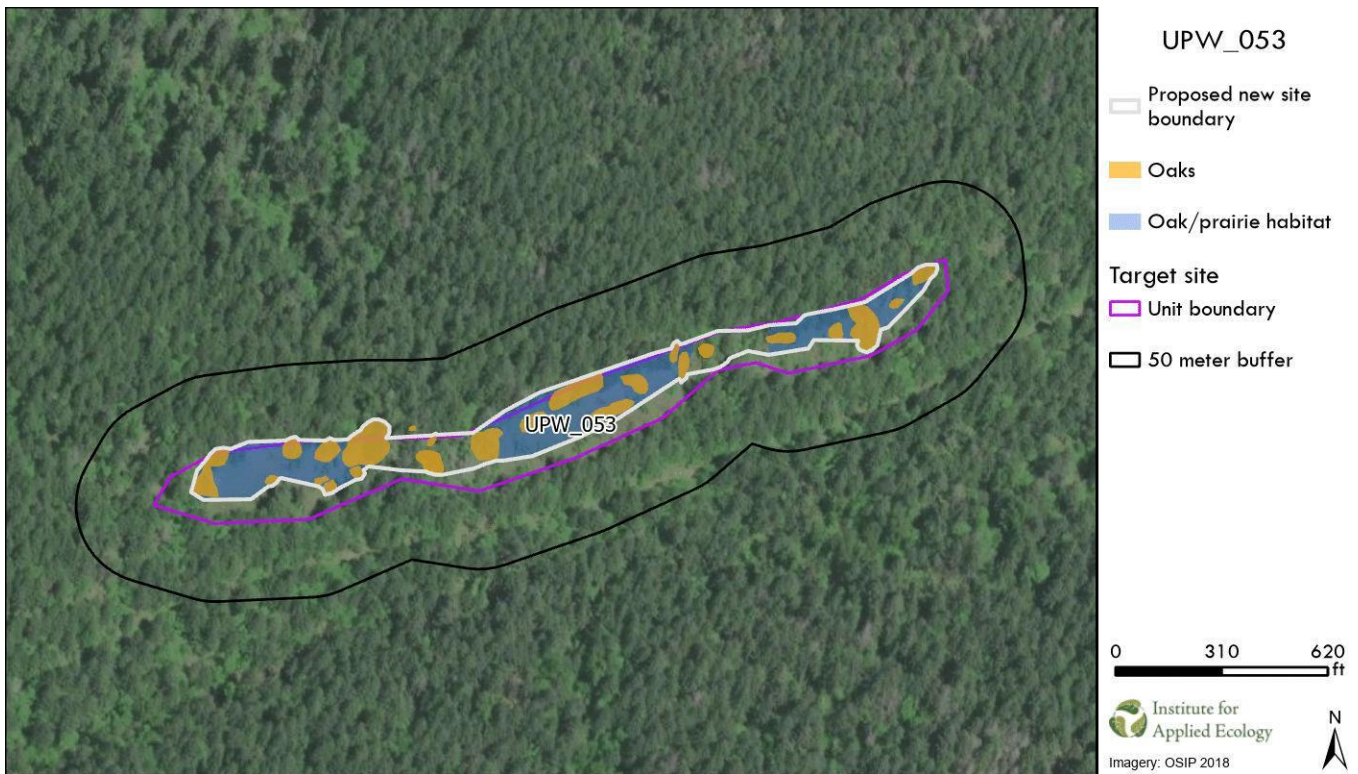


Figure H-62. Recommended changes to the unit boundary based on habitat and/or oaks present.

North:



East:



South:



West:



**Figure H-63.** UPW\_053 photopoints taken at -122.834002, 43.863493.



## UPW\_054

General site information	
Date surveyed	6/6/2022
Observers (affiliation)	Annamarie Pfeifer, Annie Lamas, Zade Clark-Henry (IAE)
Unit ID	UPW_054
Site name	Lost Creek
BLM Field Office	Upper Willamette
County	Lane
Township, Range, Section	T20S, R01W, Sec03
Recovery zone (USFWS 2010)	Eugene East
Land ownership	BLM, Northwest Oregon District
Contact person and contact information	Chad Conklin cconklin@blm.gov, 541-683-6120 (office), 541-517-0631 (cell)
Directions	Access from Eagles Rest rd. (19-1-33.1).
Photopoint coordinates	-122.799219, 43.863168

Habitat overview	
Unit area (acres)	0.46
Prairie and/or oak habitat present?	Yes
Habitat type (special habitat)	Oak woodland, shrubland (mesic meadow)
Habitat type notes	This meadow is dominated by blackberry and surrounded by oak woodland. The blackberry has been recently mowed but is actively regrowing. There is a small patch of mixed native and non-native herbaceous species, though it is dominated by non-native grass.
Slope (degrees)	4
Aspect	WSW
Elevation (feet)	910
What maintains site openness?	Hydrology, land management
Evidence of human disturbance	No
Type of site	Open area surrounded by forest
Buffer or forested area description	Buffer is a second growth forest dominated by Oregon white oak ( <i>Quercus garryana</i> ), Douglas-fir ( <i>Pseudotsuga menziesii</i> ), and Oregon ash ( <i>Fraxinus latifolia</i> ).
Do remnant oak or prairie species exist in the buffer or forested areas?	Yes
Remnant oak or prairie species observed (Alverson 2010)	Oregon white oak ( <i>Quercus garryana</i> ), toughleaf iris ( <i>Iris tenax</i> )
General notes	This is an active restoration site with Institute for Applied Ecology. A modified survey was completed to generate a partial species list for the meadow and to describe the general habitat.

Woody species			
Overall live woody cover (%)	95		
Live native tree cover (%)	0.5	Live non-native tree cover (%)	0
Live native shrub cover (%)	0.5	Live non-native shrub cover (%)	94
Live tree cover from oaks (%)	0.5	Standing dead woody cover (%)	0

Number oaks >15 in DBH	0
Woody species encroaching on prairie habitat*+	Himalayan blackberry ( <i>Rubus bifrons</i> ) <sup>+</sup> , Scotch broom ( <i>Cytisus scoparius</i> ) <sup>*</sup> , cutleaf blackberry ( <i>Rubus laciniatus</i> ) <sup>*</sup>
Would removal of encroaching woody species result in the need for wood to be hauled off-site?	No

\*Woody species of management concern from the *Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington*.

+ Woody species of management concern that exceed 5% cover of the site.

Herbaceous non-native species	
Herbaceous non-native cover (%)	98
Most common non-native species	Orchard grass ( <i>Dactylis glomerata</i> ), oxeye daisy ( <i>Leucanthemum vulgare</i> ), Queen Anne's lace ( <i>Daucus carota</i> ), St. John's wort ( <i>Hypericum perforatum</i> ), bluegrass ( <i>Poa sp.</i> ), common vetch ( <i>Vicia sativa</i> ), tiny vetch ( <i>Vicia hirsuta</i> ), annual vernalgrass ( <i>Anthoxanthum aristatum</i> ), tall fescue ( <i>Schedonorus arundinaceus</i> )

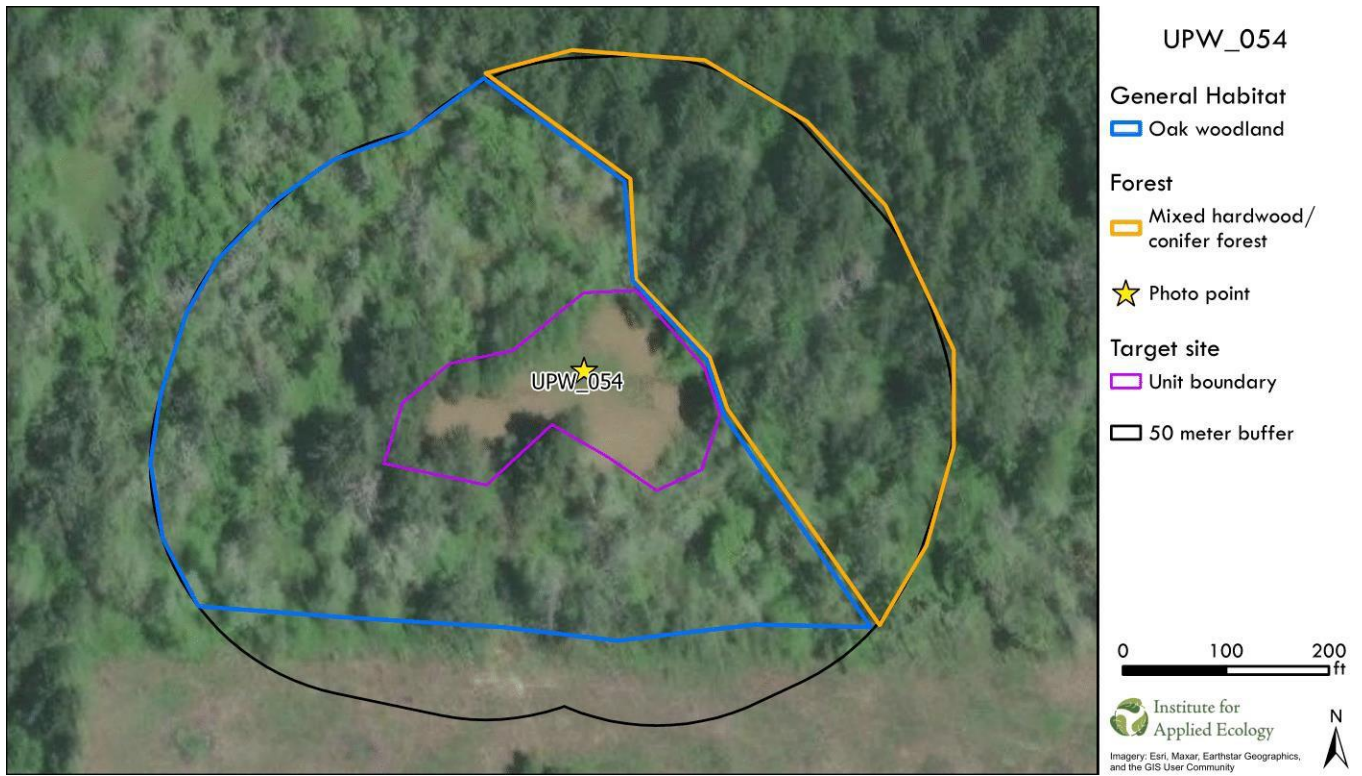
Herbaceous native species	
Herbaceous native cover (%)	2
Most common native species	Small camas ( <i>Camassia quamash</i> ), California brome ( <i>Bromus carinatus</i> ), common yarrow ( <i>Achillea millefolium</i> ), Virginia strawberry ( <i>Fragaria virginiana</i> ), stickywilly ( <i>Galium aparine</i> ), common woolly sunflower ( <i>Eriophyllum lanatum</i> ), California oatgrass ( <i>Danthonia californica</i> ), nightblooming false bindweed ( <i>Calystegia atriplicifolia</i> )
Relevé survey?	No
T&E species present?	No

Wildlife	
Wildlife species of interest observed	None

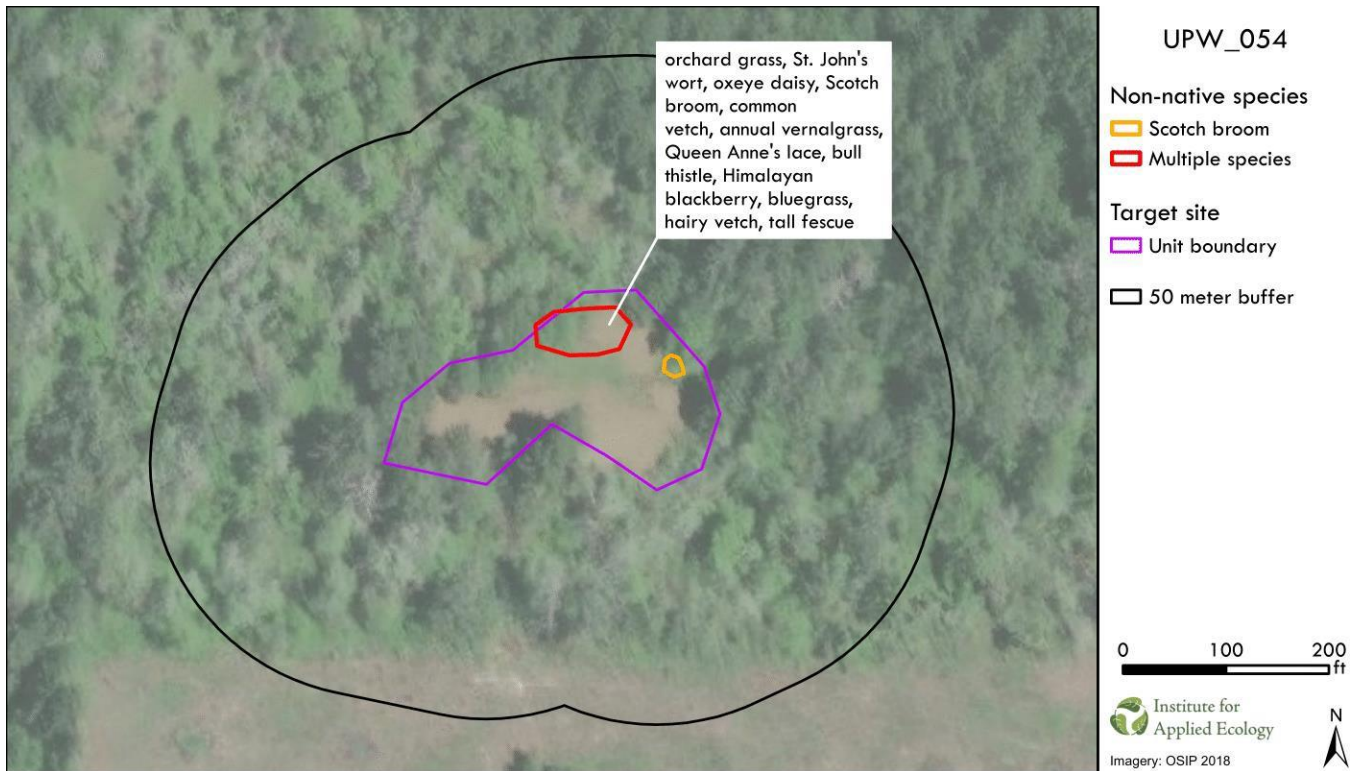
Preliminary habitat restoration/management recommendations	
Overall ranking as a priority for restoration (high, moderate, or low)	Low
Short-term recommended actions	Continue treating the blackberry in the meadow area. Continue felling conifers in the oak woodland.
Long-term recommended actions	Treat the non-native grasses and the oxeye daisy ( <i>Leucanthemum vulgare</i> ). Seed native species in the meadow.
Site accessibility issues	Hike down from Eagle's Rest Rd. to the site. Blackberry is dense throughout the forest, especially to the west of the site.
Restoration management notes	This site is undergoing active restoration management.

Modified prairie habitat quality summary (USFWS 2010)			
Oak habitat criteria	Data	Objective	Meets objectives?
Oaks present?	Yes	Yes	Yes
Number of oaks greater than 15 inches DBH?	0	≥1	No
Prairie habitat criteria	Data	Recovery Plan threshold	Meets threshold?

<b>Modified prairie habitat quality summary (USFWS 2010)</b>				
Native herbaceous species cover (%)		2	50% min	No
Woody species cover (%)		95	15% max	No
Does any one woody species of management concern exceed 5% cover?		Yes	5% max	No
Prairie diversity	Native forb richness	N/A	7	No Data
	Native bunchgrass richness	N/A	1	No Data
	Total native herbaceous species richness	N/A	>10	No Data
Do any non-native species exceed 50% cover within the relevé plot?		N/A	50%	No Data
Do any non-native species of particular concern exceed 5% cover?		N/A	5%	No Data



**Figure H-64.** Overview of UPW\_054 with habitat, forested buffer areas, and photopoint location.



**Figure H-65.** Non-native species observed.



**Figure H-66.** Woody encroachment and human activity observed. Woody species of management concern observed in 2022 were Himalayan blackberry, cutleaf blackberry, and Scotch broom.

North:



East:



South:



West:



**Figure H-67.** UPW\_054 photopoints taken at -122.799219, 43.863168.

## UPW\_061

General site information	
Date surveyed	6/21/2022
Observers (affiliation)	Annamarie Pfeifer, Annie Lamas, Zade Clark-Henry (IAE)
Unit ID	UPW_061
Site name	Kloster Mountain
BLM Field Office	Upper Willamette
County	Lane
Township, Range, Section	T21S, R02W, Sec01
Recovery zone (USFWS 2010)	Eugene East
Land ownership	BLM, Northwest Oregon District
Contact person and contact information	Chad Conklin cconklin@blm.gov, 541-683-6120 (office), 541-517-0631 (cell)
Directions	Access via Smith Creek Rd. (21-2-2.0). BLM lock on gate. BLM rd. 21-2-1.4 is not drivable; park at the base of that road and hike ~1 mile to site along the roadbed.
Photopoint coordinates	-122.87511, 43.766719

Habitat overview	
Unit area (acres)	2.32
Prairie and/or oak habitat present?	Yes
Habitat type (special habitat)	Oak savanna (dry meadow, shrub field)
Habitat type notes	This site consists of two small dry meadows with limited oaks and high shrubby cover, and a large open area with significant oak presence and relatively less encroachment.
Slope (degrees)	10
Aspect	SSE
Elevation (feet)	1550
What maintains site openness?	Fire disturbance, hydrology, soils
Evidence of human disturbance	Yes
Level of human disturbance	Moderate
Type of human disturbance	Old roadbed
Human disturbance notes	An old roadbed leads to the site. Many noxious weeds are present along the road to just north of the site.
Type of site	Open area surrounded by forest
Buffer or forested area description	Buffer is a second growth forest dominated by Douglas-fir ( <i>Pseudotsuga menziesii</i> ).
Do remnant oak or prairie species exist in the buffer or forested areas?	Yes
Remnant oak or prairie species observed (Alverson 2010)	Woodland strawberry ( <i>Fragaria vesca</i> ), forest scurfpea ( <i>Rupertia physodes</i> ), Pacific hound's tongue ( <i>Cynoglossum grande</i> ), California fescue ( <i>Festuca californica</i> )
General notes	This site contains significant oak populations and open habitat, but most of the habitat is on private property to the south of the site.

### Woody species

Overall live woody cover (%)	60		
Live native tree cover (%)	40	Live non-native tree cover (%)	
Live native shrub cover (%)	18	Live non-native shrub cover (%)	2
Live tree cover from oaks (%)	32	Standing dead woody cover (%)	2
Number oaks >15 in DBH	22		
Number of large trees (>40 in DBH)	0		
Woody species encroaching on prairie habitat*+	Poison oak ( <i>Toxicodendron diversilobum</i> )*, oceanspray ( <i>Holodiscus discolor</i> ), sweetbriar rose ( <i>Rosa rubiginosa</i> )*, Scotch broom ( <i>Cytisus scoparius</i> )*, cutleaf blackberry ( <i>Rubus laciniatus</i> )*, Himalayan blackberry ( <i>Rubus bifrons</i> )*		
Would removal of encroaching woody species result in the need for wood to be hauled off-site?	No		

\*Woody species of management concern from the *Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington*.

+ Woody species of management concern that exceed 5% cover of the site.

<b>Herbaceous non-native species</b>	
Herbaceous non-native cover (%)	82
Most common non-native species	Bristly dogstail grass ( <i>Cynosurus echinatus</i> ), bristly hawksbeard ( <i>Crepis setosa</i> ), soft brome ( <i>Bromus hordeaceus</i> ), rigput brome ( <i>Bromus diandrus</i> ), orchard grass ( <i>Dactylis glomerata</i> )

<b>Herbaceous native species</b>	
Herbaceous native cover (%)	18
Most common native species	Blue wildrye ( <i>Elymus glaucus</i> ), Roemer's fescue ( <i>Festuca roemerii</i> ), California fescue ( <i>Festuca californica</i> ), common madia ( <i>Madia elegans</i> ), tomcat clover ( <i>Trifolium willdenovii</i> ), California brome ( <i>Bromus carinatus</i> )
Relevé survey?	No
T&E species present?	No
Seed collection potential?	California fescue ( <i>Festuca californica</i> ), California brome ( <i>Bromus carinatus</i> ), dwarf checkermallow ( <i>Sidalcea virgata</i> ), Tolmie star-tulip ( <i>Calochortus tolmiei</i> ), death camas ( <i>Toxicoscordion venenosum</i> ), common madia ( <i>Madia elegans</i> ), blue wildrye ( <i>Elymus glaucus</i> ), California oatgrass ( <i>Danthonia californica</i> ), Roemer's fescue ( <i>Festuca roemerii</i> ), prairie Junegrass ( <i>Koeleria macrantha</i> ), tomcat clover ( <i>Trifolium willdenovii</i> ), seep monkeyflower ( <i>Mimulus guttatus</i> ), mountain brome ( <i>Bromus marginatus</i> ), forest scurfpea ( <i>Rupertia physodes</i> ), smallflower bird's-foot trefoil ( <i>Acmispon parviflorus</i> ), ookow ( <i>Dichelostemma congestum</i> )

<b>Wildlife</b>	
Wildlife species of interest observed	Wrentit

<b>Preliminary habitat restoration/management recommendations</b>	
Overall ranking as a priority for restoration (high, moderate, or low)	Moderate



Short-term recommended actions	Pull patches of Scotch broom ( <i>Cytisus scoparius</i> ), non-native roses, and poison oak ( <i>Toxicodendron diversilobum</i> ). Treat blackberry thickets adjacent to habitat areas. Release oaks from conifer suppression where possible.
Long-term recommended actions	Treat patches of oxeye daisy ( <i>Leucanthemum vulgare</i> ). Treat non-native annual grasses. Consider creating a corridor to connect the two larger meadow habitats. Consider partnering with private landowner to the south to conserve oak habitat.
Site accessibility issues	There is an old, walkable roadbed (BLM 21-2-1.4) that leads to the site, but it is not currently drivable due to vegetative overgrowth and downed trees.
Restoration action notes	We do not recommend connecting the westernmost opening to the remaining habitat due to lack of quality habitat, high levels of encroachment, and distance from the larger habitat areas.

Modified prairie habitat quality summary (USFWS 2010)				
Oak habitat criteria		Data	Objective	Meets objectives?
Oaks present?		Yes	Yes	Yes
Number of oaks greater than 15 inches DBH?		22	≥1	Yes
Prairie habitat criteria		Data	Recovery Plan threshold	Meets threshold?
Native herbaceous species cover (%)		18	50% min	No
Woody species cover (%)		60	15% max	No
Does any one woody species of management concern exceed 5% cover?		No	5% max	Yes
Prairie diversity	Native forb richness	N/A	7	No Data
	Native bunchgrass richness	N/A	1	No Data
	Total native herbaceous species richness	N/A	>10	No Data
Do any non-native species exceed 50% cover within the relevé plot?		N/A	50%	No Data
Do any non-native species of particular concern exceed 5% cover?		N/A	5%	No Data

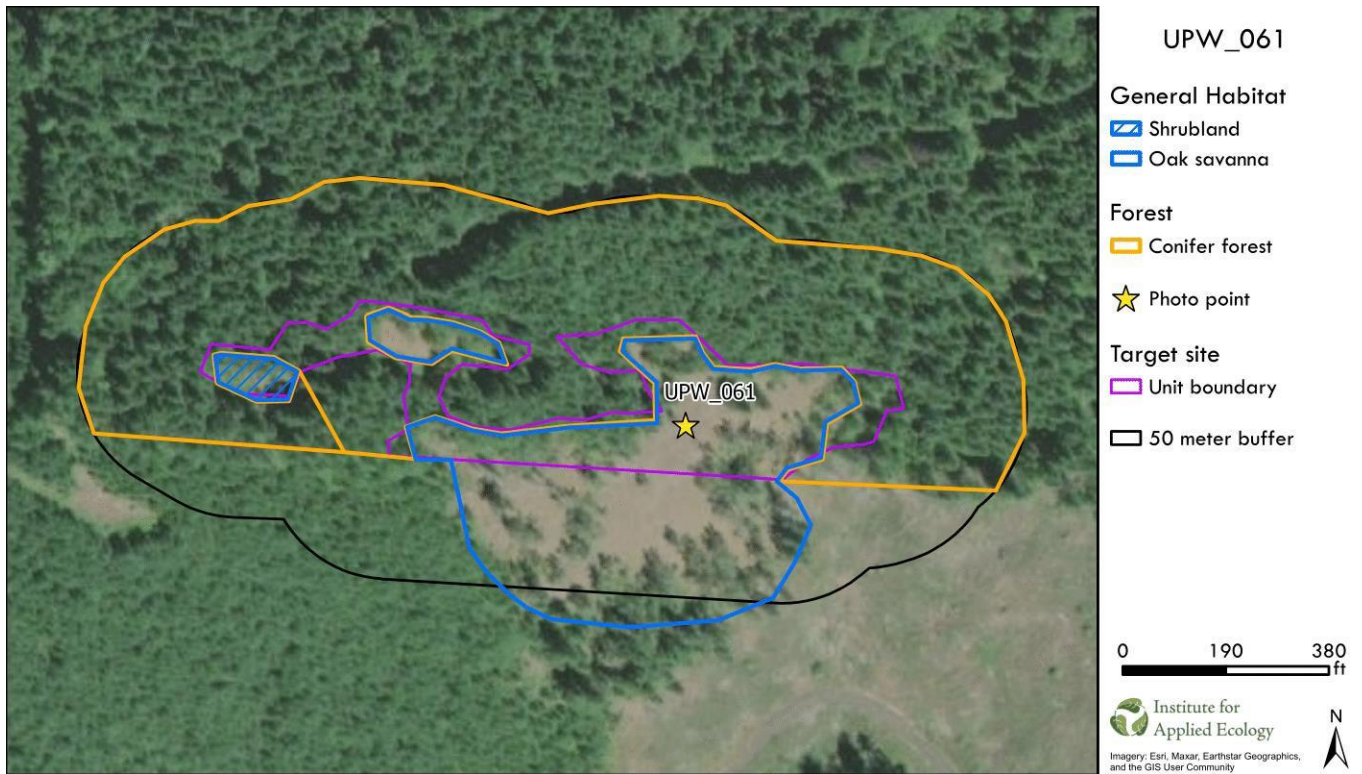


Figure H-68. Overview of UPW\_061 with habitat, forested buffer areas, and photopoint location.

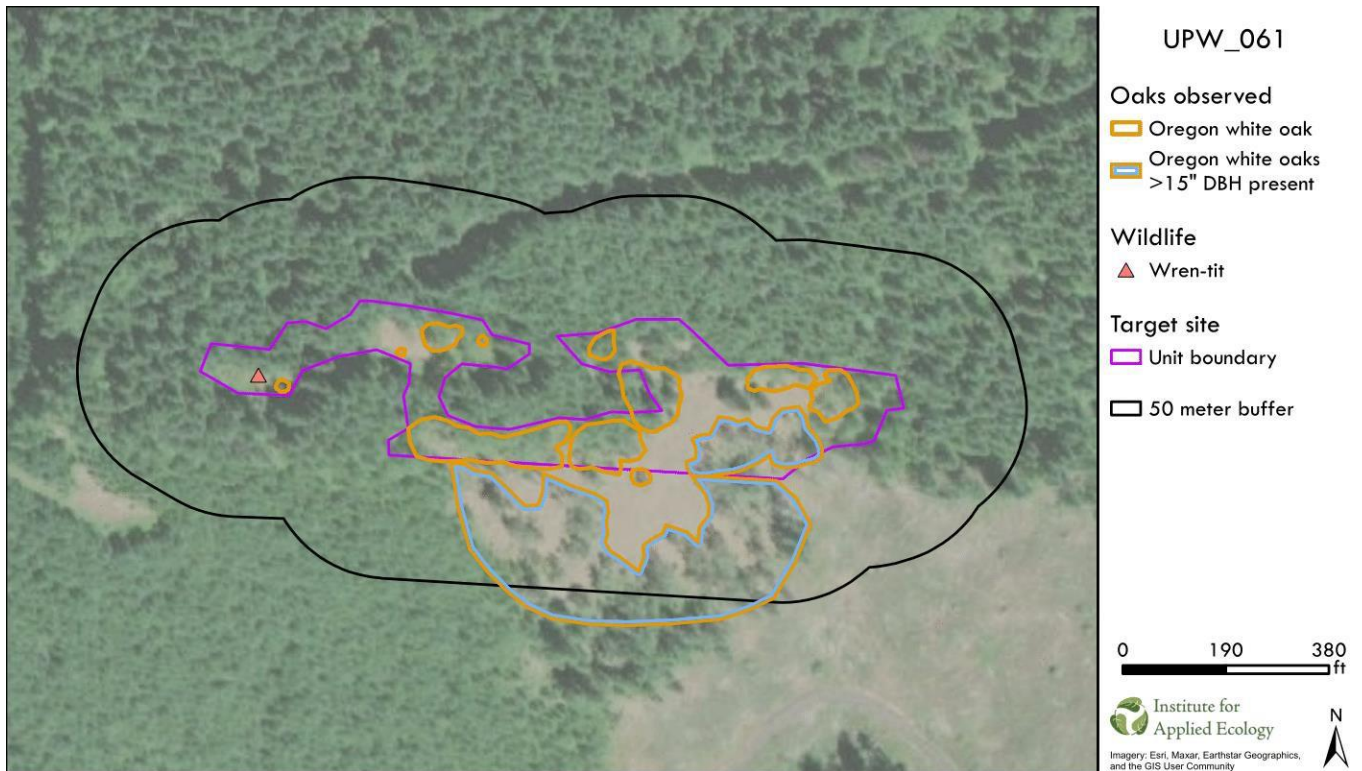


Figure H-69. Oaks, large trees, pines, and wildlife observed, if applicable.

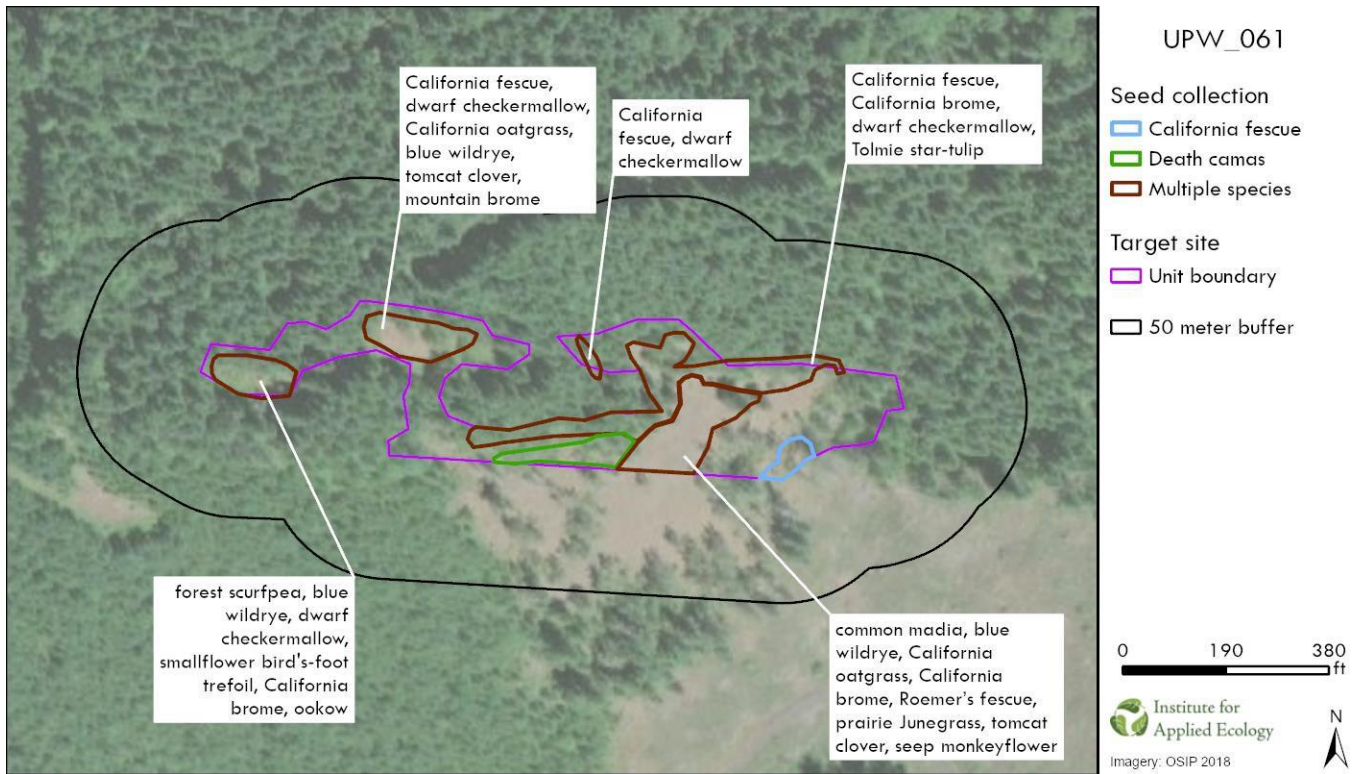


Figure H-70. Seed collection species observed.

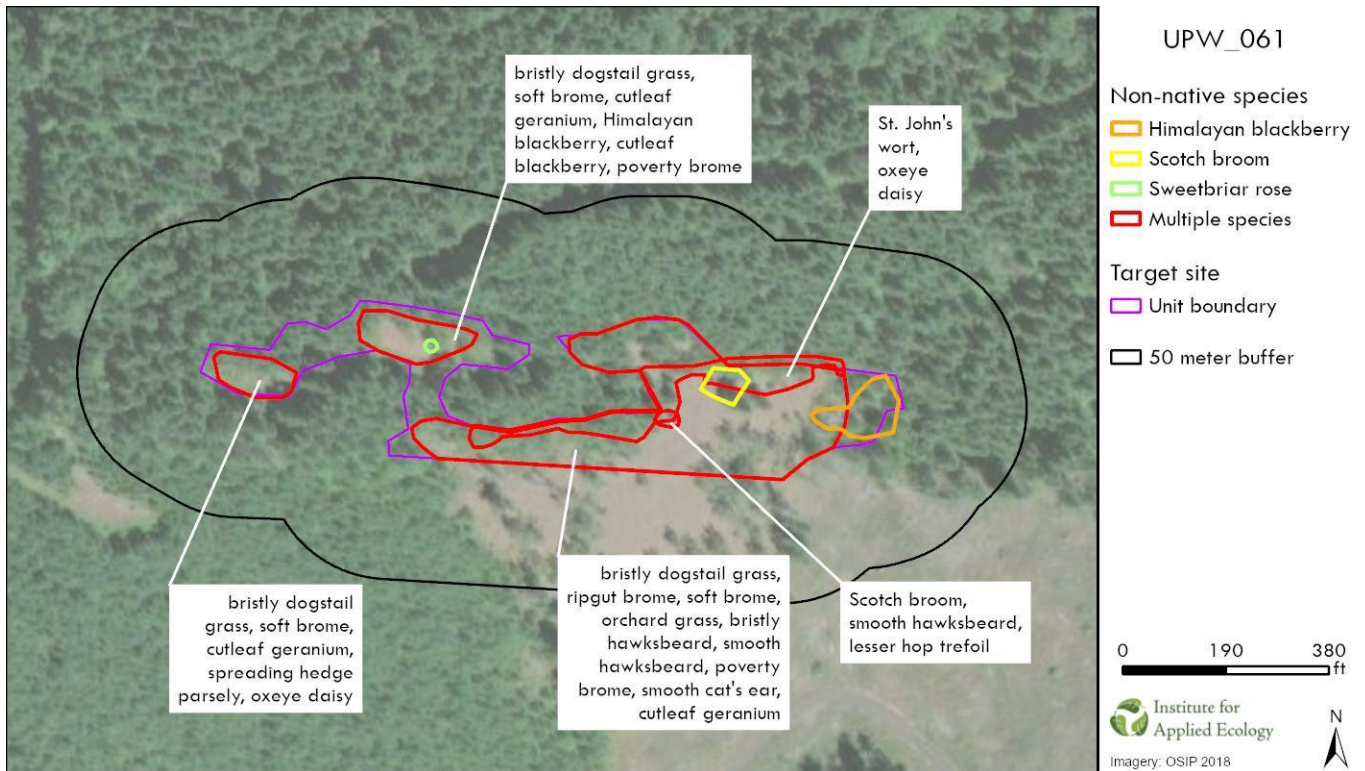


Figure H-71. Non-native species observed.



**Figure H-72.** Woody encroachment and human activity observed. Woody species of management concern observed in 2022 were poison oak, Himalayan blackberry, cutleaf blackberry, Scotch broom, and sweetbriar rose.



**Figure H-73.** Recommended changes to the unit boundary based on habitat and/or oaks present.

North:



East:



South:



West:



**Figure H-74.** UPW\_061 photopoints taken at -122.875110, 43.766719.

## MARCOLA

### UPW\_022

General site information	
Date surveyed	5/17/2022
Observers (affiliation)	Annamarie Pfeifer, Annie Lamas, Zade Clark-Henry (IAE)
Unit ID	UPW_022
Site name	Wendling Creek
BLM Field Office	Upper Willamette
County	Lane
Township, Range, Section	T16S, R01W, Sec11
Recovery zone (USFWS 2010)	Eugene East
Land ownership	BLM, Northwest Oregon District
Contact person and contact information	Chad Conklin cconklin@blm.gov, 541-683-6120 (office), 541-517-0631 (cell)
Directions	Park on Wendling Rd., south of the site.
Photopoint coordinates	-122.780961, 44.194994

Habitat overview	
Unit area (acres)	2.40
Prairie and/or oak habitat present?	Yes
Habitat type (special habitat)	Oak savanna (dry meadow)
Habitat type notes	The open habitat is heavily encroached and densely shrubby in many areas.
Slope (degrees)	8
Aspect	SSW
Elevation (feet)	970
What maintains site openness?	Hydrology, soils
Evidence of human disturbance	No
Type of site	Open area surrounded by forest
Buffer or forested area description	Buffer is a second growth forest dominated by Douglas-fir ( <i>Pseudotsuga menziesii</i> ).
Do remnant oak or prairie species exist in the buffer or forested areas?	Yes
Remnant oak or prairie species observed (Alverson 2010)	Woodland strawberry ( <i>Fragaria vesca</i> ), Pacific hound's tongue ( <i>Cynoglossum grande</i> ), toughleaf iris ( <i>Iris tenax</i> ), Oregon white oak ( <i>Quercus garryana</i> )
General notes	This site is directly adjacent to UPW_023.

Woody species			
Overall live woody cover (%)	70		
Live native tree cover (%)	35	Live non-native tree cover (%)	0
Live native shrub cover (%)	10	Live non-native shrub cover (%)	25
Live tree cover from oaks (%)	35	Standing dead woody cover (%)	1
Number oaks >15 in DBH	0		

Number of large trees (>40 in DBH)	0
Woody species encroaching on prairie habitat*+	Scotch broom ( <i>Cytisus scoparius</i> ) <sup>+</sup> , Himalayan blackberry ( <i>Rubus bifrons</i> ) <sup>*</sup> , poison oak ( <i>Toxicodendron diversilobum</i> ) <sup>*</sup>
Would removal of encroaching woody species result in the need for wood to be hauled off-site?	No
Woody species notes	Scotch broom ( <i>Cytisus scoparius</i> ) dominates the open area.

\*Woody species of management concern from the *Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington*.

+ Woody species of management concern that exceed 5% cover of the site.

**Herbaceous non-native species**

Herbaceous non-native cover (%)	95
Most common non-native species	Ripgut brome ( <i>Bromus diandrus</i> ), bristly dogstail grass ( <i>Cynosurus echinatus</i> ), common velvetgrass ( <i>Holcus lanatus</i> ), annual fescue ( <i>Vulpia</i> sp.)

**Herbaceous native species**

Herbaceous native cover (%)	5
Most common native species	Shortspur seablush ( <i>Plectritis congesta</i> ), seep monkeyflower ( <i>Mimulus guttatus</i> ), clarkia ( <i>Clarkia</i> sp.), Tolmie star-tulip ( <i>Calochortus tolmiei</i> ), common biscuitroot ( <i>Lomatium utriculatum</i> ), wild onion ( <i>Allium</i> sp.)
Relevé survey?	No
T&E species present?	No
Seed collection potential?	Common lomatium ( <i>Lomatium utriculatum</i> ), seep monkeyflower ( <i>Mimulus guttatus</i> ), shortspur seablush ( <i>Plectritis congesta</i> ), Tolmie star-tulip ( <i>Calochortus tolmiei</i> )

**Wildlife**

Wildlife species of interest observed	None
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**Preliminary habitat restoration/management recommendations**

Overall ranking as a priority for restoration (high, moderate, or low)	Low
Short-term recommended actions	Pull Scotch broom ( <i>Cytisus scoparius</i> ) patches. Pile and burn broom debris if possible, or haul into woods. Remove additional woody debris from site.
Long-term recommended actions	Remove shrubs to open the habitat. Treat annual non-native grasses. Implement prescribed burns to maintain site openness.
Site accessibility issues	The road leading to the site is underused but passable. There are tall grasses growing in the roadbed. There is a short hike through the woods to access the site.
Restoration action notes	Treating Scotch broom ( <i>Cytisus scoparius</i> ) should be the top priority at this site.

**Modified prairie habitat quality summary (USFWS 2010)**

Oak habitat criteria	Data	Objective	Meets objectives?
Oaks present?	Yes	Yes	Yes

<b>Modified prairie habitat quality summary (USFWS 2010)</b>			
Number of oaks greater than 15 inches DBH?	0	≥1	No
<b>Prairie habitat criteria</b>	<b>Data</b>	<b>Recovery Plan threshold</b>	<b>Meets threshold?</b>
Native herbaceous species cover (%)	5	50% min	No
Woody species cover (%)	70	15% max	No
Does any one woody species of management concern exceed 5% cover?	Yes	5% max	No
Prairie diversity	Native forb richness	N/A	No Data
	Native bunchgrass richness	N/A	No Data
	Total native herbaceous species richness	N/A	No Data
Do any non-native species exceed 50% cover within the relevé plot?	N/A	50%	No Data
Do any non-native species of particular concern exceed 5% cover?	N/A	5%	No Data





Figure H-75. Overview of UPW\_022 with habitat, forested buffer areas, and photopoint location.

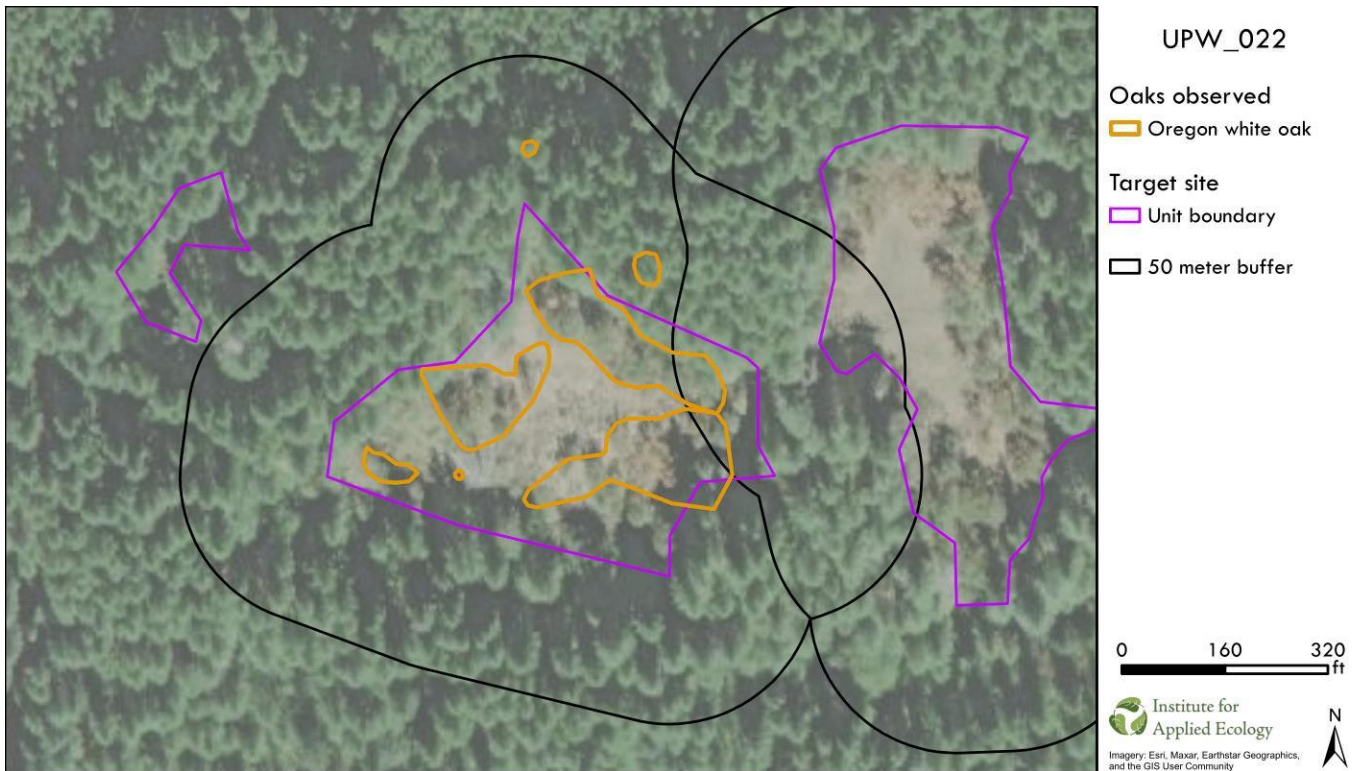


Figure H-76. Oaks, large trees, pines, and wildlife observed, if applicable.



Figure H-77. Seed collection species observed.



Figure H-78. Non-native species observed.



**Figure H-79.** Woody encroachment and human activity observed. Woody species of management concern observed in 2022 were poison oak, Himalayan blackberry, and Scotch broom.



**Figure H-80.** Recommended changes to the unit boundary based on habitat and/or oaks present.

North:



East:



South:



West:



**Figure H-81.** UPW\_022 photopoints taken at -122.780961, 44.194994.

## UPW\_023

General site information	
Date surveyed	5/16/2022
Observers (affiliation)	Annie Lamas, Zade Clark-Henry (IAE)
Unit ID	UPW_023
Site name	Wendling Creek
BLM Field Office	Upper Willamette
County	Lane
Township, Range, Section	T16S, R01W, Sec11
Recovery zone (USFWS 2010)	Eugene East
Land ownership	BLM, Northwest Oregon District
Contact person and contact information	Chad Conklin cconklin@blm.gov, 541-683-6120 (office), 541-517-0631 (cell)
Directions	Park on Wendling Rd., southwest of the site.
Photopoint coordinates	-122.779556, 44.195243

Habitat overview	
Unit area (acres)	1.99
Prairie and/or oak habitat present?	Yes
Habitat type (special habitat)	Oak woodland (mesic meadow)
Habitat type notes	This site contains dense oak woodland surrounding open mesic meadow habitat.
Slope (degrees)	3
Aspect	SE
Elevation (feet)	970
What maintains site openness?	Hydrology
Evidence of human disturbance	No
Type of site	Open area surrounded by forest
Buffer or forested area description	The buffer is a second growth forest dominated by Douglas-fir ( <i>Pseudotsuga menziesii</i> ).
Do remnant oak or prairie species exist in the buffer or forested areas?	Yes
Remnant oak or prairie species observed (Alverson 2010)	Woodland strawberry ( <i>Fragaria vesca</i> ), toughleaf iris ( <i>Iris tenax</i> ), Oregon white oak ( <i>Quercus garryana</i> ), American vetch ( <i>Vicia americana</i> )
General notes	

Woody species			
Overall live woody cover (%)	6		
Live native tree cover (%)	4	Live non-native tree cover (%)	0
Live native shrub cover (%)	1	Live non-native shrub cover (%)	1
Live tree cover from oaks (%)	4	Standing dead woody cover (%)	0
Number oaks >15 in DBH	0		
Number of large trees (>40 in DBH)	0		
Woody species encroaching on prairie habitat*+	Scotch broom ( <i>Cytisus scoparius</i> ) <sup>+</sup> , oceanspray ( <i>Holodiscus discolor</i> ), poison oak ( <i>Toxicodendron diversilobum</i> ) <sup>+</sup>		

Would removal of encroaching woody species result in the need for wood to be hauled off-site?	No
Woody species notes	Scotch broom ( <i>Cytisus scoparius</i> ) occurs densely in the oak woodland understory surrounding open area but does not intrude into the meadow. Healthy, mature oaks are present around the edges of the meadow. Many standing dead Douglas-fir ( <i>Pseudotsuga menziesii</i> ) were observed among the oaks.

\*Woody species of management concern from the *Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington*.

+ Woody species of management concern that exceed 5% cover of the site.

Herbaceous non-native species	
Herbaceous non-native cover (%)	10
Most common non-native species	Bristly dogstail grass ( <i>Cynosurus echinatus</i> ), ripgut brome ( <i>Bromus diandrus</i> ), smooth hawkbeard ( <i>Crepis capillaris</i> ), oxeye daisy ( <i>Leucanthemum vulgare</i> ), smooth cat's ear ( <i>Hypochaeris glabra</i> ), sweet vernalgrass ( <i>Anthoxanthum odoratum</i> )
Herbaceous non-native species notes	Non-native graminoids and forbs are slightly creeping from the meadow into the oak understory. There is false brome ( <i>Brachypodium sylvaticum</i> ) creeping into the oak understory and Douglas-fir forest. False brome is present in dense patches throughout the oak understory.

Herbaceous native species	
Herbaceous native cover (%)	90
Most common native species	Seep monkeyflower ( <i>Mimulus guttatus</i> ), shortspur seablush ( <i>Plectritis congesta</i> ), small camas ( <i>Camassia quamash</i> ), western buttercup ( <i>Ranunculus occidentalis</i> ), wild onion ( <i>Allium</i> sp.), wholeleaf saxifrage ( <i>Micranthes integrifolia</i> ), maiden blue eyed Mary ( <i>Collinsia parviflora</i> ), common biscuitroot ( <i>Lomatium utriculatum</i> )
Relevé survey?	Yes (see <a href="#">Table H-4</a> )
T&E species present?	No
Seed collection potential?	Toughleaf iris ( <i>Iris tenax</i> ), Virginia strawberry ( <i>Fragaria virginiana</i> ), common woolly sunflower ( <i>Eriophyllum lanatum</i> ), maiden blue eyed Mary ( <i>Collinsia parviflora</i> ), small camas ( <i>Camassia quamash</i> ), shortspur seablush ( <i>Plectritis congesta</i> ), western buttercup ( <i>Ranunculus occidentalis</i> ), true babystars ( <i>Leptosiphon bicolor</i> ), seep monkeyflower ( <i>Mimulus guttatus</i> ), Pacific woodrush ( <i>Luzula comosa</i> ), wholeleaf saxifrage ( <i>Micranthes integrifolia</i> ), Oregon saxifrage ( <i>Micranthes oregana</i> ), common lomatium ( <i>Lomatium utriculatum</i> ), narrow leaf onion ( <i>Allium amplexans</i> )

Wildlife	
Wildlife species of interest observed	Acorn woodpecker, purple finch

Preliminary habitat restoration/management recommendations	
Overall ranking as a priority for restoration (high, moderate, or low)	High

Short-term recommended actions	Pull Scotch broom ( <i>Cytisus scoparius</i> ) and poison oak ( <i>Toxicodendron diversilobum</i> ). Release oaks by cutting back oceanspray ( <i>Holodiscus discolor</i> ) and Douglas-fir ( <i>Pseudotsuga menziesii</i> ). Clear woody litter from meadow.
Long-term recommended actions	Treat annual grasses and false brome ( <i>Brachypodium sylvaticum</i> ). Conserve mesic meadow habitat.
Site accessibility issues	The road leading to the site is underused but passable. There are tall grasses growing in the roadbed. There is a short hike through the woods to access the site.
Restoration action notes	Creating connectivity with adjacent site (UPW_022) is not recommended due to observed differences in habitat types and species composition.

Modified prairie habitat quality summary (USFWS 2010)				
Oak habitat criteria		Data	Objective	Meets objectives?
Oaks present?		Yes	Yes	Yes
Number of oaks greater than 15 inches DBH?		0	≥1	No
Prairie habitat criteria		Data	Recovery Plan threshold	Meets threshold?
Native herbaceous species cover (%)		90	50% min	Yes
Woody species cover (%)		6	15% max	Yes
Does any one woody species of management concern exceed 5% cover?		No	5% max	Yes
Prairie diversity	Native forb richness	10	7	Yes
	Native bunchgrass richness	0	1	No
	Total native herbaceous species richness	10	>10	No
Do any non-native species exceed 50% cover within the relevé plot?		No	50%	Yes
Do any non-native species of particular concern exceed 5% cover?		No	5%	Yes

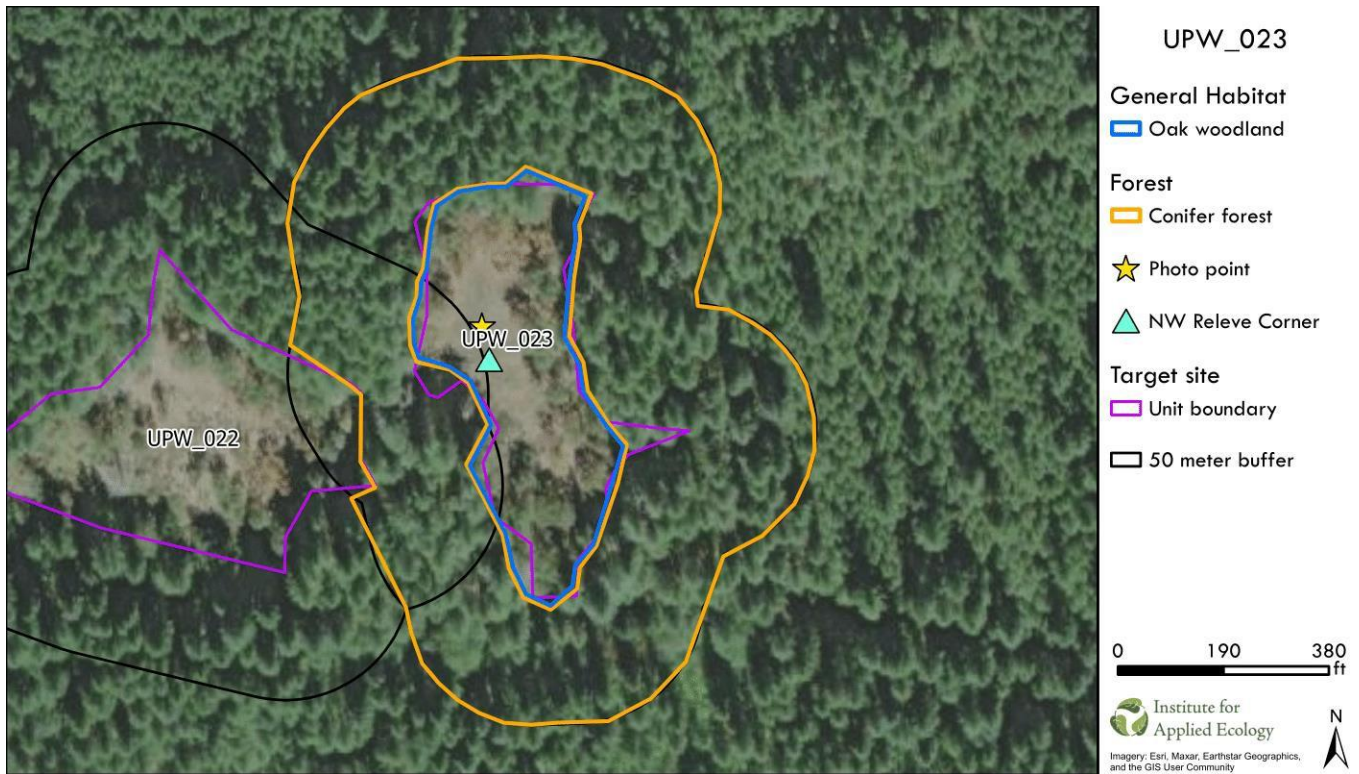
**Table H-4.** Relevé survey data. Braun-Blanquet cover scale: R = <5% and single individual, + = <5% and 2-20 individuals, 1 = <5% many individuals, 2 = 5-25%, 3 = 25-50%, 4 = 50-75%, 5 = 75-100%. The origin was listed as “unknown” for plants that were not identified to species and that have both native and non-native species in their genus.

Relevé data for UPW_023			
Scientific name	Common name	Origin	Braun-Blanquet cover score
<i>Aira caryophyllea</i>	silver hairgrass	Invasive	1
<i>Cynosurus echinatus</i>	bristly dogstail grass	Invasive	1
<i>Holcus lanatus</i>	common velvetgrass	Invasive	+
<i>Allium sp.</i>	wild onion	Unknown	3
<i>Camassia quamash</i>	small camas	Native	2
<i>Crepis capillaris</i>	smooth hawksbeard	Invasive	1
<i>Mimulus guttatus</i>	seep monkeyflower	Native	1
<i>Geranium dissectum</i>	cutleaf geranium	Invasive	1

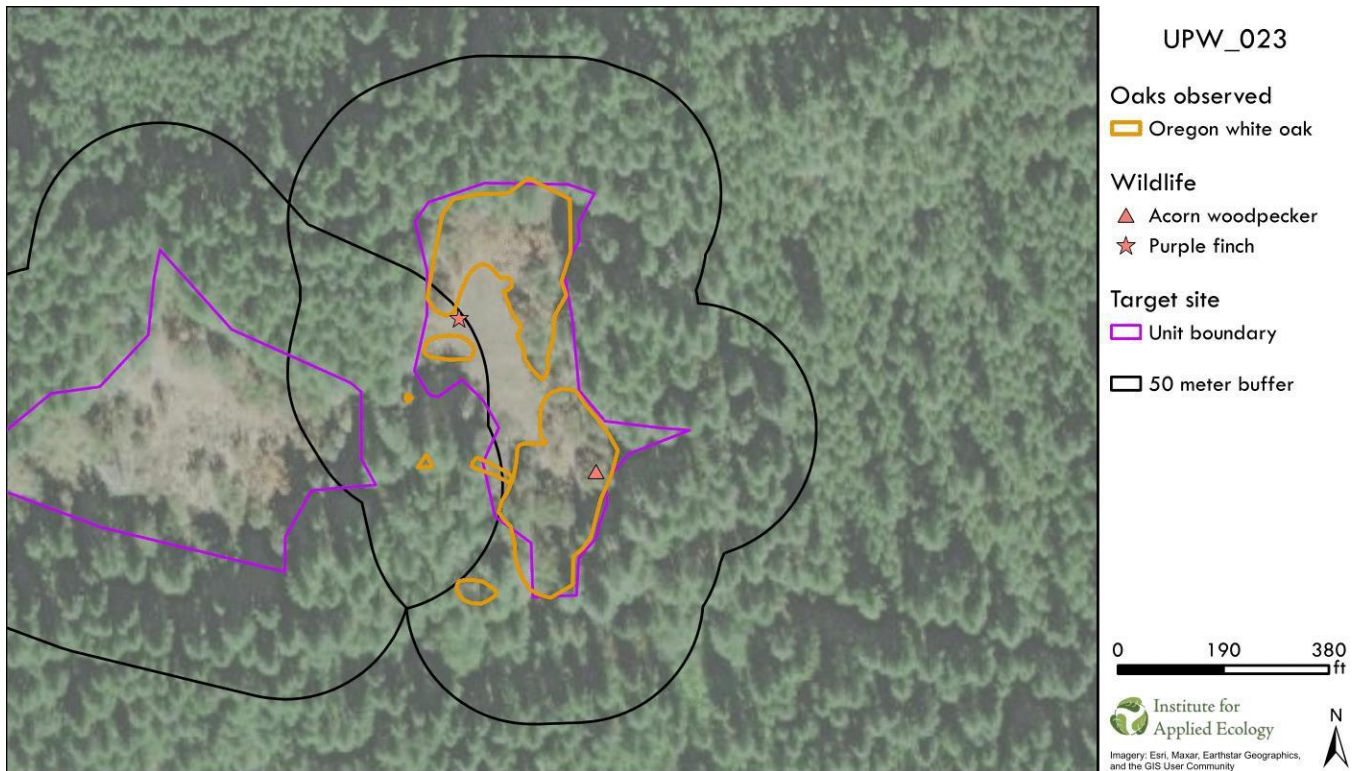
<b>Relevé data for UPW_023</b>			
<b>Scientific name</b>	<b>Common name</b>	<b>Origin</b>	<b>Braun-Blanquet cover score</b>
<i>Geranium molle</i>	dovefoot geranium	Invasive	+
<i>Hypochaeris glabra</i>	smooth cat's ear	Invasive	+
<i>Leptosiphon bicolor</i>	true babystars	Native	1
<i>Linum bienne</i>	pale flax	Invasive	1
<i>Plectritis congesta</i>	shortspur seablush	Native	1
<i>Prunella vulgaris</i>	common selfheal	Native	2
<i>Ranunculus occidentalis</i>	western buttercup	Native	1
<i>Sherardia arvensis</i>	blue fieldmadder	Invasive	1
<i>Senecio vulgaris</i>	old-man-in-the-Spring	Invasive	+
<i>Micranthes integrifolia</i>	wholeleaf saxifrage	Native	1
<i>Allium acuminatum</i>	taper-tip onion	Native	1
<i>Madia sp.</i>	tarweed	Native	R
<i>Triphysaria pusilla</i>	dwarf owl's clover	Native	+

<b>Relevé substrate (%)</b>			
<b>Bare</b>	<b>Moss/Lichen</b>	<b>Rock</b>	<b>Thatch</b>
1	15	1	1





**Figure H-82.** Overview of UPW\_023 with habitat, forested buffer areas, photopoint, and relevé plot location.



**Figure H-83.** Oaks, large trees, pines, and wildlife observed, if applicable.

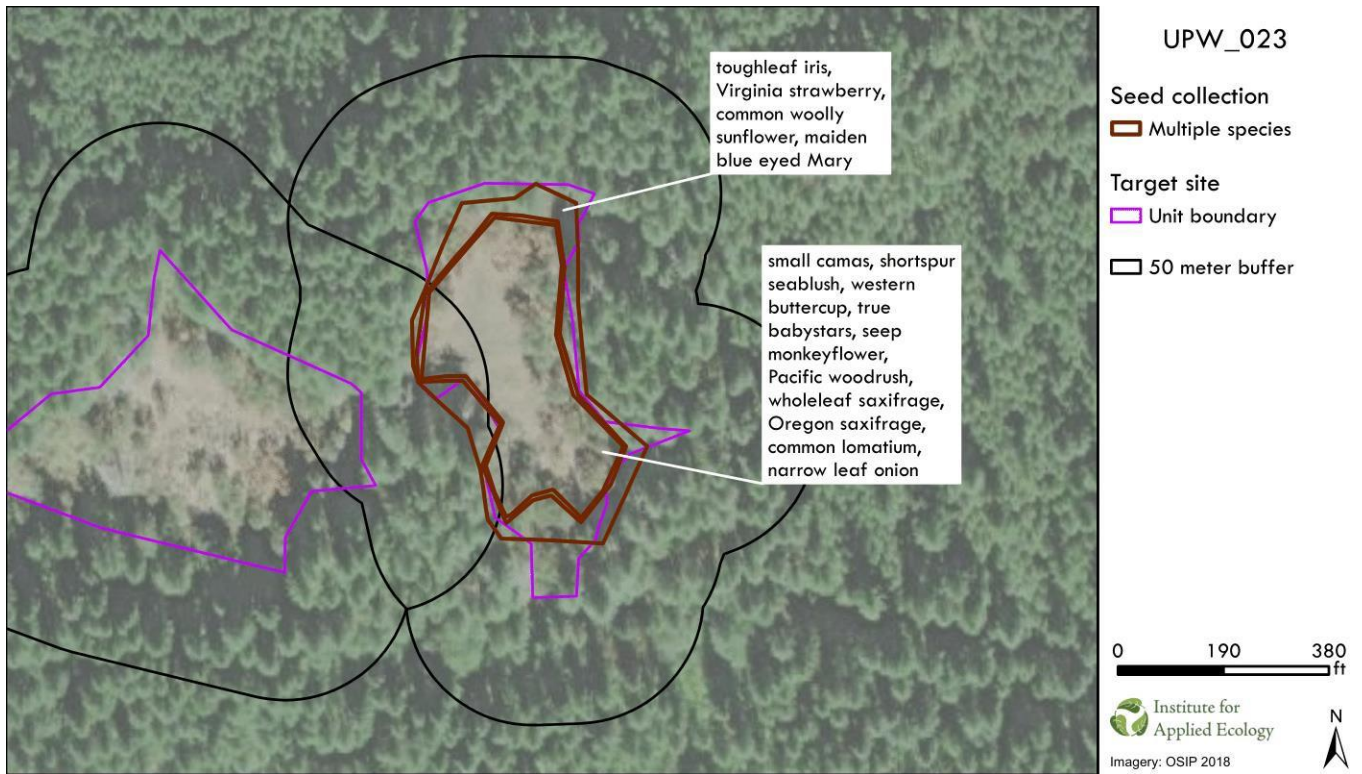


Figure H-84. Seed collection species observed.

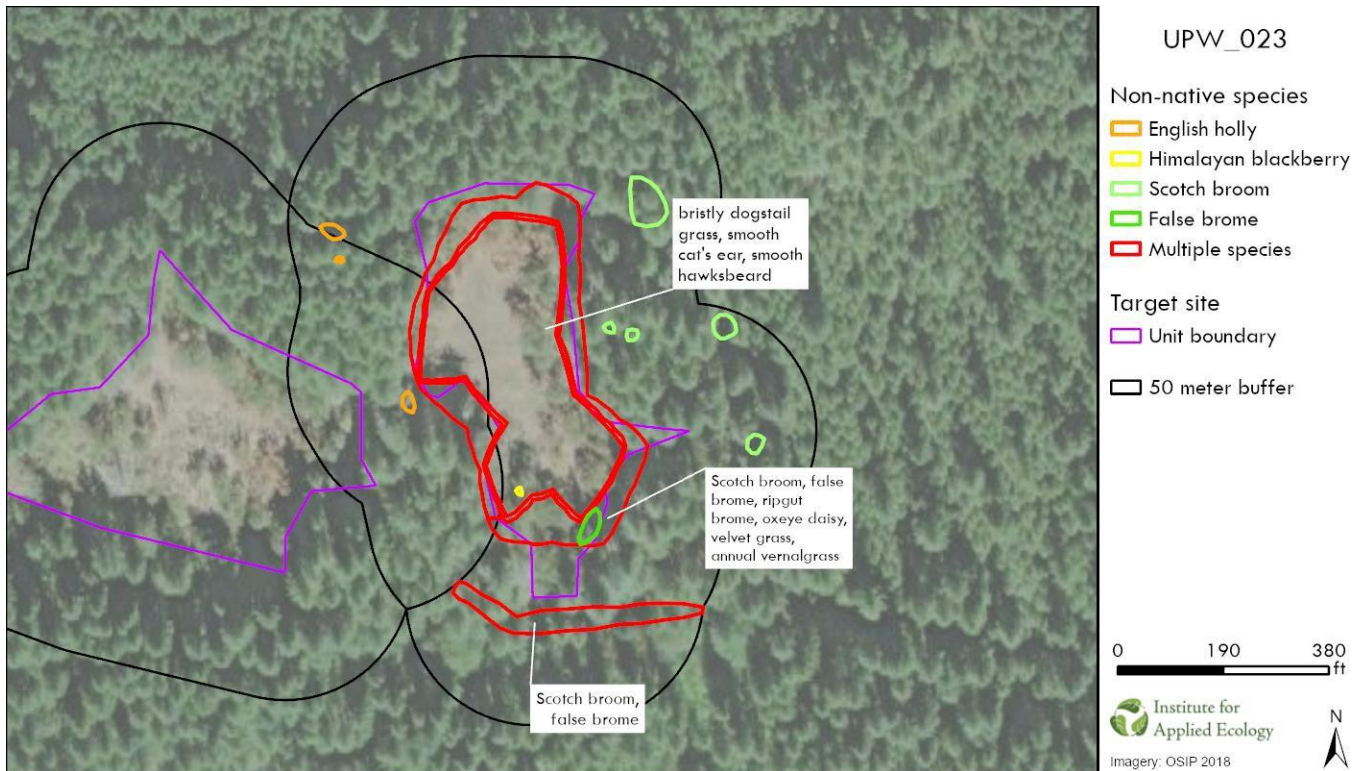
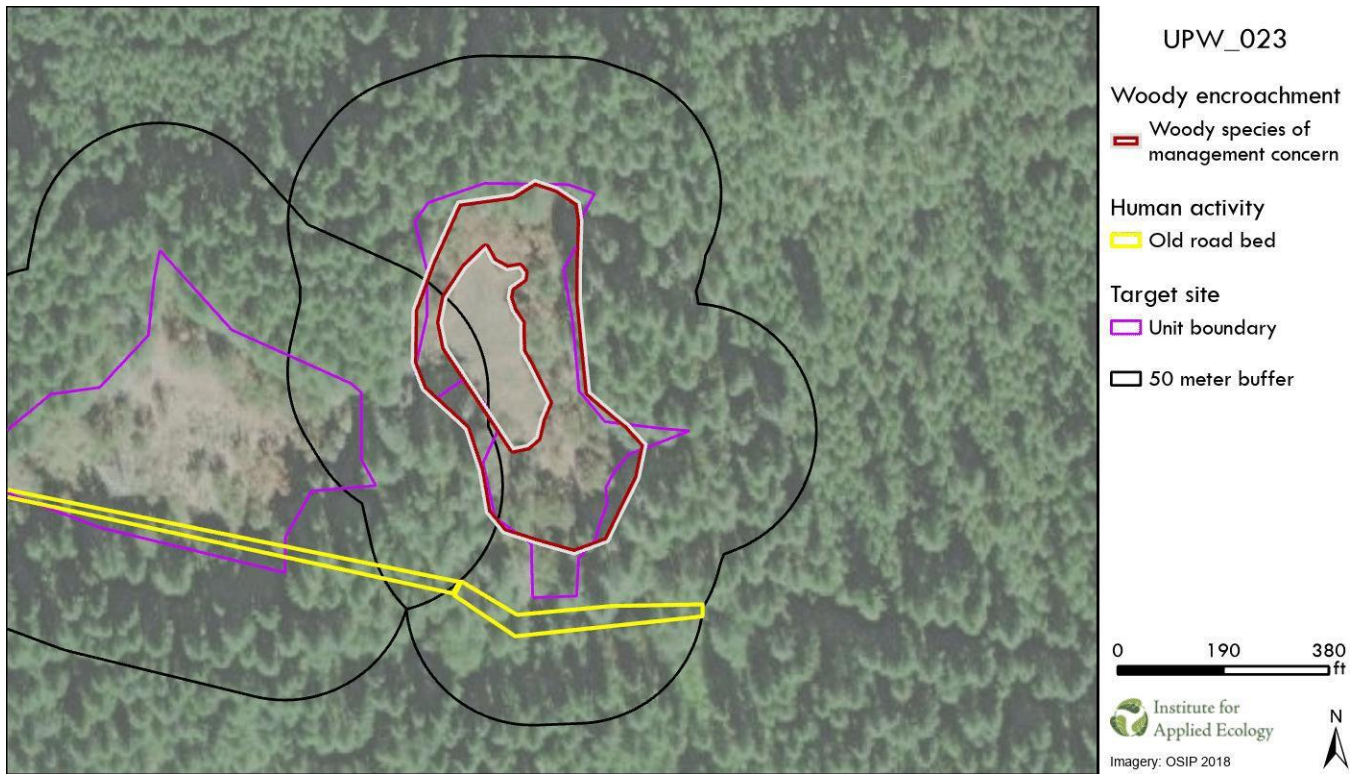


Figure H-85. Non-native species observed.



**Figure H-86.** Woody encroachment and human activity observed. Woody species of management concern observed in 2022 were poison oak and Scotch broom.



**Figure H-87.** Recommended changes to the unit boundary based on habitat and/or oaks present.

North:



East:



South:



West:



**Figure H-88.** UPW\_023 photopoints taken at -122.779556, 44.195243.

## UPW\_089

General site information	
Date surveyed	5/12/2022
Observers (affiliation)	Annamarie Pfeifer, Annie Lamas, Sara Alaica, Zade Clark-Henry (IAE)
Unit ID	UPW_089
Site name	Shotgun Creek
BLM Field Office	Upper Willamette
County	Lane
Township, Range, Section	T15S, R01W, Sec31
Recovery zone (USFWS 2010)	Eugene East
Land ownership	BLM, Northwest Oregon District
Contact person and contact information	Chad Conklin cconklin@blm.gov, 541-683-6120 (office), 541-517-0631 (cell)
Directions	Follow Shotgun Creek Rd. and park on the road east of the site.
Photopoint coordinates	-122.865233, 44.226266

Habitat overview	
Unit area (acres)	17.81
Prairie and/or oak habitat present?	Yes
Habitat type (special habitat)	Oak savanna, shrubland, rock meadow (dry meadow)
Habitat type notes	The habitat varies throughout the site, with dry grassy areas interspersed among rocky outcrops. Patches of manzanita, Pacific madrones ( <i>Arbutus menziesii</i> ), and conifers are present throughout the open area.
Slope (degrees)	20
Aspect	SSW
Elevation (feet)	1200
What maintains site openness?	Soils, hydrology, fire disturbance
Evidence of human disturbance	No
Type of site	Open area surrounded by forest
Buffer or forested area description	Buffer is a second growth forest dominated by Douglas-fir ( <i>Pseudotsuga menziesii</i> ).
Do remnant oak or prairie species exist in the buffer or forested areas?	No
General notes	This site is comprised of variable rocky meadow habitat with dense patches of manzanita throughout. The open area is bounded by a stand of large Pacific madrones ( <i>Arbutus menziesii</i> ). Oaks present in isolated patches throughout the site. High native cover, but low overall diversity.

Woody species			
Overall live woody cover (%)	15		
Live native tree cover (%)	4	Live non-native tree cover (%)	0
Live native shrub cover (%)	11	Live non-native shrub cover (%)	0
Live tree cover from oaks (%)	1	Standing dead woody cover (%)	0
Number oaks >15 in DBH	0		

Number of large trees (>40 in DBH)	3
Species of large trees	Douglas-fir ( <i>Pseudotsuga menziesii</i> )
Average Van Pelt score	<2 (35-80 years)
Woody species encroaching on prairie habitat*+	Poison oak ( <i>Toxicodendron diversilobum</i> )*, Douglas-fir ( <i>Pseudotsuga menziesii</i> ), Scotch broom ( <i>Cytisus scoparius</i> )*
Would removal of encroaching woody species result in the need for wood to be hauled off-site?	Yes
Woody species notes	The open area is bounded by Pacific madrone ( <i>Arbutus menziesii</i> ) and manzanita with scattered manzanita patches throughout the site. Poison oak ( <i>Toxicodendron diversilobum</i> ) is encroaching from edges and is dense in the forest understory. Patches of poison oak in open area. A row of Douglas-fir ( <i>Pseudotsuga menziesii</i> ) trees separates the meadow.

\*Woody species of management concern from the *Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington*.

+ Woody species of management concern that exceed 5% cover of the site.

**Herbaceous non-native species**

Herbaceous non-native cover (%)	50
Most common non-native species	Annual fescue ( <i>Vulpia sp.</i> ), smooth cat's ear ( <i>Hypochaeris glabra</i> ), bristly dogstail grass ( <i>Cynosurus echinatus</i> )

**Herbaceous native species**

Herbaceous native cover (%)	50
Most common native species	Common woolly sunflower ( <i>Eriophyllum lanatum</i> ), Lemmon's needlegrass ( <i>Achnatherum lemmonii</i> ), shortspur seablush ( <i>Plectritis congesta</i> ), seep monkeyflower ( <i>Mimulus guttatus</i> ), Roemer's fescue ( <i>Festuca roemerii</i> ), Tolmie star-tulip ( <i>Calochortus tolmiei</i> ), Menzies' larkspur ( <i>Delphinium menziesii</i> )
Relevé survey?	No
T&E species present?	No
Seed collection potential?	Seep monkeyflower ( <i>Mimulus guttatus</i> ), goldback fern ( <i>Pentagramma triangularis</i> ), shortspur seablush ( <i>Plectritis congesta</i> ), Menzies' larkspur ( <i>Delphinium menziesii</i> ), Tolmie star-tulip ( <i>Calochortus tolmiei</i> ), common woolly sunflower ( <i>Eriophyllum lanatum</i> ), Lemmon's needlegrass ( <i>Achnatherum lemmonii</i> ), Roemer's fescue ( <i>Festuca roemerii</i> ), Menzies' larkspur ( <i>Delphinium menziesii</i> )
Herbaceous native species notes	High native cover, high seed collection potential.

**Wildlife**

Wildlife species of interest observed	None
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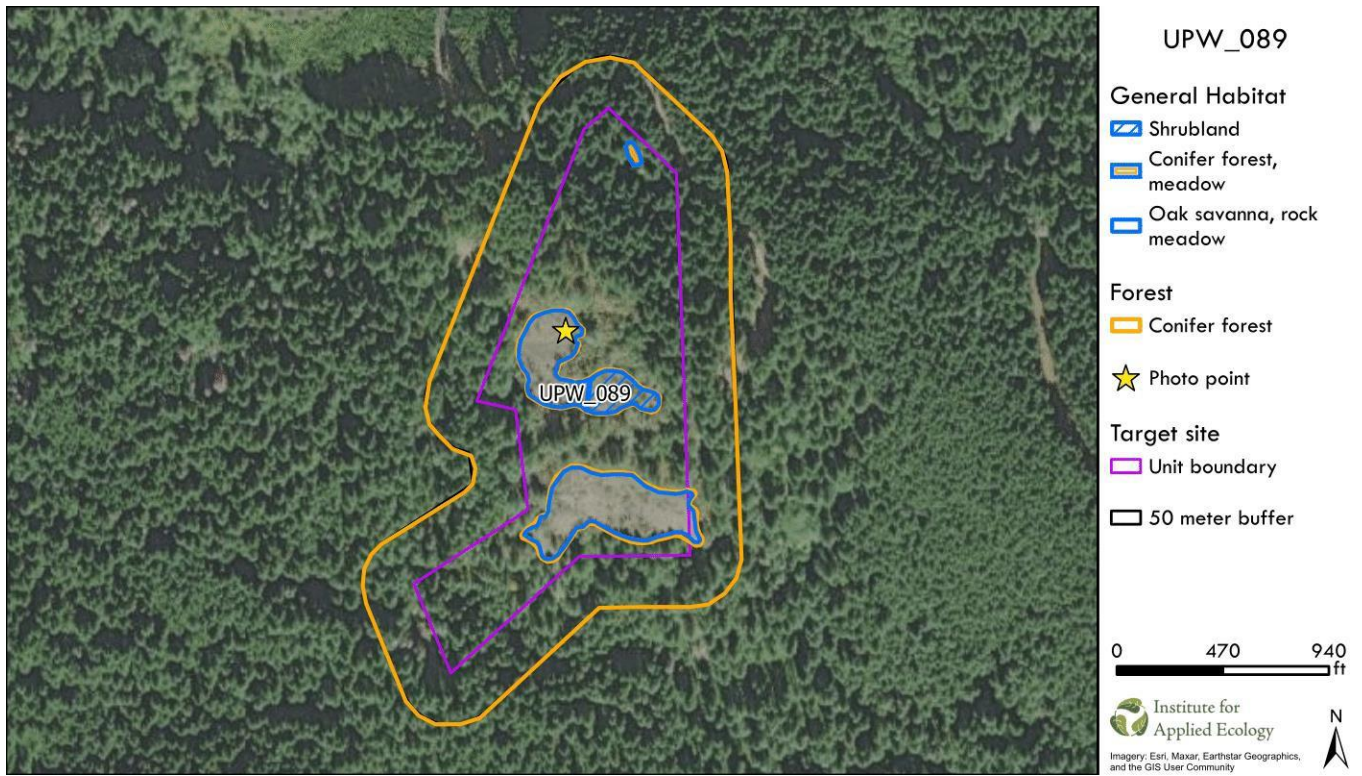
**Preliminary habitat restoration/management recommendations**

Overall ranking as a priority for restoration (high, moderate, or low)	High
Short-term recommended actions	Treat non-native grasses and forbs. Pull Scotch broom ( <i>Cytisus scoparius</i> ). Cut back encroaching conifers and poison oak ( <i>Toxicodendron diversilobum</i> ). Reseed native forbs and graminoids.

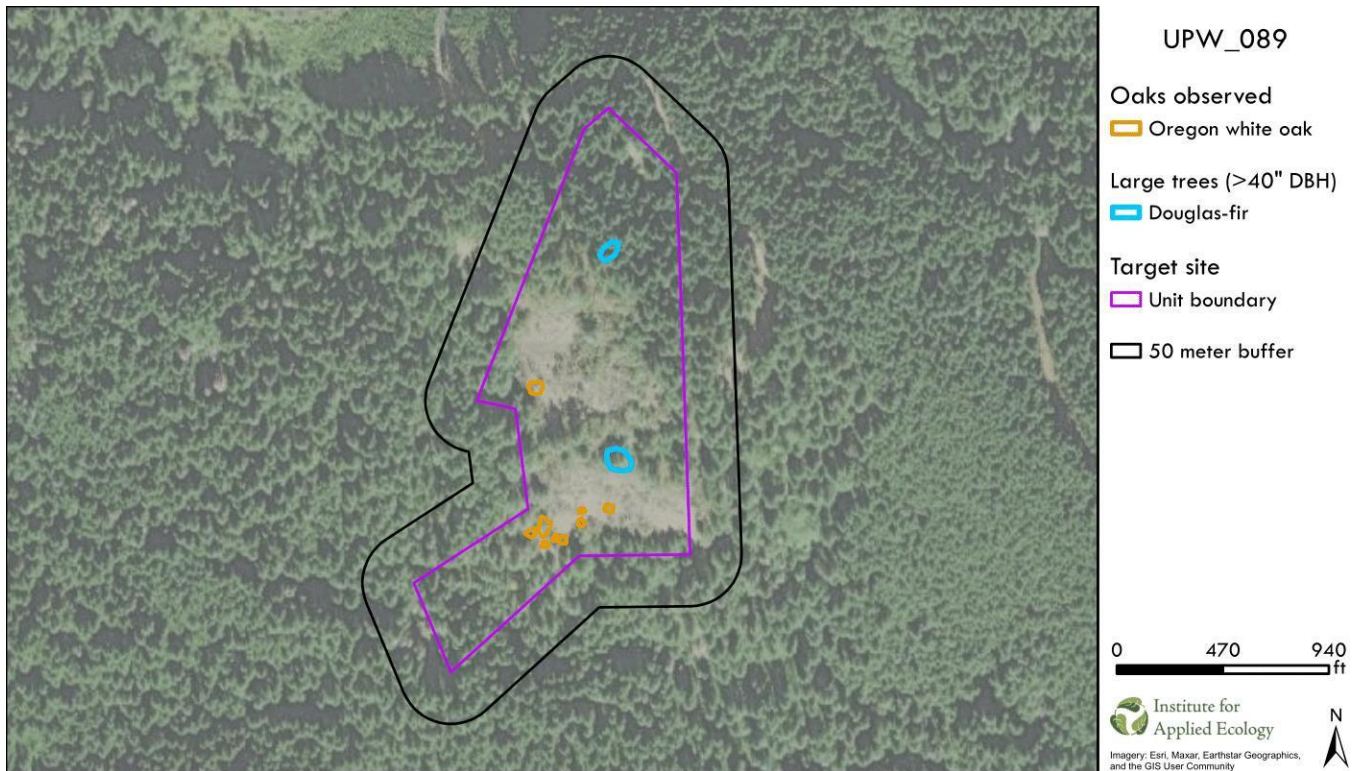
Long-term recommended actions	Release oaks. Continue to spot spray non-native plants. Remove conifers that bisect the site to connect the meadow habitat.
Site accessibility issues	There is a new gravel road nearby that is not on current maps. This increases site accessibility for crews or machinery. The site is steep and the soil is shallow.
Restoration action notes	Evidence of recent fire was observed at this site. Prescribed burning is not needed at this time.

**Modified prairie habitat quality summary (USFWS 2010)**

<b>Oak habitat criteria</b>		<b>Data</b>	<b>Objective</b>	<b>Meets objectives?</b>
Oaks present?		Yes	Yes	Yes
Number of oaks greater than 15 inches DBH?		0	≥1	No
<b>Prairie habitat criteria</b>		<b>Data</b>	<b>Recovery Plan threshold</b>	<b>Meets threshold?</b>
Native herbaceous species cover (%)		50	50% min	Yes
Woody species cover (%)		15	15% max	Yes
Does any one woody species of management concern exceed 5% cover?		No	5% max	Yes
Prairie diversity	Native forb richness	N/A	7	No Data
	Native bunchgrass richness	N/A	1	No Data
	Total native herbaceous species richness	N/A	>10	No Data
Do any non-native species exceed 50% cover within the relevé plot?		N/A	50%	No Data
Do any non-native species of particular concern exceed 5% cover?		N/A	5%	No Data



**Figure H-89.** Overview of UPW\_089 with habitat, forested buffer areas, and photopoint location.



**Figure H-90.** Oaks, large trees, pines, and wildlife observed, if applicable.



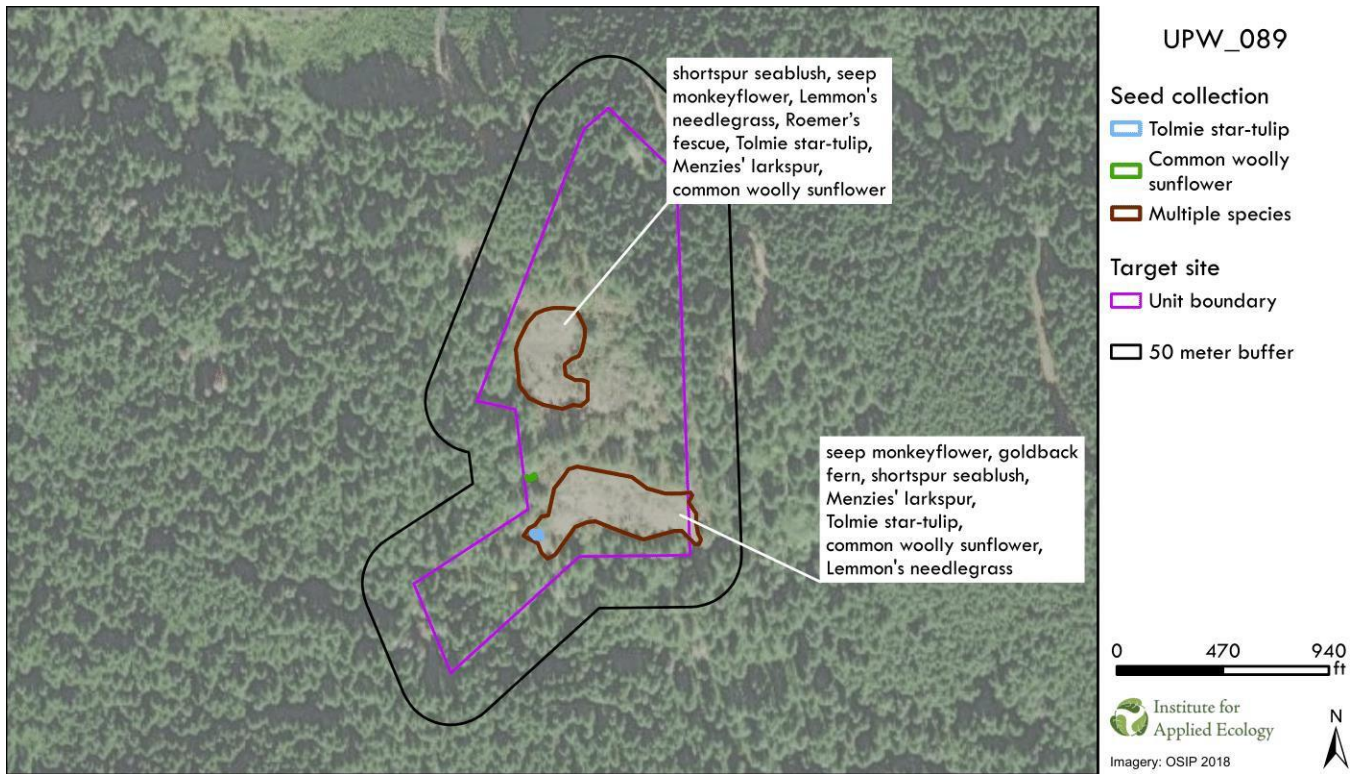


Figure H-91. Seed collection species observed.

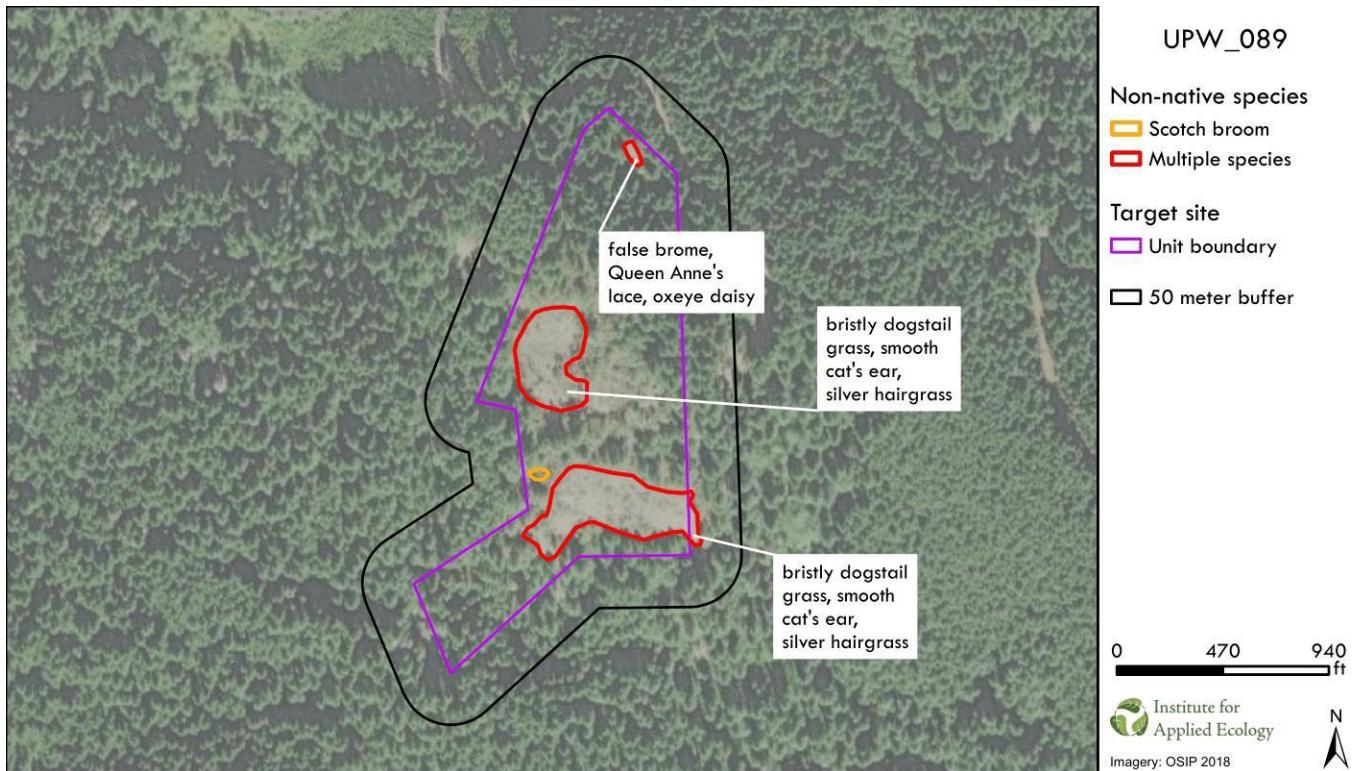
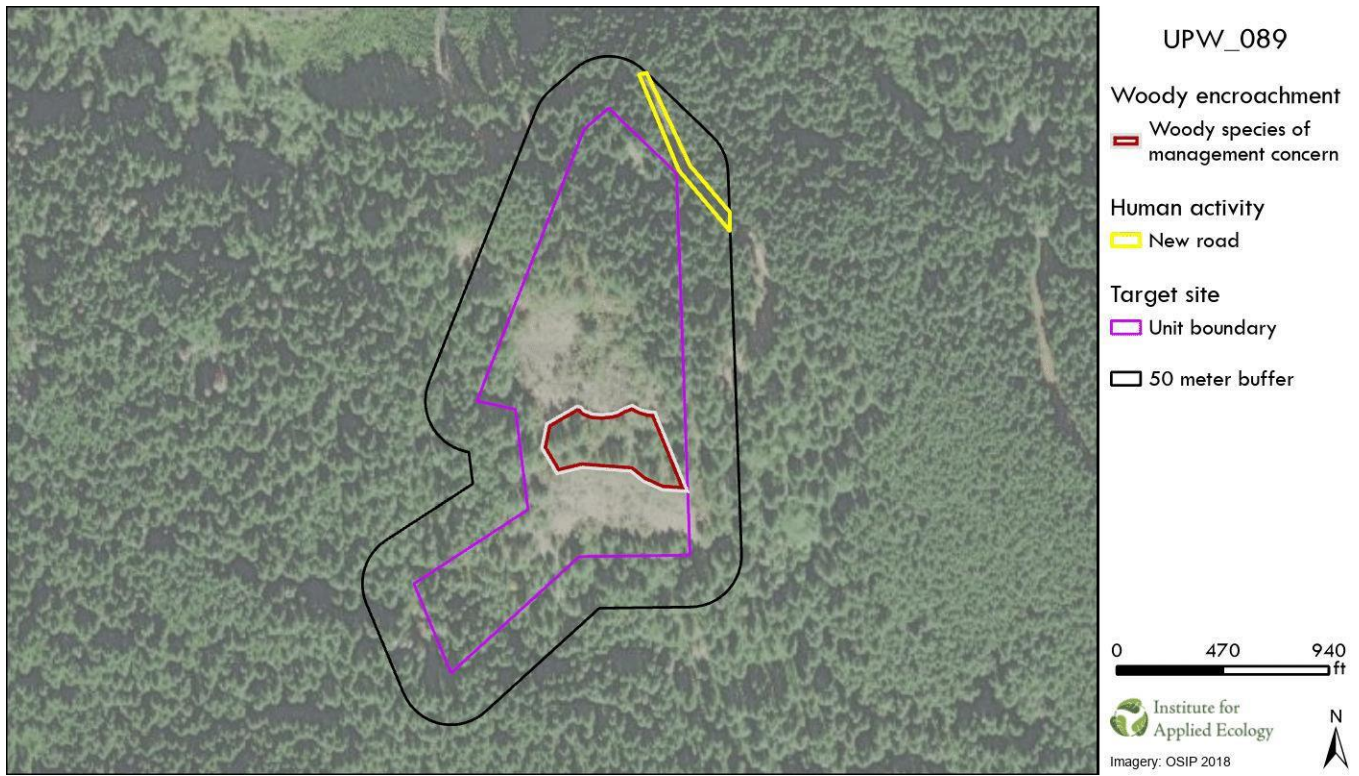
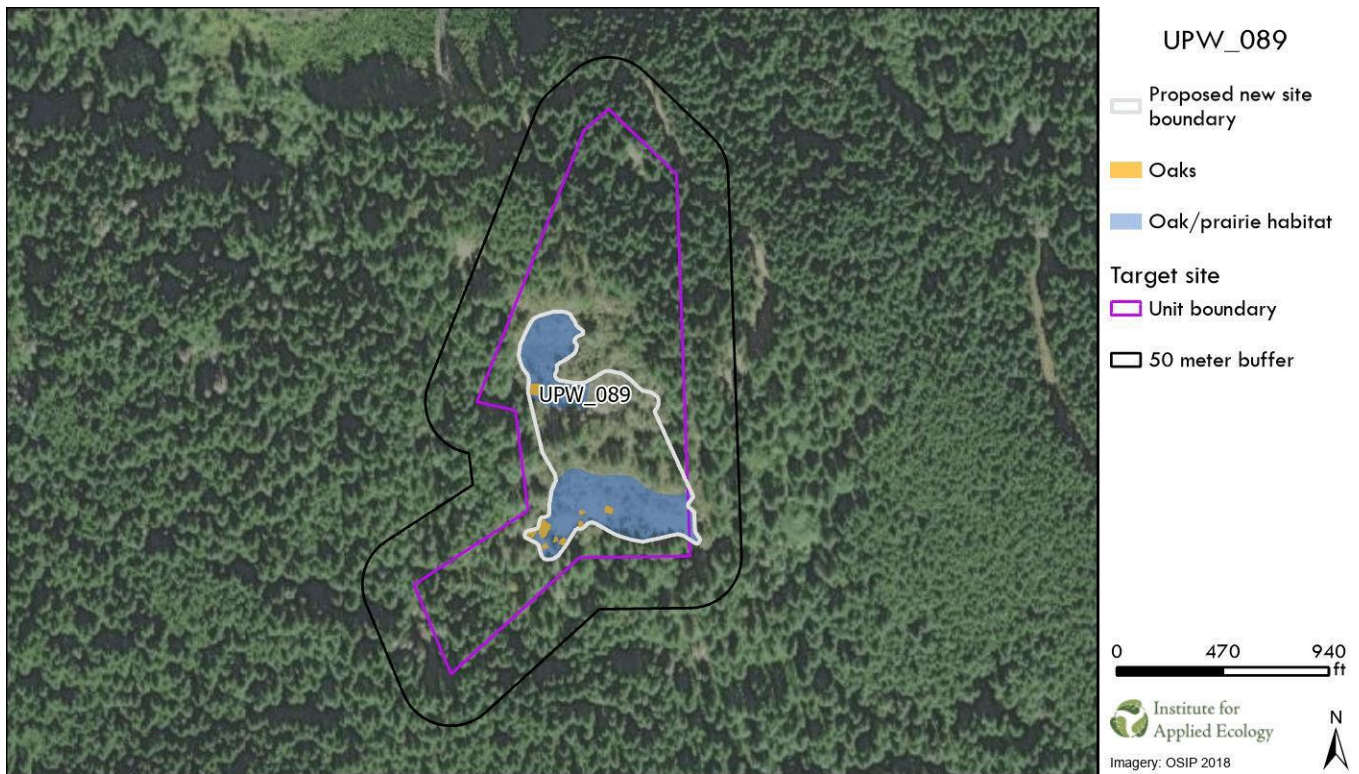


Figure H-92. Non-native species observed.



**Figure H-93.** Woody encroachment and human activity observed. Woody species of management concern observed in 2022 were poison oak and Scotch broom.



**Figure H-94.** Recommended changes to the unit boundary based on habitat and/or oaks present.

North:



East:



South:



West:



**Figure H-95.** UPW\_089 photopoints taken at -122.865233, 44.226266

## PAPENFUS

### UPW\_045

General site information	
Date surveyed	5/26/2022
Observers (affiliation)	Annamarie Pfeifer, Annie Lamas, Zade Clark-Henry (IAE)
Unit ID	UPW_045
Site name	Papenfus
BLM Field Office	Upper Willamette
County	Lane
Township, Range, Section	T19S, R02W, Sec15
Recovery zone (USFWS 2010)	Eugene East
Land ownership	BLM, Northwest Oregon District
Contact person and contact information	Chad Conklin cconklin@blm.gov, 541-683-6120 (office), 541-517-0631 (cell)
Directions	Follow Papenfus Rd. to locked gate. Follow private timber roads to the site from the northeast. Site is adjacent to road.
Photopoint coordinates	-122.925766, 43.913001

Habitat overview	
Unit area (acres)	2.78
Prairie and/or oak habitat present?	Yes
Habitat type (special habitat)	Oak savanna (dry meadow)
Slope (degrees)	10
Aspect	S
Elevation (feet)	1340
What maintains site openness?	Hydrology, soils
Evidence of human disturbance	No
Type of site	Open area surrounded by forest
Buffer or forested area description	Buffer is a second growth forest dominated by Douglas-fir ( <i>Pseudotsuga menziesii</i> ).
Do remnant oak or prairie species exist in the buffer or forested areas?	Yes
Remnant oak or prairie species observed (Alverson 2010)	California fescue ( <i>Festuca californica</i> ), toughleaf iris ( <i>Iris tenax</i> ), woodland strawberry ( <i>Fragaria vesca</i> ), Virginia strawberry ( <i>Fragaria virginiana</i> ), Oregon white oak ( <i>Quercus garryana</i> ), blue wildrye ( <i>Elymus glaucus</i> ), California brome ( <i>Bromus carinatus</i> ),
General notes	This was a proposed ACEC in 2010. Shaggy horkelia ( <i>Horkelia congesta</i> ssp. <i>congesta</i> ) has been observed here in the past and seeded as recently as 2013, but no living plants were observed at the time of survey.

Woody species			
Overall live woody cover (%)	20		
Live native tree cover (%)	13	Live non-native tree cover (%)	0

Live native shrub cover (%)	2	Live non-native shrub cover (%)	5
Live tree cover from oaks (%)	12	Standing dead woody cover (%)	2
Number oaks >15 in DBH	10		
Number of large trees (>40 in DBH)	12		
Species of large trees	Douglas-fir ( <i>Pseudotsuga menziesii</i> )		
Average Van Pelt score	2/3 (70-160 years)		
Woody species encroaching on prairie habitat*+	Scotch broom ( <i>Cytisus scoparius</i> ) <sup>+</sup> , poison oak ( <i>Toxicodendron diversilobum</i> ) <sup>*</sup> , Himalayan blackberry ( <i>Rubus bifrons</i> ) <sup>*</sup>		
Would removal of encroaching woody species result in the need for wood to be hauled off-site?	No		
Woody species notes	Estimated values for canopy cover and average DBH were collected solely from the southern buffer and did not include the open canopy in the east, north, and west buffers.		

\*Woody species of management concern from the *Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington*.

+ Woody species of management concern that exceed 5% cover of the site.

Herbaceous non-native species	
Herbaceous non-native cover (%)	90
Most common non-native species	Ripgut brome ( <i>Bromus diandrus</i> ), soft brome ( <i>Bromus hordeaceus</i> ), bristly dogstail grass ( <i>Cynosurus echinatus</i> ), orchard grass ( <i>Dactylis glomerata</i> ), smooth cat's ear ( <i>Hypochaeris glabra</i> ), wild chamomile ( <i>Anthemis cotula</i> )

Herbaceous native species	
Herbaceous native cover (%)	10
Most common native species	Tolmie star-tulip ( <i>Calochortus tolmiei</i> ), blue wildrye ( <i>Elymus glaucus</i> ), common madia ( <i>Madia elegans</i> ), grassy tarweed ( <i>Madia gracilis</i> ), seep monkeyflower ( <i>Mimulus guttatus</i> ), tomcat clover ( <i>Trifolium willdenovii</i> ), California oatgrass ( <i>Danthonia californica</i> )
Relevé survey?	Yes (see <a href="#">Table H-5</a> )
T&E species present?	No
Seed collection potential?	California brome ( <i>Bromus carinatus</i> ), California fescue ( <i>Festuca californica</i> ), tomcat clover ( <i>Trifolium willdenovii</i> ), blue wildrye ( <i>Elymus glaucus</i> ), common madia ( <i>Madia elegans</i> ), grassy tarweed ( <i>Madia gracilis</i> ), true babystars ( <i>Leptosiphon bicolor</i> ), Tolmie star-tulip ( <i>Calochortus tolmiei</i> ), seep monkeyflower ( <i>Mimulus guttatus</i> ), shortspur seablush ( <i>Plectritis congesta</i> ), California oatgrass ( <i>Danthonia californica</i> ), rush ( <i>Juncus</i> sp.), dwarf checkermallow ( <i>Sidalcea virgata</i> ), western buttercup ( <i>Ranunculus occidentalis</i> )
Herbaceous native species notes	This site may have been seeded, and multiple species have been planted as plugs. Not all known planted species were observed at the time of site visit.

Wildlife	
Wildlife species of interest observed	Wrentit

**Preliminary habitat restoration/management recommendations**

Overall ranking as a priority for restoration (high, moderate, or low)	High
Short-term recommended actions	Remove Scotch broom ( <i>Cytisus scoparius</i> ), Himalayan blackberry ( <i>Rubus bifrons</i> ), and poison oak ( <i>Toxicodendron diversilobum</i> ) from within the meadow and along habitat edges. Release oaks from conifer suppression.
Long-term recommended actions	Treat the non-native herbaceous species. Create a corridor connecting UPW_045 to UPW_046. Continue augmentation of native meadow species with seeding.
Restoration action notes	Many of the conifers separating sites UPW_045 and UPW_046 are standing dead. The cause of death is unclear.

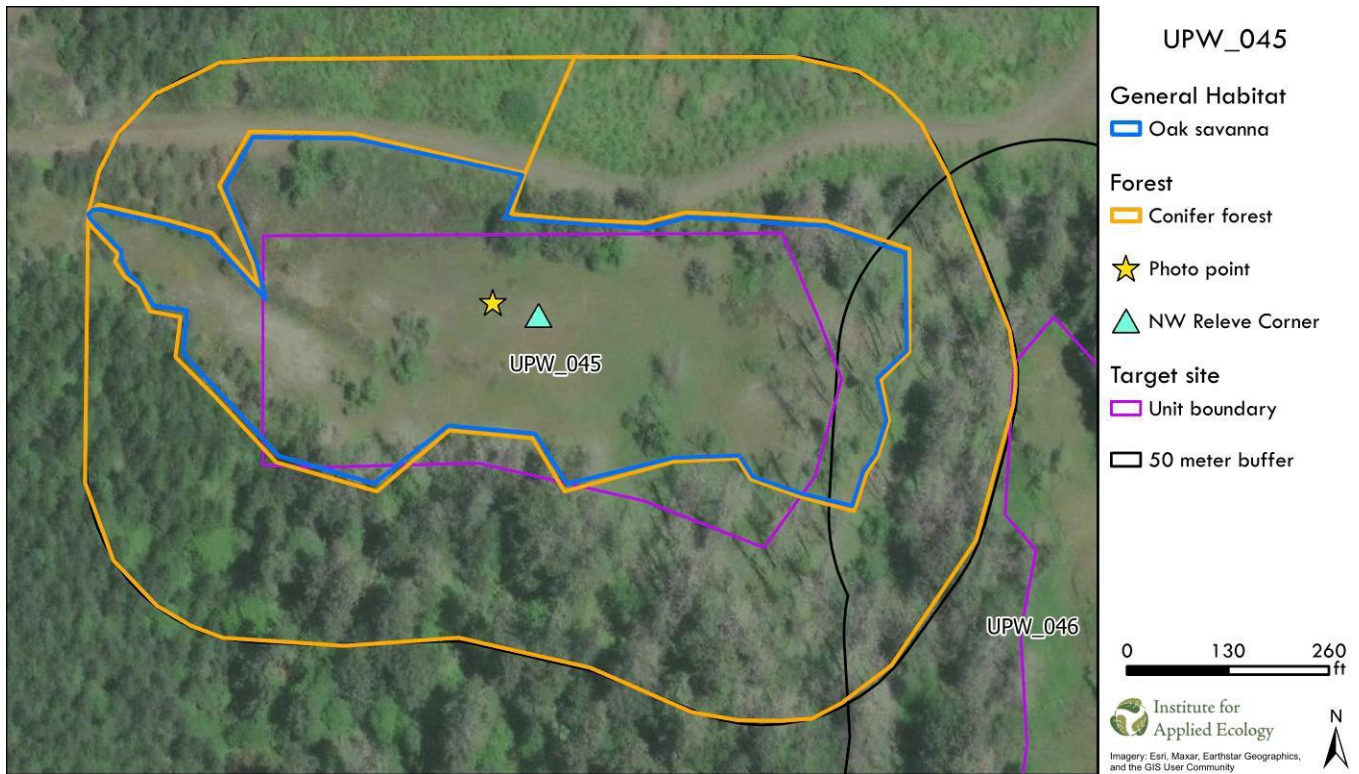
Modified prairie habitat quality summary (USFWS 2010)			
Oak habitat criteria	Data	Objective	Meets objectives?
Oaks present?	Yes	Yes	Yes
Number of oaks greater than 15 inches DBH?	10	≥1	Yes
Prairie habitat criteria	Data	Recovery Plan threshold	Meets threshold?
Native herbaceous species cover (%)	10	50% min	No
Woody species cover (%)	20	15% max	No
Does any one woody species of management concern exceed 5% cover?	Yes	5% max	No
Prairie diversity	Native forb richness	7	Yes
	Native bunchgrass richness	2	Yes
	Total native herbaceous species richness	10	No
Do any non-native species exceed 50% cover within the relevé plot?	No	50%	Yes
Do any non-native species of particular concern exceed 5% cover?	No	5%	Yes

**Table H-5.** Relevé survey data. Braun-Blanquet cover scale: R = <5% and single individual, + = <5% and 2-20 individuals, 1 = <5% many individuals, 2 = 5-25%, 3 = 25-50%, 4 = 50-75%, 5 = 75-100%. The origin was listed as “unknown” for plants that were not identified to species and that have both native and non-native species in their genus.

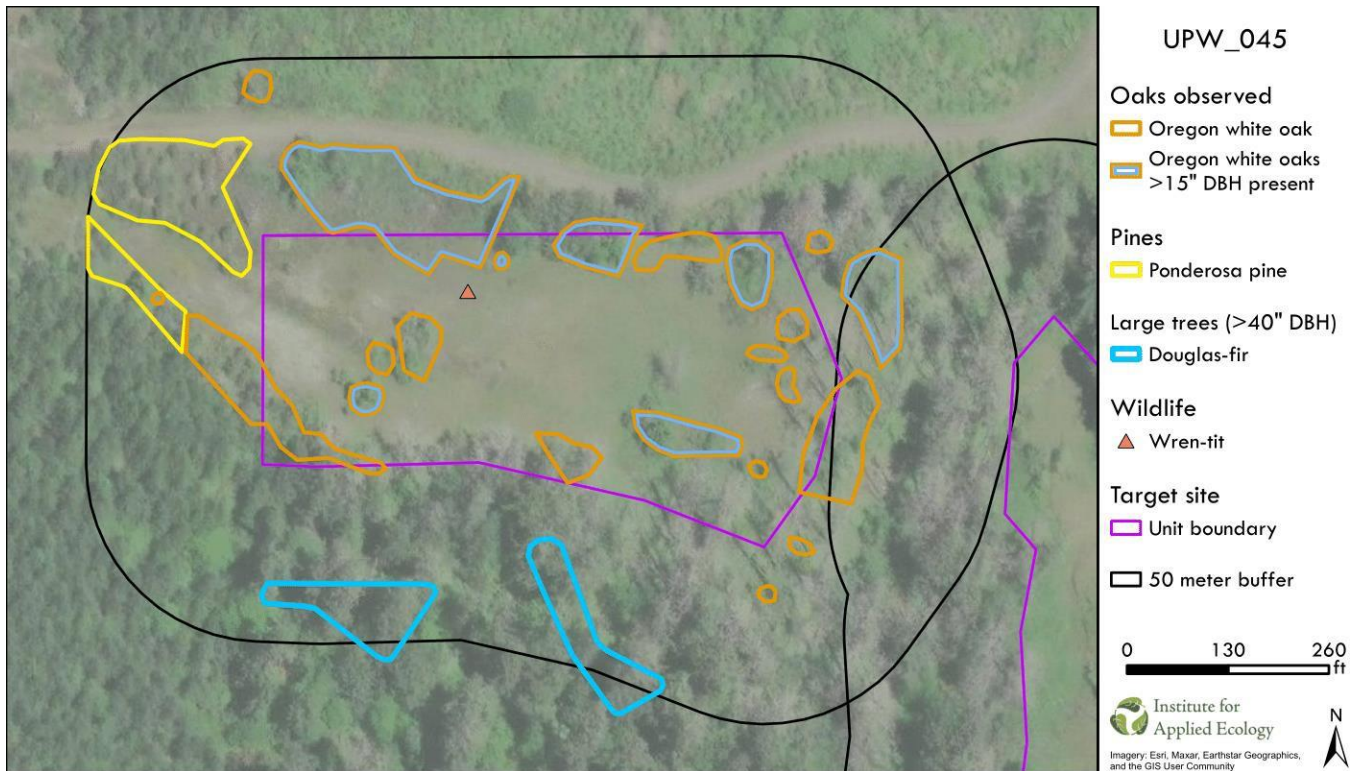
Relevé data for UPW_045			
Scientific name	Common name	Origin	Braun-Blanquet cover score
<i>Aira caryophylla</i>	silver hairgrass	Invasive	1
<i>Bromus hordeaceus</i>	soft brome	Invasive	1
<i>Bromus diandrus</i>	ripgut brome	Invasive	1
<i>Cynosurus echinatus</i>	bristly dogstail grass	Invasive	1
<i>Dactylis glomerata</i>	orchardgrass	Invasive	1
<i>Danthonia californica</i>	California oatgrass	Native	1
<i>Elymus glaucus</i>	blue wildrye	Native	+
<i>Acmispon parviflorus</i>	bird's foot trefoil	Native	1

<b>Relevé data for UPW_045</b>			
<b>Scientific name</b>	<b>Common name</b>	<b>Origin</b>	<b>Braun-Blanquet cover score</b>
<i>Cerastium glomeratum</i>	sticky chickweed	Invasive	1
<i>Daucus carota</i>	Queen Anne's lace	Invasive	1
<i>Mimulus guttatus</i>	seep monkeyflower	Native	2
<i>Geranium dissectum</i>	cutleaf geranium	Invasive	+
<i>Geranium molle</i>	dovefoot geranium	Invasive	1
<i>Hypochaeris glabra</i>	smooth cat's ear	Invasive	1
<i>Hypochaeris radicata</i>	hairy cat's ear	Invasive	1
<i>Leptosiphon bicolor</i>	true babystars	Native	1
<i>Leucanthemum vulgare</i>	oxeye daisy	Invasive	+
<i>Linum bienne</i>	pale flax	Invasive	1
<i>Plantago lanceolata</i>	narrowleaf plantain	Invasive	1
<i>Plectritis congesta</i>	shortspur seablush	Native	+
<i>Trifolium willdenovii</i>	tomcat clover	Native	2
<i>Parentucellia viscosa</i>	yellow glandweed	Invasive	+
<i>Anthemis cotula</i>	stinking chamomile	Invasive	2
<i>Madia sp.</i>	tarweed	Native	1
<i>Crepis sp.</i>	#N/A	#N/A	1
<i>Allium sp.</i>	wild onion	Unknown	1
<i>Clarkia sp.</i>	clarkia	Native	1
<i>Juncus occidentalis</i>	western rush	Native	+
<i>Vulpia bromoides</i>	brome fescue	Invasive	+

<b>Relevé substrate (%)</b>			
<b>Bare</b>	<b>Moss/Lichen</b>	<b>Rock</b>	<b>Thatch</b>
1	0.5	0.5	2



**Figure H-96.** Overview of UPW\_045 with habitat, forested buffer areas, photopoint, and relevé plot location.



**Figure H-97.** Oaks, large trees, pines, and wildlife observed, if applicable.



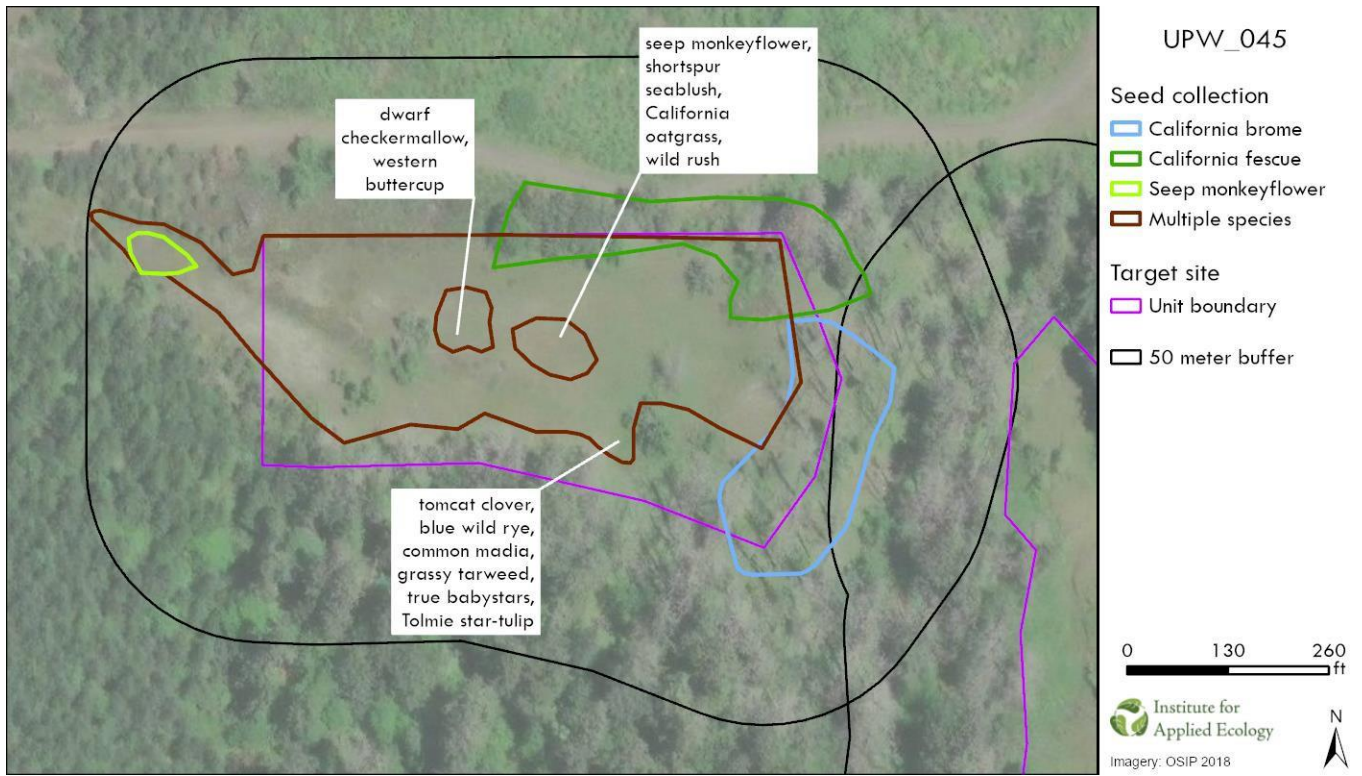


Figure H-98. Seed collection species observed.

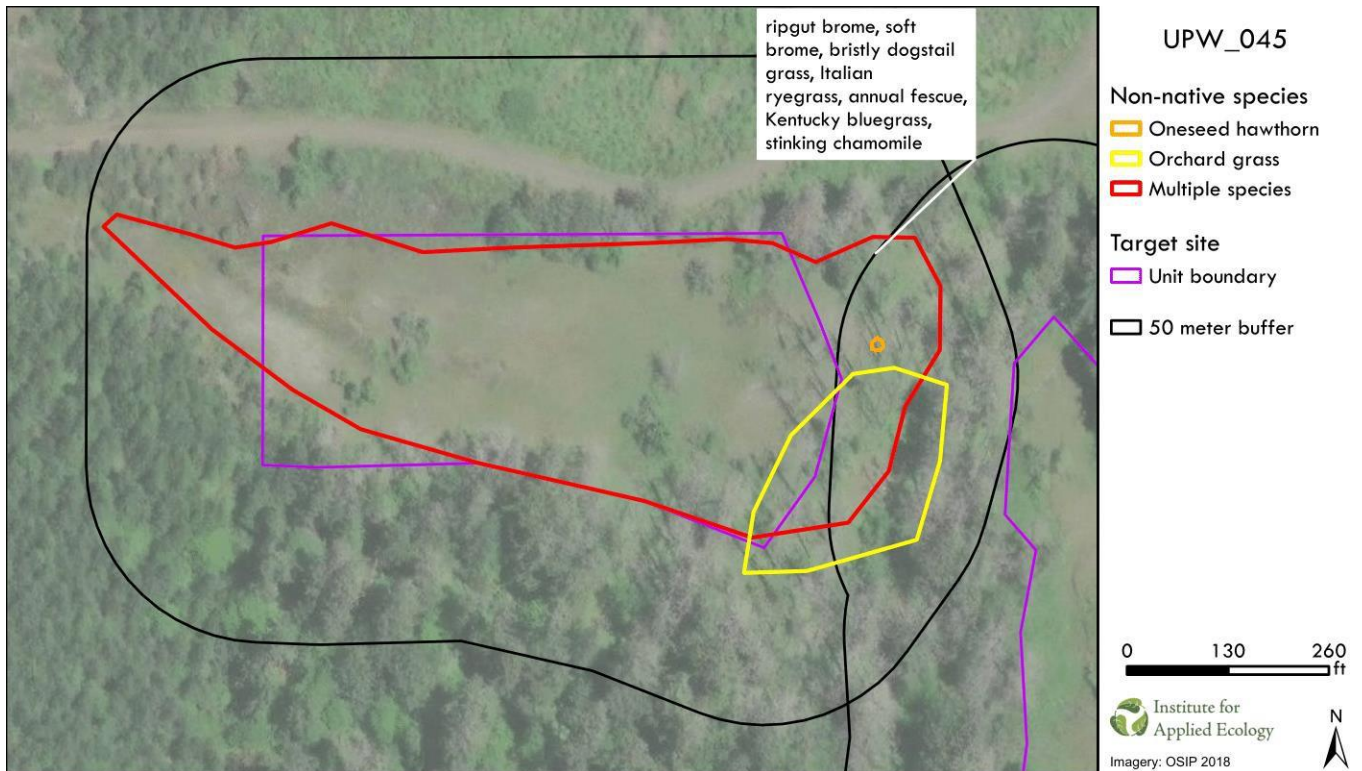
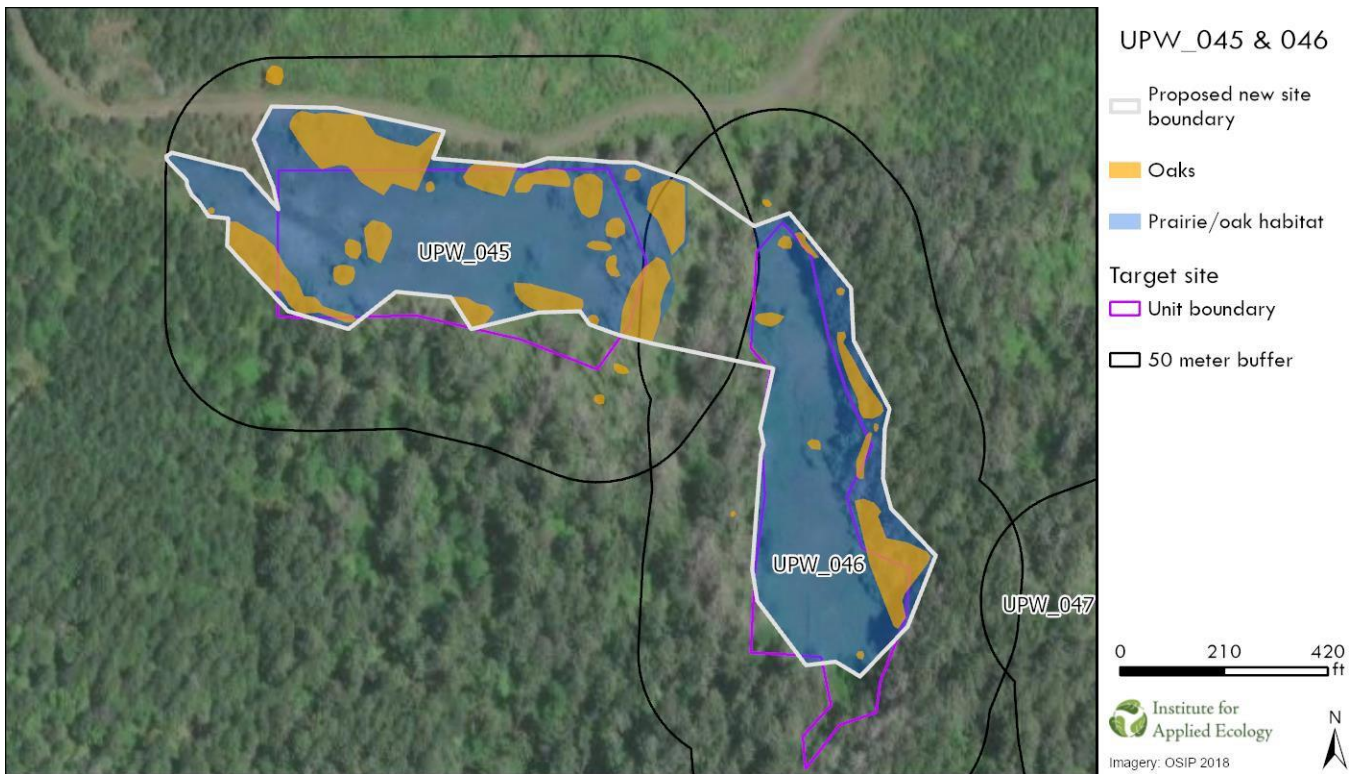


Figure H-99. Non-native species observed.



**Figure H-100.** Woody encroachment and human activity observed. Woody species of management concern observed in 2022 were poison oak, Himalayan blackberry, and Scotch broom.



**Figure H-101.** Recommended changes to the unit boundary based on habitat and/or oaks present.

North:



East:



South:



West:



**Figure H-102.** UPW\_045 photopoints taken at -122.925766, 43.913001.

## UPW\_046

General site information	
Date surveyed	5/31/2022
Observers (affiliation)	Annamarie Pfeifer, Annie Lamas, Zade Clark-Henry (IAE)
Unit ID	UPW_046
Site name	Papenfus
BLM Field Office	Upper Willamette
County	Lane
Township, Range, Section	T19S, R02W, Sec16
Recovery zone (USFWS 2010)	Eugene East
Land ownership	BLM, Northwest Oregon District
Contact person and contact information	Chad Conklin cconklin@blm.gov, 541-683-6120 (office), 541-517-0631 (cell)
Directions	Follow Papenfus Rd. to locked gate. Follow private timber roads to the site from the northeast. Access UPW_046 through UPW_045.
Photopoint coordinates	-122.923587, 43.911962

Habitat overview	
Unit area (acres)	2.21
Prairie and/or oak habitat present?	Yes
Habitat type (special habitat)	Oak savanna (mesic meadow, dry meadow)
Habitat type notes	The habitat is variable, with some thin, dry soils and exposed rock at the surface, and with some wet areas dominated by rushes ( <i>Juncus sp.</i> ). The entirety of the site is on a west-facing slope.
Slope (degrees)	20
Aspect	W
Elevation (feet)	1330
What maintains site openness?	Hydrology, soils
Evidence of human disturbance	No
Type of site	Open area surrounded by forest
Buffer or forested area description	Buffer is a second growth forest dominated by Douglas-fir ( <i>Pseudotsuga menziesii</i> ).
Do remnant oak or prairie species exist in the buffer or forested areas?	Yes
Remnant oak or prairie species observed (Alverson 2010)	California fescue ( <i>Festuca californica</i> ), toughleaf iris ( <i>Iris tenax</i> ), woodland strawberry ( <i>Fragaria vesca</i> ), snowqueen ( <i>Synthyris reniformis</i> ), blue wildrye ( <i>Elymus glaucus</i> ), Tolmie star-tulip ( <i>Calochortus tolmiei</i> ), Pacific hound's tongue ( <i>Cynoglossum grande</i> ).
General notes	Papenfus is a previous restoration site and proposed ACEC (Alverson, 2010). The extent of restoration, including native meadow species augmentation, is unclear. Shaggy horkelia ( <i>Horkelia congesta var. congesta</i> ) was not observed at this site at the time of visit.

Woody species			
Overall live woody cover (%)	6		
Live native tree cover (%)	3	Live non-native tree cover (%)	0

Live native shrub cover (%)	2	Live non-native shrub cover (%)	1
Live tree cover from oaks (%)	3	Standing dead woody cover (%)	0
Number oaks >15 in DBH	3		
Number of large trees (>40 in DBH)	8		
Species of large trees	Douglas-fir ( <i>Pseudotsuga menziesii</i> )		
Average Van Pelt score	<2 (35-80 years)		
Woody species encroaching on prairie habitat*+	Scotch broom ( <i>Cytisus scoparius</i> )*, Himalayan blackberry ( <i>Rubus bifrons</i> )*, poison oak ( <i>Toxicodendron diversilobum</i> )*		
Would removal of encroaching woody species result in the need for wood to be hauled off-site?	No		
Woody species notes	There are many standing dead conifers throughout the surrounding forests. The cause of death is unclear, but the result is a more open canopy with high light penetration in the understory.		

\*Woody species of management concern from the *Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington*.

+ Woody species of management concern that exceed 5% cover of the site.

Herbaceous non-native species	
Herbaceous non-native cover (%)	94
Most common non-native species	Soft brome ( <i>Bromus hordeaceus</i> ), ripgut brome ( <i>Bromus diandrus</i> ), annual fescue ( <i>Vulpia sp.</i> ), bristly dogtail grass ( <i>Cynosurus echinatus</i> ), Italian ryegrass ( <i>Lolium multiflorum</i> ), lesser hop trefoil ( <i>Trifolium dubium</i> )
Herbaceous non-native species notes	The site is dominated primarily by non-native annual grasses.

Herbaceous native species	
Herbaceous native cover (%)	6
Most common native species	Smallhead clover ( <i>Trifolium microcephalum</i> ), western buttercup ( <i>Ranunculus occidentalis</i> ), blue wildrye ( <i>Elymus glaucus</i> ), California brome ( <i>Bromus carinatus</i> ), seep monkeyflower ( <i>Mimulus guttatus</i> ), shortspur seablush ( <i>Plectritis congesta</i> ), Tolmie star-tulip ( <i>Calochortus tolmiei</i> ), common yarrow ( <i>Achillea millefolium</i> ), whitetip clover ( <i>Trifolium variegatum</i> ), rush ( <i>Juncus sp.</i> )
Relevé survey?	Yes (see <a href="#">Table H-6</a> )
T&E species present?	No
Seed collection potential?	California fescue ( <i>Festuca californica</i> ), blue wildrye ( <i>Elymus glaucus</i> ), shortspur seablush ( <i>Plectritis congesta</i> ), seep monkeyflower ( <i>Mimulus guttatus</i> ), California oatgrass ( <i>Danthonia californica</i> ), common woolly sunflower ( <i>Eriophyllum lanatum</i> ), California brome ( <i>Bromus carinatus</i> ), western buttercup ( <i>Ranunculus occidentalis</i> ), whitetip clover ( <i>Trifolium variegatum</i> ), tomcat clover ( <i>Trifolium willdenovii</i> ), smallhead clover ( <i>Trifolium microcephalum</i> ), juncus ( <i>Juncus sp.</i> ), Tolmie star-tulip ( <i>Calochortus tolmiei</i> )
Herbaceous native species notes	Native graminoids are relatively diverse, including five native bunchgrasses observed within the meadow area.

Wildlife	
Wildlife species of interest observed	Wrentit

Preliminary habitat restoration/management recommendations	
Overall ranking as a priority for restoration (high, moderate, or low)	High
Short-term recommended actions	Remove Scotch broom ( <i>Cytisus scoparius</i> ) and poison oak ( <i>Toxicodendron diversilobum</i> ) establishing in the site. Treat Himalayan blackberry ( <i>Rubus bifrons</i> ) establishing at meadow edges. Treat false brome ( <i>Brachypodium sylvaticum</i> ) and Italian thistle ( <i>Carduus pycnocephalus</i> ) patches in the north region of the meadow.
Long-term recommended actions	Treat non-native grasses dominating the meadow area. Amplify native species present and potentially augment site with native seed. Consider clearing Douglas-fir ( <i>Pseudotsuga menziesii</i> ) to create a corridor connecting UPW_046 to UPW_045.
Site accessibility issues	The road is near the site, but current access requires hiking through UPW_045.
Restoration action notes	Some restoration work appears to have occurred here in the past. Many Douglas-fir ( <i>Pseudotsuga menziesii</i> ) are standing dead, including those otherwise suppressing oaks, though the cause of death is unclear. It is unclear whether the meadow community has been modified with seed.

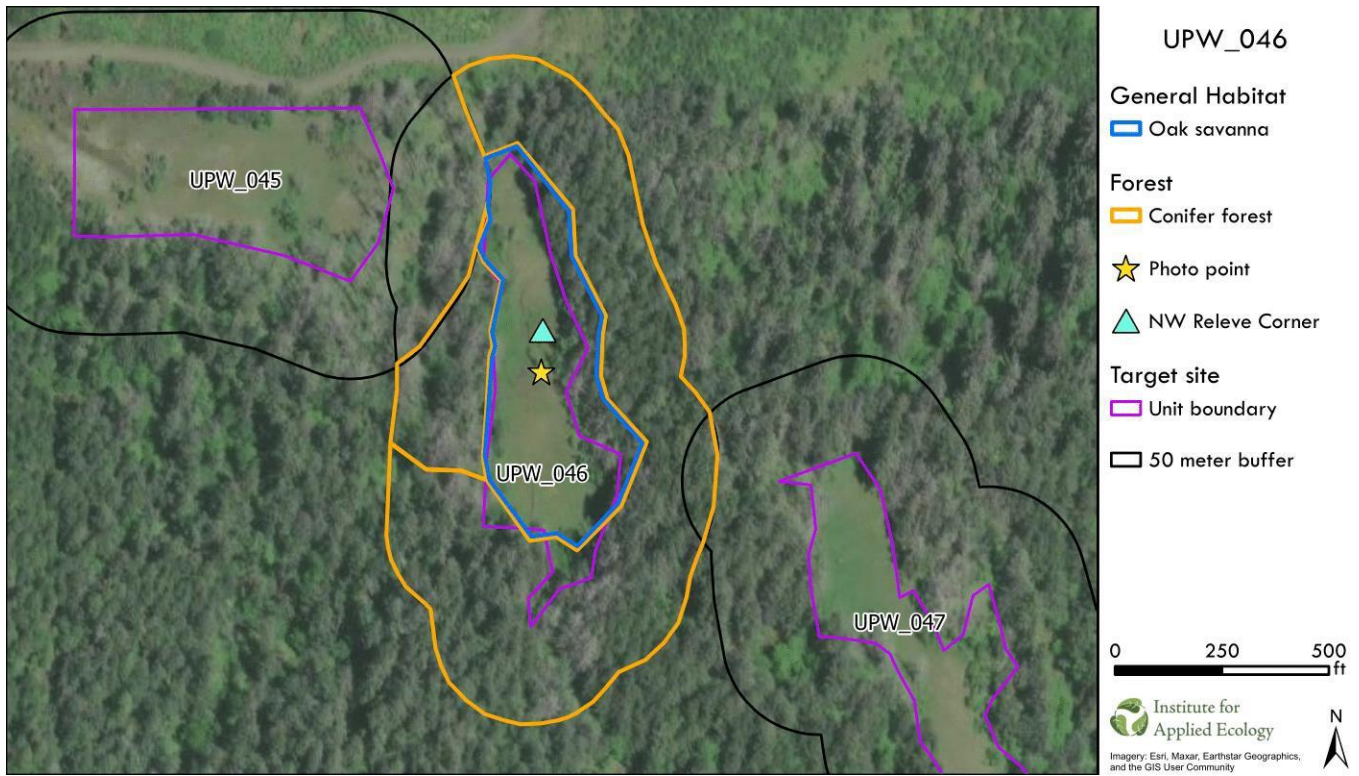
Modified prairie habitat quality summary (USFWS 2010)				
Oak habitat criteria		Data	Objective	Meets objectives?
Oaks present?		Yes	Yes	Yes
Number of oaks greater than 15 inches DBH?		3	≥1	Yes
Prairie habitat criteria		Data	Recovery Plan threshold	Meets threshold?
Native herbaceous species cover (%)		6	50% min	No
Woody species cover (%)		6	15% max	Yes
Does any one woody species of management concern exceed 5% cover?		No	5% max	Yes
Prairie diversity	Native forb richness	9	7	Yes
	Native bunchgrass richness	3	1	Yes
	Total native herbaceous species richness	14	>10	Yes
Do any non-native species exceed 50% cover within the relevé plot?		No	50%	Yes
Do any non-native species of particular concern exceed 5% cover?		No	5%	Yes

**Table H-6.** Relevé survey data. Braun-Blanquet cover scale: R = <5% and single individual, + = <5% and 2-20 individuals, 1 = <5% many individuals, 2 = 5-25%, 3 = 25-50%, 4 = 50-75%, 5 = 75-100%. The origin was listed as “unknown” for plants that were not identified to species and that have both native and non-native species in their genus.

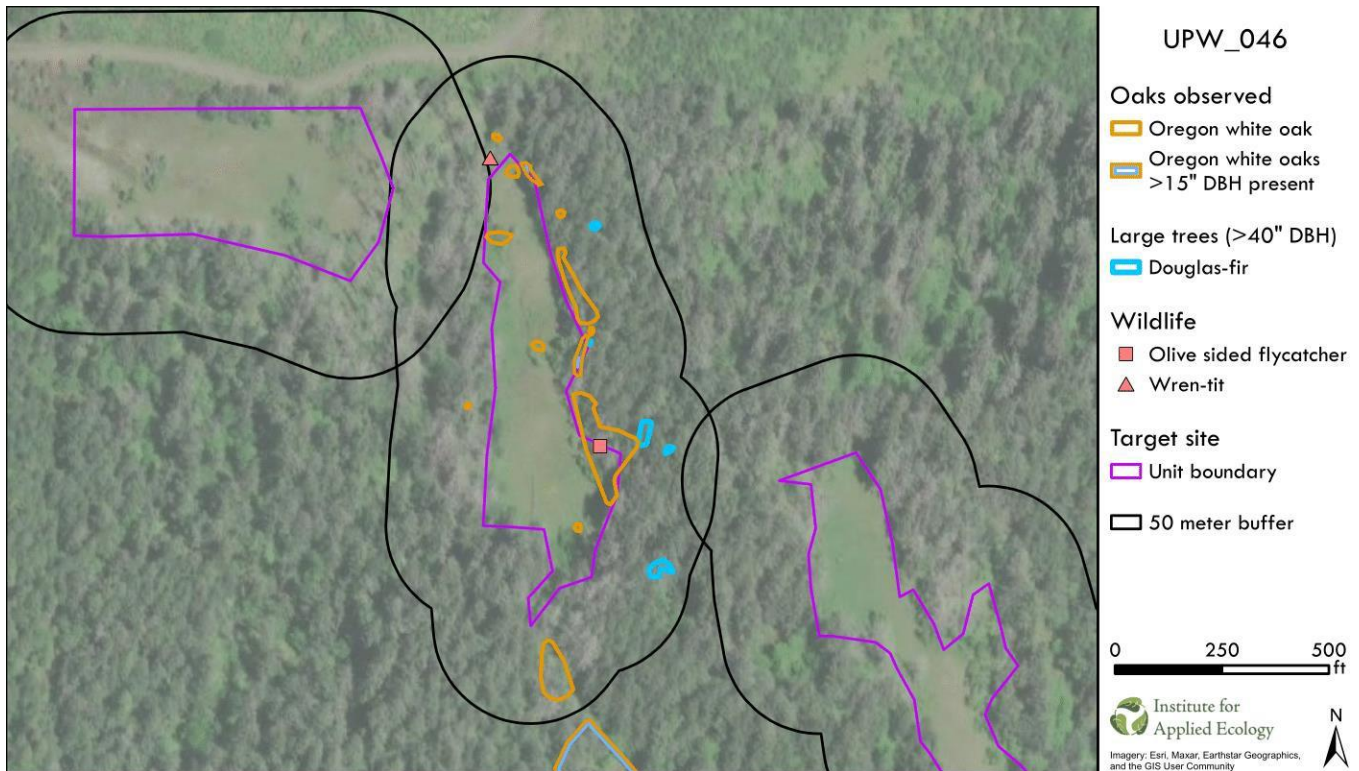
Relevé data for UPW_046			
Scientific name	Common name	Origin	Braun-Blanquet cover score
<i>Bromus carinatus</i>	California brome	Native	+
<i>Bromus hordeaceus</i>	soft brome	Invasive	1

Relevé data for UPW_046			
Scientific name	Common name	Origin	Braun-Blanquet cover score
<i>Bromus diandrus</i>	ripgut brome	Invasive	+
<i>Cynosurus echinatus</i>	bristly dogtail grass	Invasive	2
<i>Danthonia californica</i>	California oatgrass	Native	+
<i>Elymus glaucus</i>	blue wildrye	Native	+
<i>Achillea millefolium</i>	common yarrow	Native	1
<i>Cerastium glomeratum</i>	sticky chickweed	Invasive	1
<i>Mimulus guttatus</i>	seep monkeyflower	Native	1
<i>Geranium dissectum</i>	cutleaf geranium	Invasive	1
<i>Hypochaeris radicata</i>	hairy cat's ear	Invasive	+
<i>Leucanthemum vulgare</i>	oxeye daisy	Invasive	+
<i>Linum bienne</i>	pale flax	Invasive	1
<i>Plantago lanceolata</i>	narrowleaf plantain	Invasive	1
<i>Plectritis congesta</i>	shortspur seablush	Native	2
<i>Ranunculus occidentalis</i>	western buttercup	Native	1
<i>Ranunculus orthorhynchus</i>	straightbeak buttercup	Native	1
<i>Sherardia arvensis</i>	blue fieldmadder	Invasive	1
<i>Torilis arvensis</i>	spreading hedgeparsley	Invasive	1
<i>Valerianella locusta</i>	Lewiston salad	Invasive	+
<i>Vicia sativa</i>	garden vetch	Invasive	1
<i>Vicia hirsuta</i>	tiny vetch	Invasive	1
<i>Geranium pusillum</i>	small geranium	Invasive	1
<i>Trifolium variegatum</i>	whitetip clover	Native	2
<i>Parentucellia viscosa</i>	yellow glandweed	Invasive	+
<i>Dichelostemma congestum</i>	ookow	Native	1
<i>Sanicula bipinnatifida</i>	purple sanicle	Native	+
<i>Vulpia bromoides</i>	brome fescue	Invasive	+
<i>Aster sp. (Cichorieae)</i>	#N/A	#N/A	+
<i>Briza minor</i>	little quakinggrass	Invasive	1
<i>Lolium multiflorum</i>	Italian ryegrass	Invasive	3
<i>Juncus patens</i>	spreading rush	Native	1
<i>Juncus occidentalis</i>	western rush	Native	1
<i>Luzula comosa</i>	Pacific woodrush	Native	+

Relevé substrate (%)			
Bare	Moss/Lichen	Rock	Thatch
0.5	0.5	0	2



**Figure H-103.** Overview of UPW\_046 with habitat, forested buffer areas, photopoint, and releve plot location.



**Figure H-104.** Oaks, large trees, pines, and wildlife observed, if applicable.



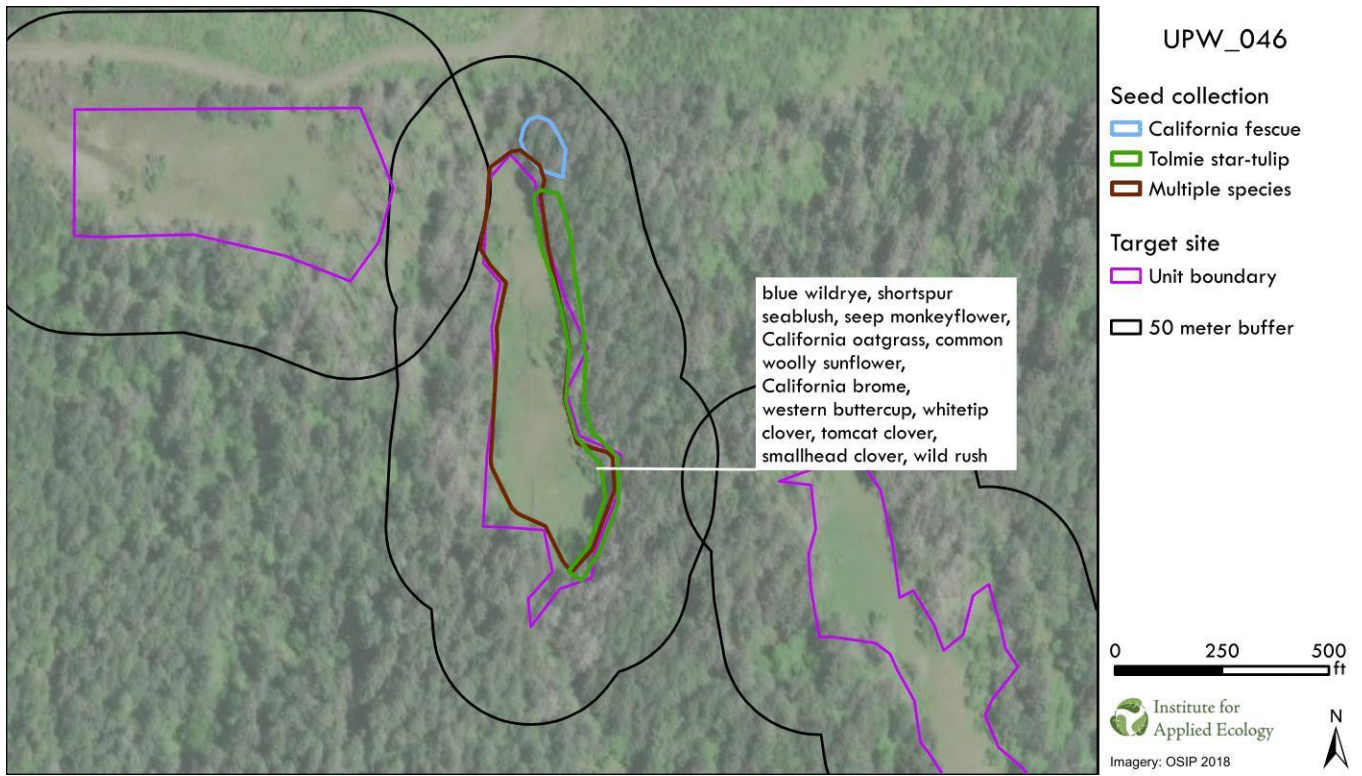


Figure H-105. Seed collection species observed.

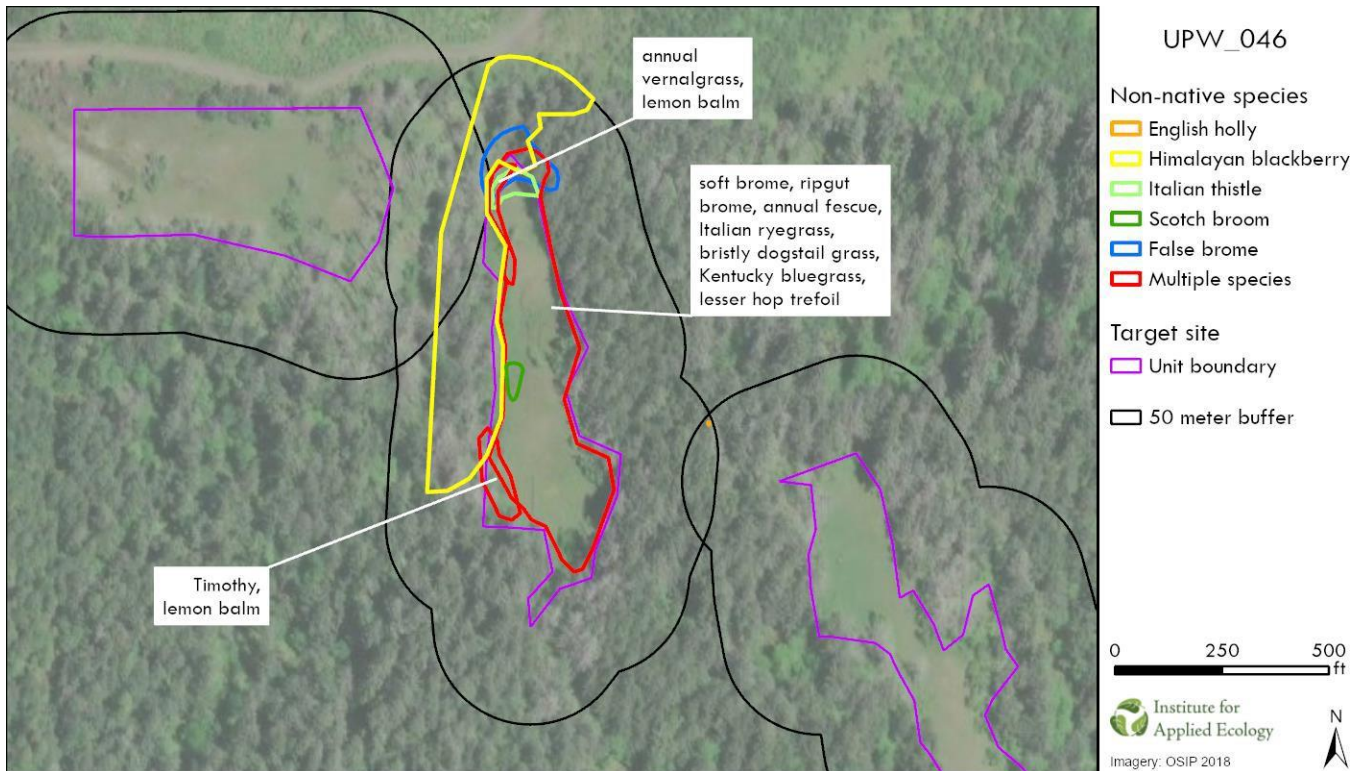
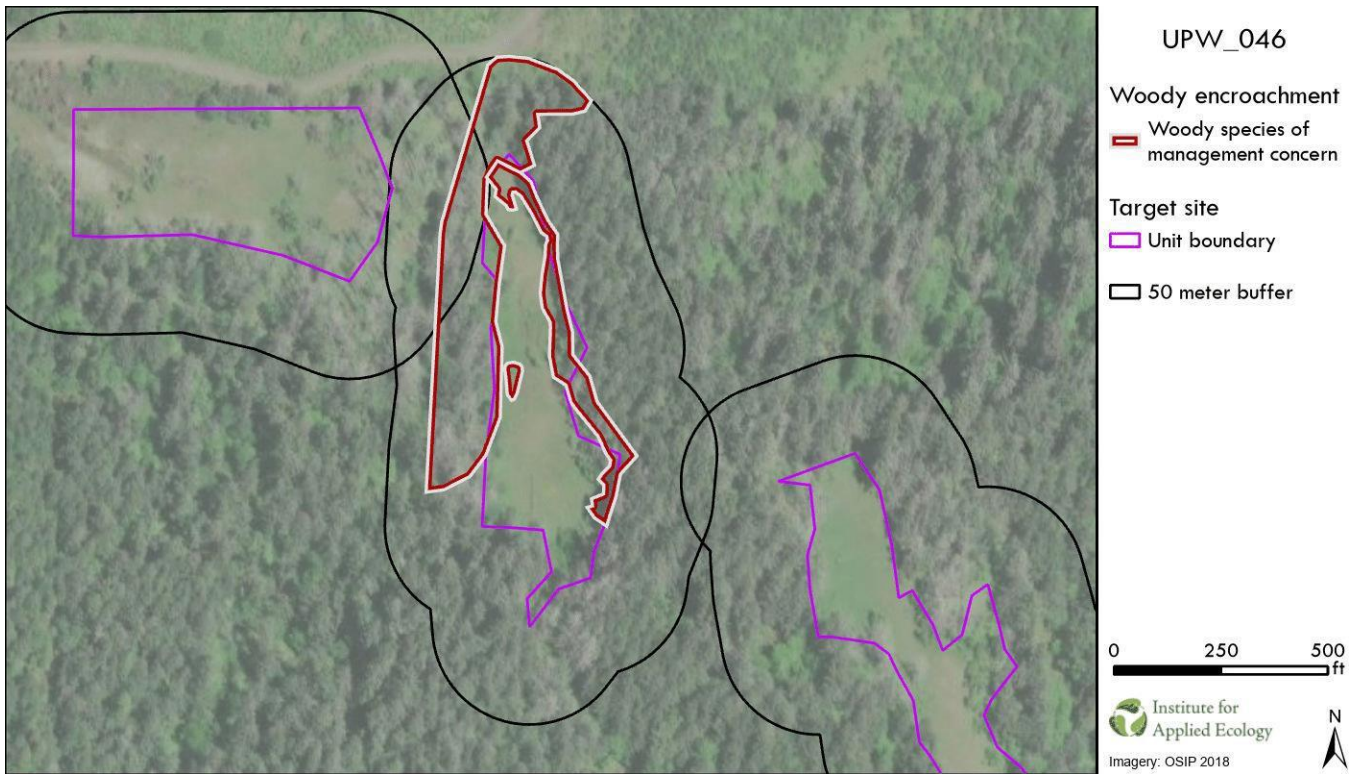
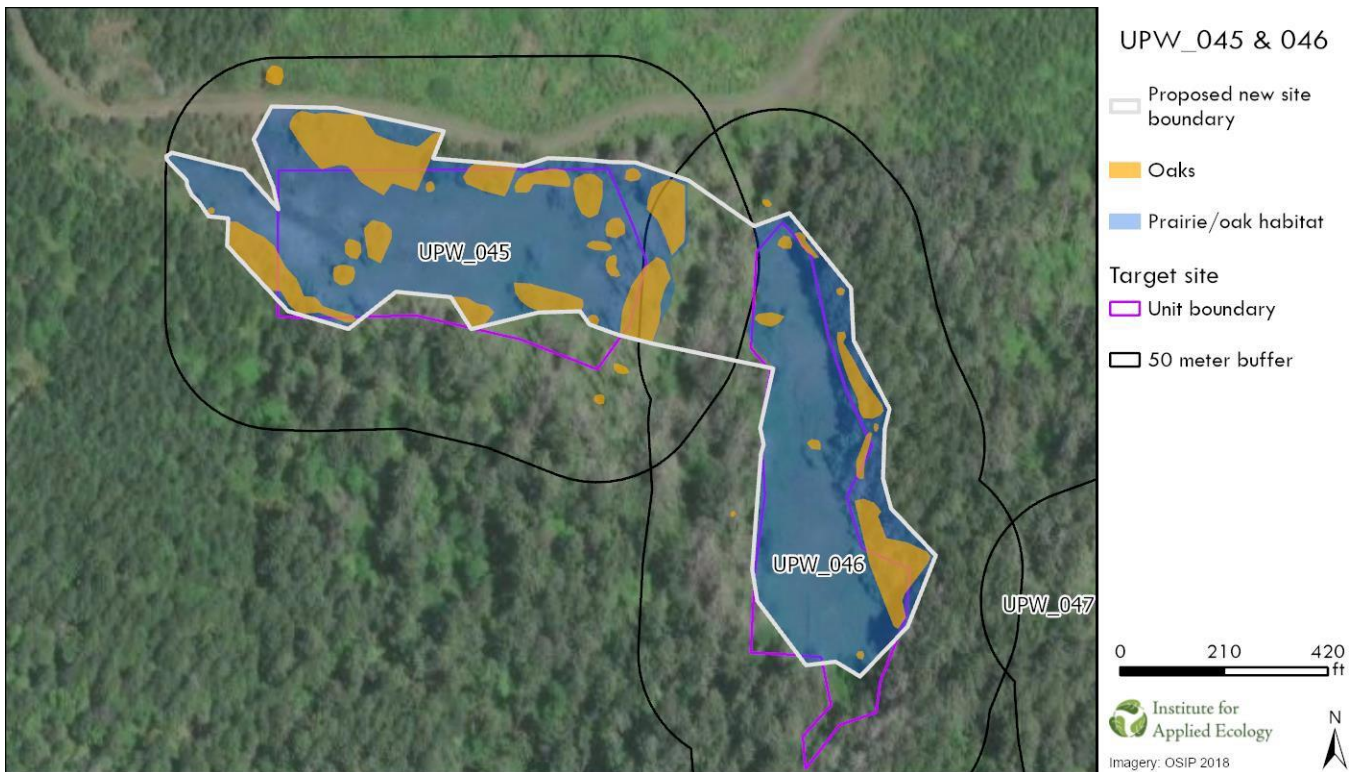


Figure H-106. Non-native species observed.



**Figure H-107.** Woody encroachment and human activity observed. Woody species of management concern observed in 2022 were poison oak, Himalayan blackberry, and Scotch broom.



**Figure H-108.** Recommended changes to the unit boundary based on habitat and/or oaks present.

North:



East:



South:



West:



**Figure H-109.** UPW\_046 photopoints taken at -122.923587, 43.911962.

## UPW\_047

General site information	
Date surveyed	5/31/2022
Observers (affiliation)	Annamarie Pfeifer, Annie Lamas, Zade Clark-Henry (IAE)
Unit ID	UPW_047
Site name	Papenfus
BLM Field Office	Upper Willamette
County	Lane
Township, Range, Section	T19S, R02W, Sec15
Recovery zone (USFWS 2010)	Eugene East
Land ownership	BLM, Northwest Oregon District
Contact person and contact information	Chad Conklin cconklin@blm.gov, 541-683-6120 (office), 541-517-0631 (cell)
Directions	Follow Papenfus Rd. to the locked gate. Follow the private timber roads to the site from the northeast. Walk uphill through UPW_045 and UPW_046 and continue southeast to the site.
Photopoint coordinates	-122.921386, 43.910957

Habitat overview	
Unit area (acres)	2.48
Prairie and/or oak habitat present?	Yes
Habitat type (special habitat)	Oak savanna (dry meadow)
Habitat type notes	The northern half of the site is dominated by tall, perennial grasses with high herbaceous diversity. The southern half of the site is a flat ridgetop with shallow soils, sparse grass, and exposed rock.
Slope (degrees)	8
Aspect	WSW
Elevation (feet)	1500
What maintains site openness?	Fire disturbance, hydrology, soils
Evidence of human disturbance	No
Type of site	Open area surrounded by forest
Buffer or forested area description	Buffer is a second growth forest dominated by Douglas-fir ( <i>Pseudotsuga menziesii</i> ) and co-dominated by bigleaf maple ( <i>Acer macrophyllum</i> ).
Do remnant oak or prairie species exist in the buffer or forested areas?	Yes
Remnant oak or prairie species observed (Alverson 2010)	California brome ( <i>Bromus carinatus</i> ), Pacific hound's tongue ( <i>Cynoglossum grande</i> ), woodland strawberry ( <i>Fragaria vesca</i> ), blue wildrye ( <i>Elymus glaucus</i> ), Oregon white oak ( <i>Quercus garryana</i> ), toughleaf iris ( <i>Iris tenax</i> )
General notes	Papenfus is a previous restoration site and proposed ACEC (Alverson, 2010). The extent of restoration, including native meadow species augmentation, is unclear. Shaggy horkelia ( <i>Horkelia congesta</i> var. <i>congesta</i> ) was not observed at this site at the time of visit.

## Woody species

Overall live woody cover (%)	20		
Live native tree cover (%)	9	Live non-native tree cover (%)	0
Live native shrub cover (%)	7	Live non-native shrub cover (%)	4
Live tree cover from oaks (%)	7	Standing dead woody cover (%)	1
Number oaks >15 in DBH	5		
Number of large trees (>40 in DBH)	11		
Species of large trees	Douglas-fir ( <i>Pseudotsuga menziesii</i> )		
Average Van Pelt score	2/3 (70-160 years)		
Woody species encroaching on prairie habitat*+	Himalayan blackberry ( <i>Rubus bifrons</i> )*, sweetbriar rose ( <i>Rosa rubiginosa</i> )*, poison oak ( <i>Toxicodendron diversilobum</i> )*, oceanspray ( <i>Holodiscus discolor</i> ), one-seed hawthorn ( <i>Crataegus monogyna</i> )*, Scotch broom ( <i>Cytisus scoparius</i> )*		
Would removal of encroaching woody species result in the need for wood to be hauled off-site?	No		
Woody species notes	Bigleaf maple ( <i>Acer macrophyllum</i> ) is codominant in the western buffer only. Oaks in the eastern buffer could be connected to the larger habitat by removing Douglas-fir ( <i>Pseudotsuga menziesii</i> ).		

\*Woody species of management concern from the *Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington*.

+ Woody species of management concern that exceed 5% cover of the site.

Herbaceous non-native species	
Herbaceous non-native cover (%)	85
Most common non-native species	Queen Anne's lace ( <i>Daucus carota</i> ), annual vernalgrass ( <i>Anthoxanthum aristatum</i> ), ripgut brome ( <i>Bromus diandrus</i> ), soft brome ( <i>Bromus hordeaceus</i> ), bluegrass ( <i>Poa sp.</i> ), orchard grass ( <i>Dactylis glomerata</i> )

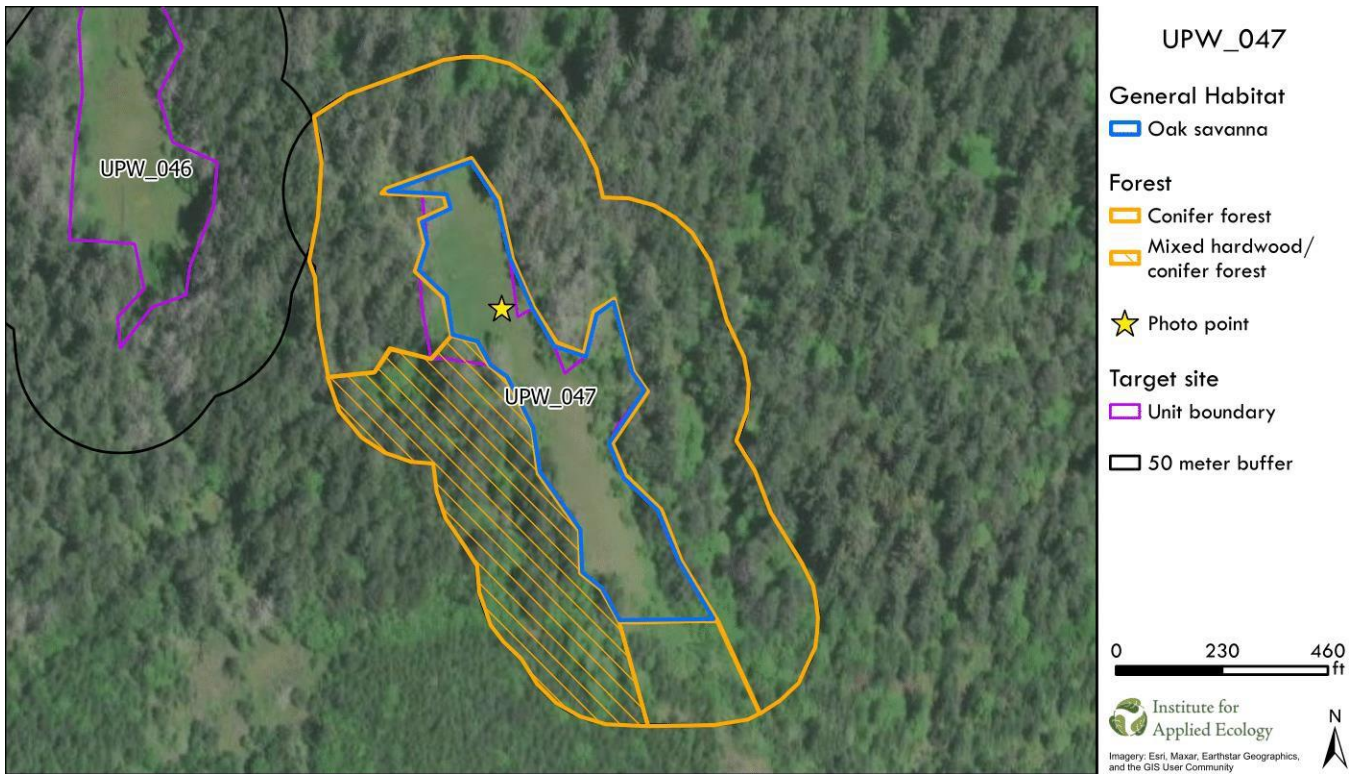
Herbaceous native species	
Herbaceous native cover (%)	15
Most common native species	Tolmie star-tulip ( <i>Calochortus tolmiei</i> ), California brome ( <i>Bromus carinatus</i> ), Roemer's fescue ( <i>Festuca roemerii</i> ), common woolly sunflower ( <i>Eriophyllum lanatum</i> ), Virginia strawberry ( <i>Fragaria virginiana</i> ), blue wildrye ( <i>Elymus glaucus</i> ), smallhead clover ( <i>Trifolium microcephalum</i> )
Relevé survey?	No
T&E species present?	No
Seed collection potential?	Deltoid balsamroot ( <i>Balsamorhiza deltoidea</i> ), California fescue ( <i>Festuca californica</i> ), California brome ( <i>Bromus carinatus</i> ), blue wildrye ( <i>Elymus glaucus</i> ), Tolmie star-tulip ( <i>Calochortus tolmiei</i> ), western buttercup ( <i>Ranunculus occidentalis</i> ), narrow leaf mule-ears ( <i>Wyethia angustifolia</i> ), whitetip clover ( <i>Trifolium variegatum</i> ), common yarrow ( <i>Achillea millefolium</i> ), common woolly sunflower ( <i>Eriophyllum lanatum</i> ), Roemer's fescue ( <i>Festuca roemerii</i> ), Virginia strawberry ( <i>Fragaria virginiana</i> ), shortspur seablush ( <i>Plectritis congesta</i> ), smallhead clover ( <i>Trifolium microcephalum</i> ), seep monkeyflower ( <i>Mimulus guttatus</i> ), Menzies' larkspur ( <i>Delphinium menziesii</i> ), prairie Junegrass ( <i>Koeleria macrantha</i> )
Herbaceous native species notes	Many native bunchgrasses are present. California brome ( <i>Bromus carinatus</i> ) and Alaska brome ( <i>Bromus sitchensis</i> ) are both present.

Wildlife	
Wildlife species of interest observed	Wrentit

Preliminary habitat restoration/management recommendations	
Overall ranking as a priority for restoration (high, moderate, or low)	High
Short-term recommended actions	Mow or pull Himalayan blackberry ( <i>Rubus bifrons</i> ), poison oak ( <i>Toxicodendron diversilobum</i> ), Scotch broom ( <i>Cytisus scoparius</i> ), one-seed hawthorn ( <i>Crataegus monogyna</i> ), and sweetbriar rose ( <i>Rosa rubiginosa</i> ) encroaching on the open meadow. Cut the incense cedars ( <i>Calocedrus decurrens</i> ) that are establishing in the meadow. Release the oaks from conifer suppression, including in the forest buffer.
Long-term recommended actions	Treat non-native grasses and oxeye daisy ( <i>Leucanthemum vulgare</i> ). Implement prescribed burns to keep woody species from encroaching into the meadow and to remove accumulated thatch. Amplify native species present in the site.
Site accessibility issues	This site is up a relatively steep hill through conifer forest. Heavy machinery is not likely feasible for restoration.

Modified prairie habitat quality summary (USFWS 2010)				
Oak habitat criteria		Data	Objective	Meets objectives?
Oaks present?		Yes	Yes	Yes
Number of oaks greater than 15 inches DBH?		5	≥1	Yes
Prairie habitat criteria		Data	Recovery Plan threshold	Meets threshold?
Native herbaceous species cover (%)		15	50% min	No
Woody species cover (%)		20	15% max	No
Does any one woody species of management concern exceed 5% cover?		No	5% max	Yes
Prairie diversity	Native forb richness	7*	7	Yes
	Native bunchgrass richness	2*	1	Yes
	Total native herbaceous species richness	10*	>10	No
Do any non-native species exceed 50% cover within the relevé plot?		N/A	50%	No Data
Do any non-native species of particular concern exceed 5% cover?		N/A	5%	No Data

\*Data taken from UPW\_045 based on similar herbaceous vegetative communities



**Figure H-110.** Overview of UPW\_047 with habitat, forested buffer areas, and photopoint location.



**Figure H-111.** Oaks, large trees, pines, and wildlife observed, if applicable.

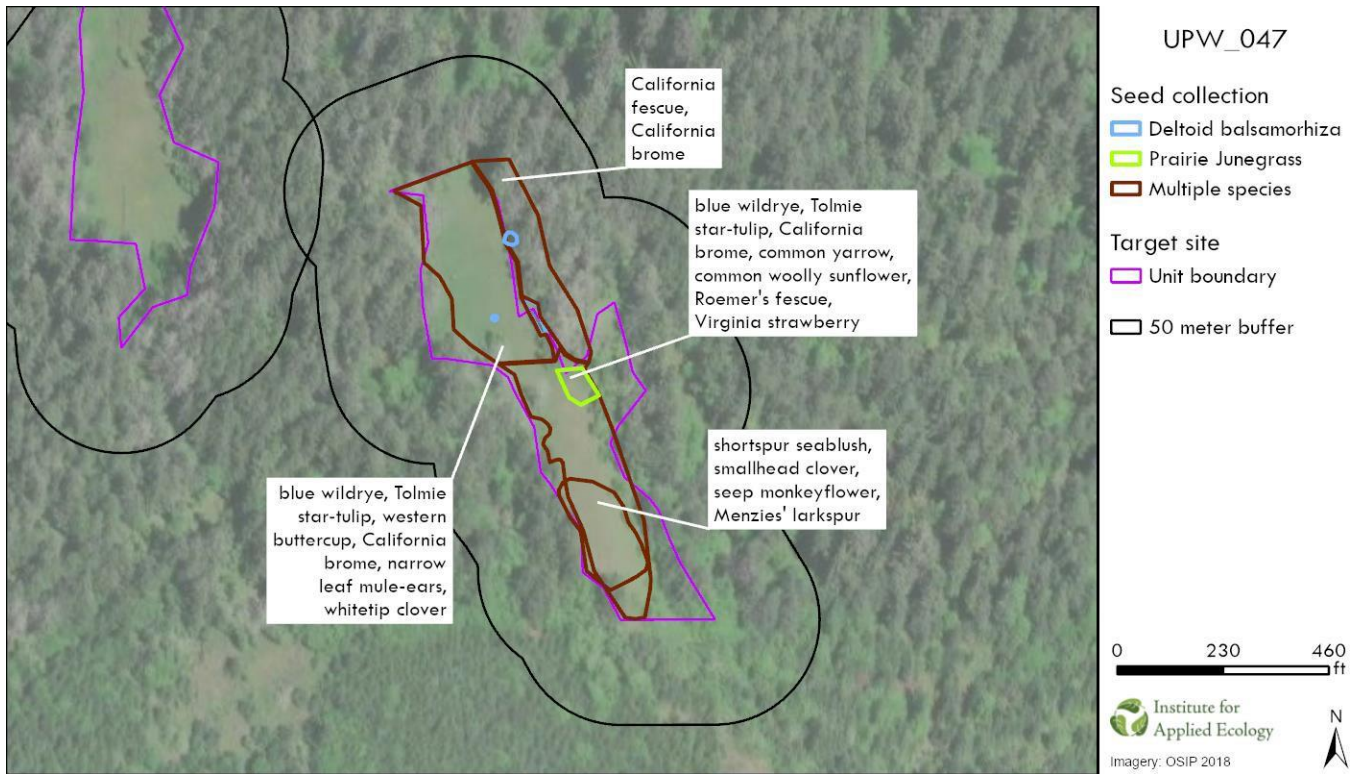


Figure H-112. Seed collection species observed.

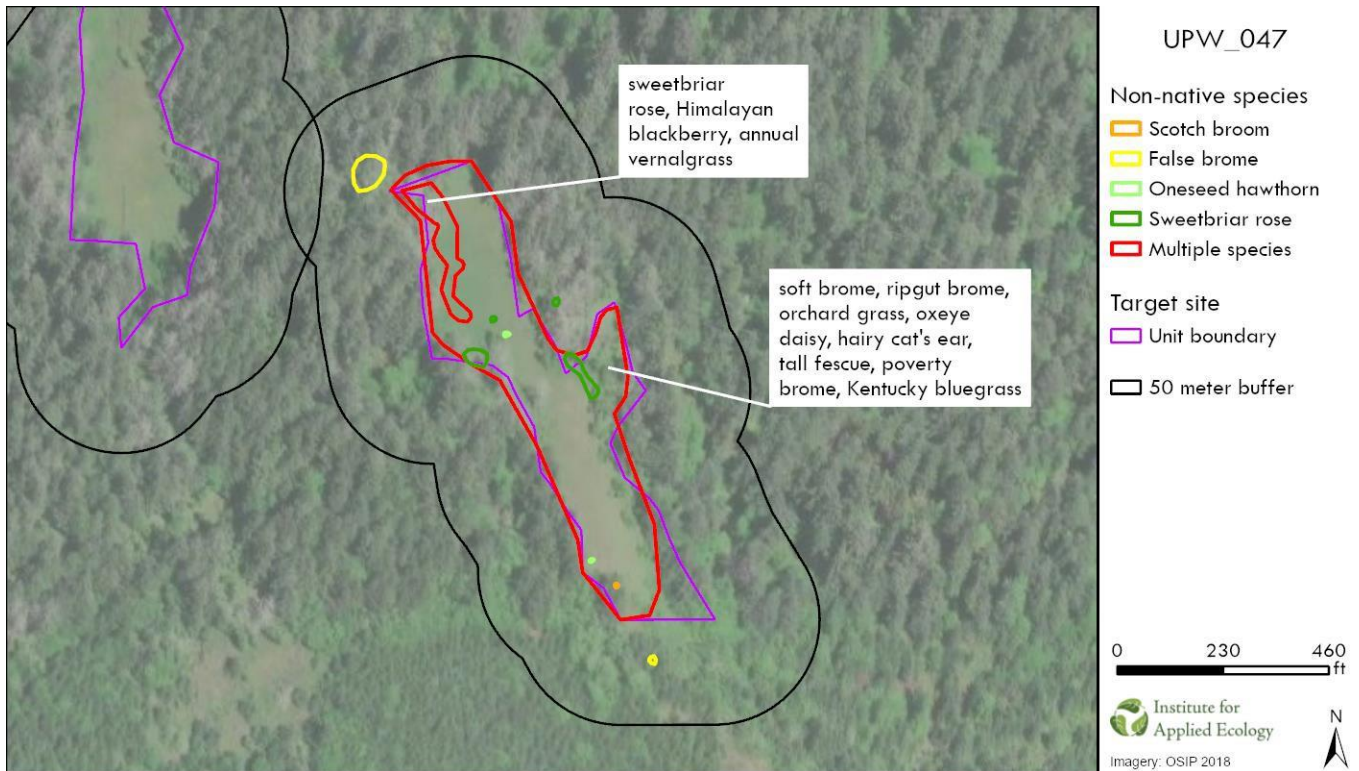
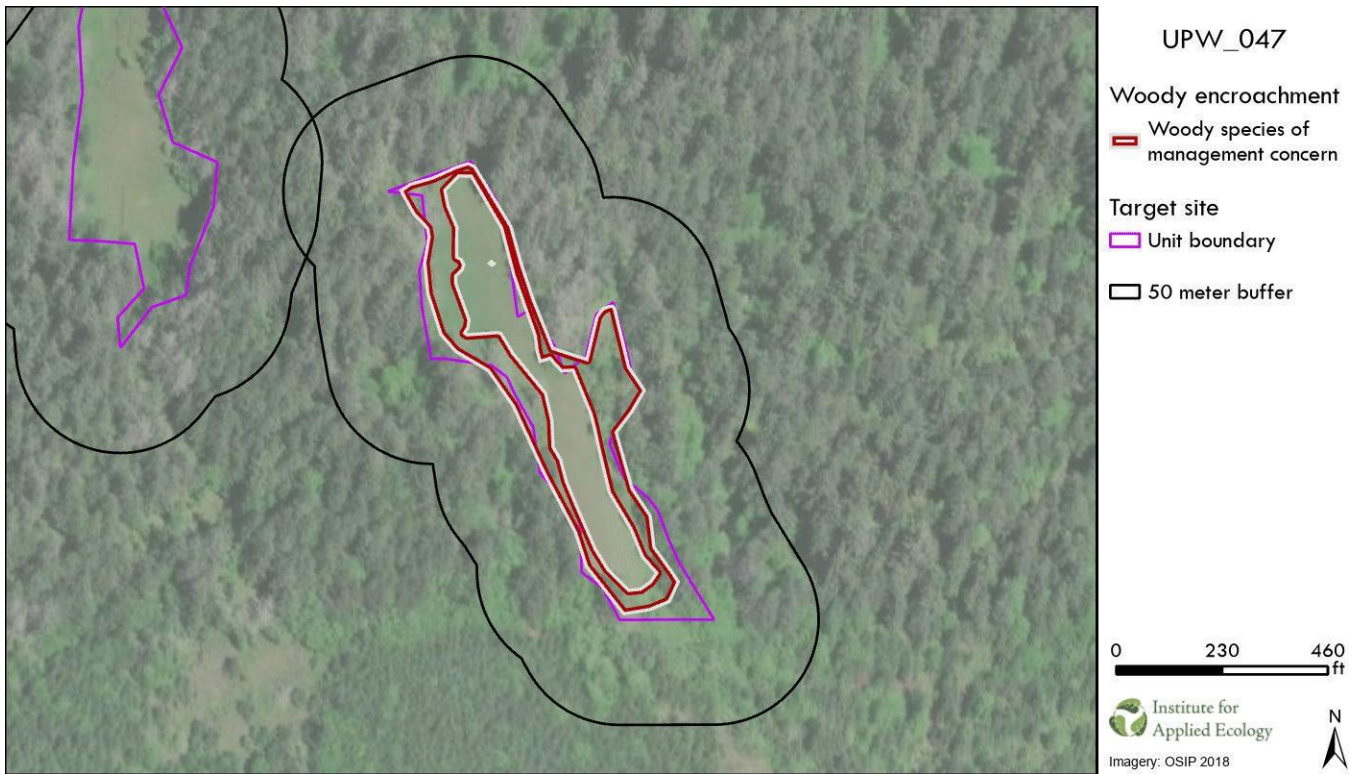
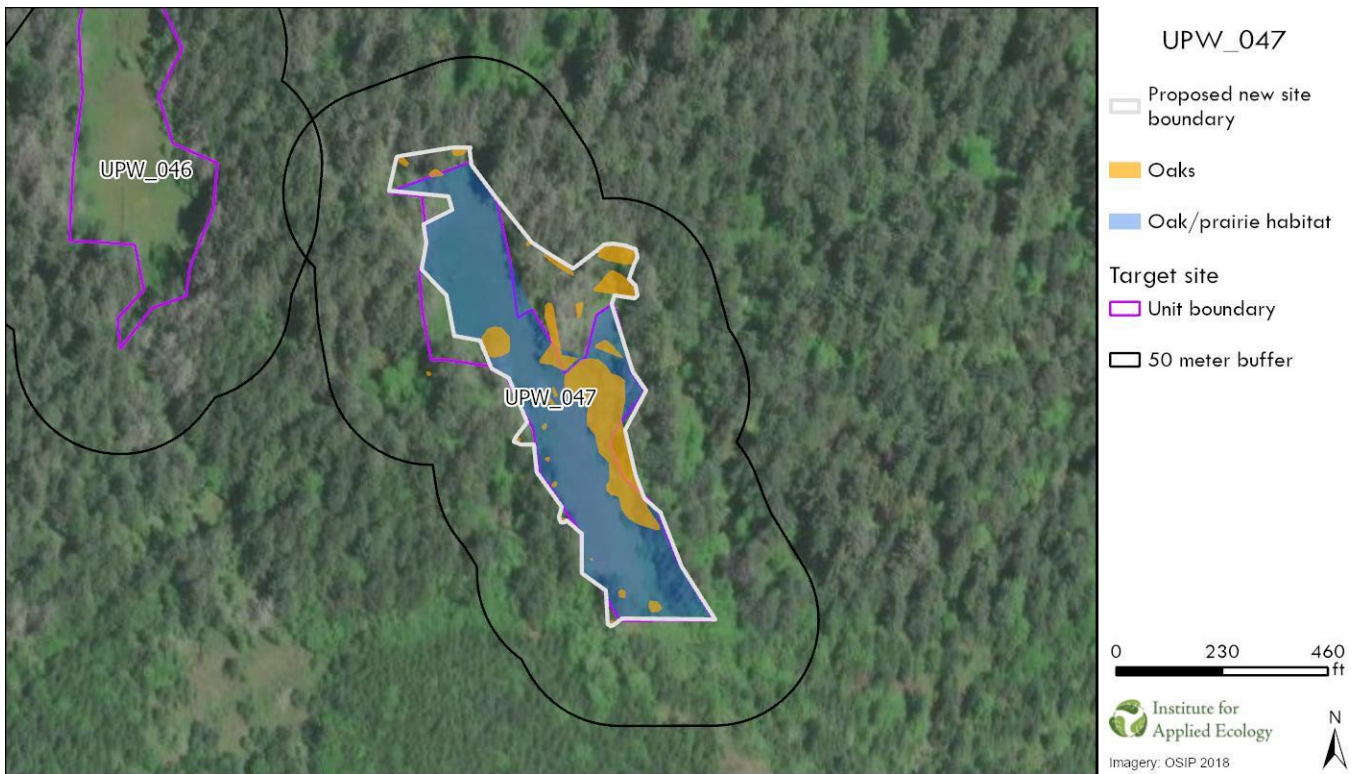


Figure H-113. Non-native species observed.





**Figure H-114.** Woody encroachment and human activity observed. Woody species of management concern observed in 2022 were poison oak, Himalayan blackberry, oneseed hawthorn, Scotch broom, and sweetbriar rose.



**Figure H-115.** Recommended changes to the unit boundary based on habitat and/or oaks present.

North:



East:



South:



West:



**Figure H-116.** UPW\_047 photopoints taken at -122.921386, 43.910957.

## SPRINGFIELD

### UPW\_032

General site information	
Date surveyed	5/11/2022
Observers (affiliation)	Annamarie Pfeifer, Annie Lamas, Sara Alaica, Zade Clark-Henry (IAE)
Unit ID	UPW_032
Site name	Black Canyon Road
BLM Field Office	Upper Willamette
County	Lane
Township, Range, Section	T17S, R02W, Sec07
Recovery zone (USFWS 2010)	Eugene East
Land ownership	BLM, Northwest Oregon District
Contact person and contact information	Chad Conklin cconklin@blm.gov, 541-683-6120 (office), 541-517-0631 (cell)
Directions	Take Old Mohawk Rd. to Black Canyon Rd., park at the intersection east of the site.
Photopoint coordinates	-122.985865, 44.111946

Habitat overview	
Unit area (acres)	4.99
Prairie and/or oak habitat present?	Yes
Habitat type (special habitat)	Oak woodland, mixed hardwood/conifer forest (mesic meadow)
Habitat type notes	The habitat at this site is comprised of a mature oak woodland with many smaller, heavily encroached oaks surrounding the woodland.
Slope (degrees)	5
Aspect	NE
Elevation (feet)	1350
What maintains site openness?	Hydrology
Evidence of human disturbance	No
Type of site	Open area surrounded by forest
Buffer or forested area description	The buffer is a second growth forest dominated by Douglas-fir ( <i>Pseudotsuga menziesii</i> ).
Do remnant oak or prairie species exist in the buffer or forested areas?	Yes
Remnant oak or prairie species observed (Alverson 2010)	Snowqueen ( <i>Synthyris reniformis</i> ), woodland strawberry ( <i>Fragaria vesca</i> ), toughleaf iris ( <i>Iris tenax</i> )
General notes	This site contains a heavily encroached oak meadow adjacent to an old growth oak woodland. The oak habitat is surrounded by second growth Douglas-fir-dominated forest.

Woody species			
Overall live woody cover (%)	95		
Live native tree cover (%)	76	Live non-native tree cover (%)	0
Live native shrub cover (%)	3	Live non-native shrub cover (%)	16

Live tree cover from oaks (%)	28	Standing dead woody cover (%)	1
Number oaks >15 in DBH	21		
Number of large trees (>40 in DBH)	0		
Woody species encroaching on prairie habitat*+	Himalayan blackberry ( <i>Rubus bifrons</i> ) <sup>+</sup> , poison oak ( <i>Toxicodendron diversilobum</i> ) <sup>*</sup> , Scotch broom ( <i>Cytisus scoparius</i> ) <sup>*</sup> , incense cedar ( <i>Calocedrus decurrens</i> ), Douglas-fir ( <i>Pseudotsuga menziesii</i> ) one-seed hawthorn ( <i>Crataegus monogyna</i> ) <sup>*</sup> , cutleaf blackberry ( <i>Rubus laciniatus</i> ) <sup>*</sup> , sweetbriar rose ( <i>Rosa rubiginosa</i> ) <sup>*</sup>		
Would removal of encroaching woody species result in the need for wood to be hauled off-site?	No		
Woody species notes	Old growth Pacific madrone ( <i>Arbutus menziesii</i> ) and bigleaf maple ( <i>Acer macrophyllum</i> ) are present in the conifer forest buffer. These should be protected if any logging occurs at this site.		

\*Woody species of management concern from the *Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington*.

+ Woody species of management concern that exceed 5% cover of the site.

Herbaceous non-native species	
Herbaceous non-native cover (%)	65
Most common non-native species	Oxeye daisy ( <i>Leucanthemum vulgare</i> ), orchard grass ( <i>Dactylis glomerata</i> ), annual fescue ( <i>Vulpia</i> sp.)
Herbaceous non-native species notes	Herbaceous non-native species present in all openings in woody vegetation throughout the site.

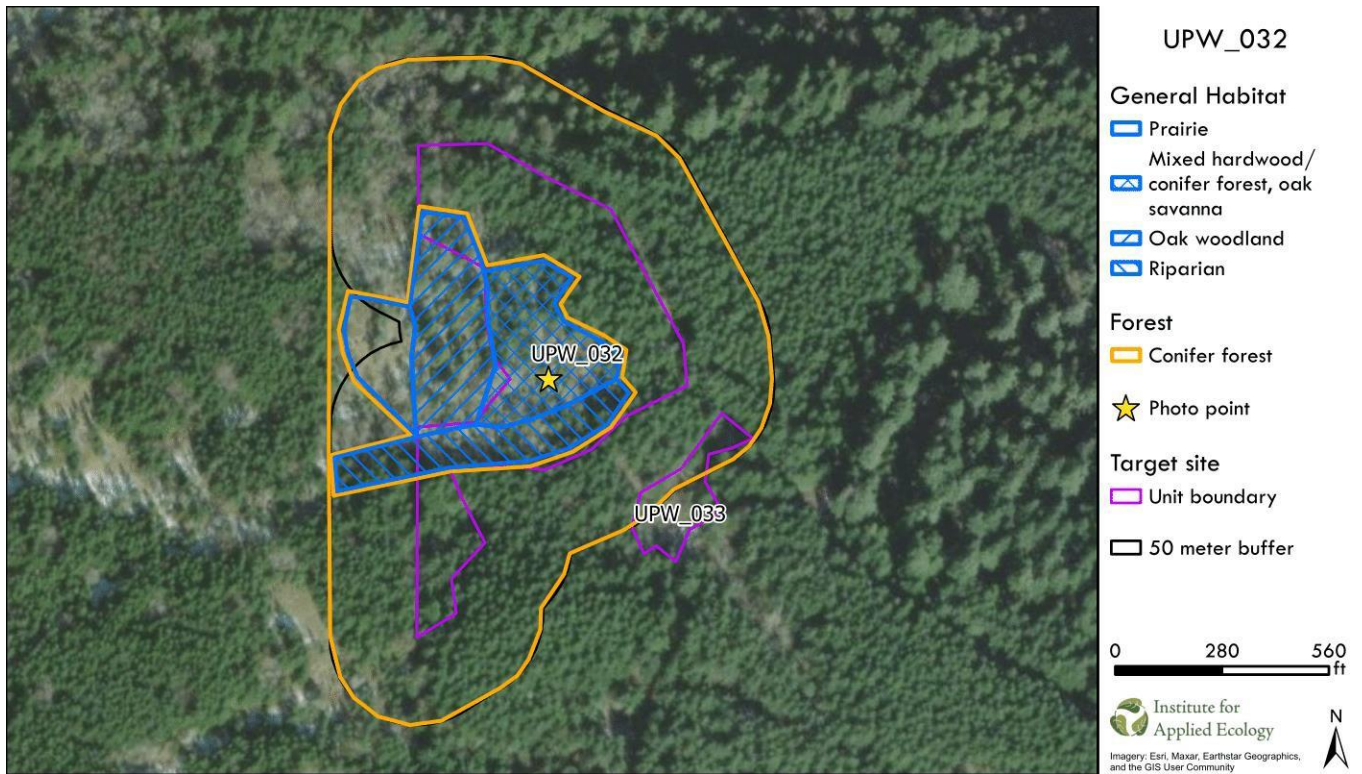
Herbaceous native species	
Herbaceous native cover (%)	35
Most common native species	Small camas ( <i>Camassia quamash</i> ), woodland strawberry ( <i>Fragaria vesca</i> ), toughleaf iris ( <i>Iris tenax</i> ), California fescue ( <i>Festuca californica</i> ), American vetch ( <i>Vicia americana</i> )
Relevé survey?	No
T&E species present?	No
Seed collection potential?	California fescue ( <i>Festuca californica</i> ), toughleaf iris ( <i>Iris tenax</i> ), blue wildrye ( <i>Elymus glaucus</i> ), small camas ( <i>Camassia quamash</i> )

Wildlife	
Wildlife species of interest observed	None

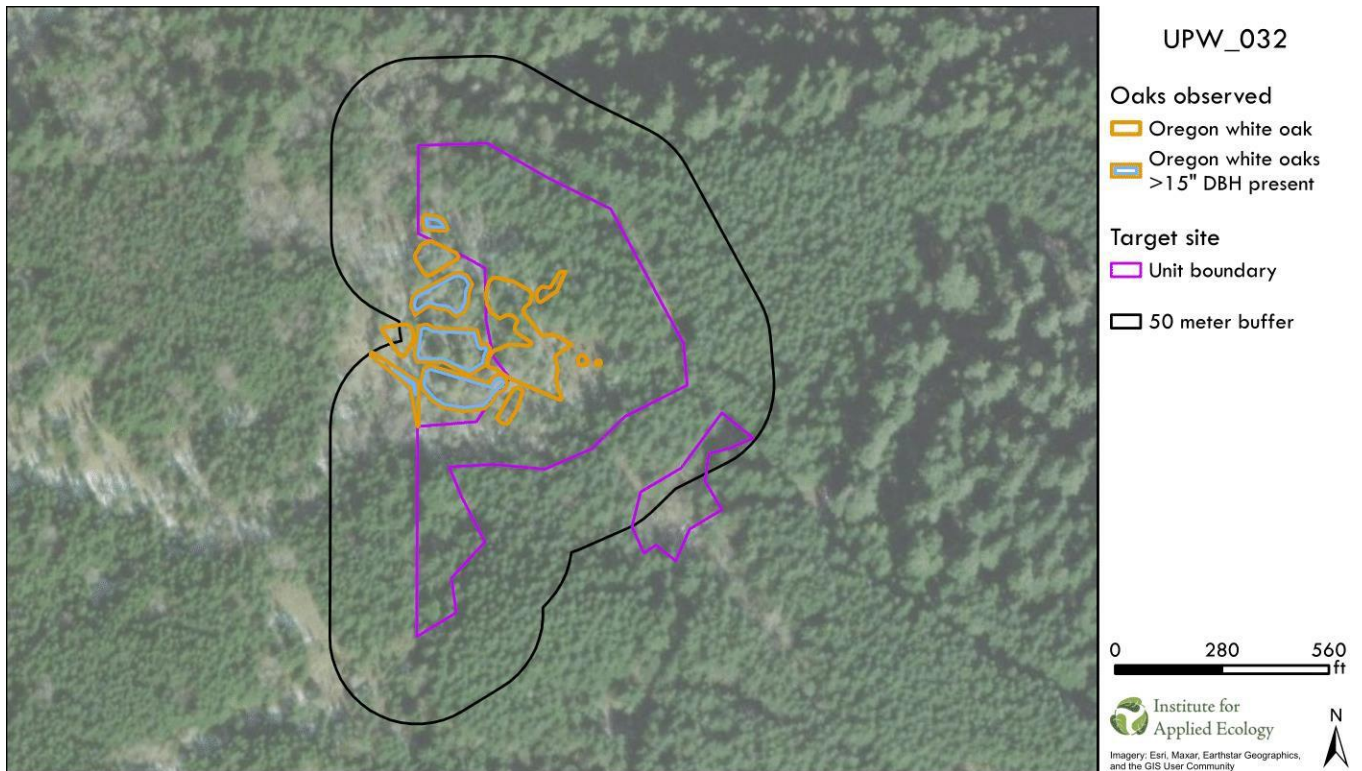
Preliminary habitat restoration/management recommendations	
Overall ranking as a priority for restoration (high, moderate, or low)	Low
Short-term recommended actions	Pull Scotch broom ( <i>Cytisus scoparius</i> ) and Canada thistle ( <i>Cirsium arvense</i> ) patches. Clear conifers and blackberry established in the meadow. Clear residual woody vegetation from the open area.
Long-term recommended actions	Release oaks from conifer suppression. Treat non-native grasses. Reseed native forbs and grasses. Implement prescribed burns to manage encroachment and reduce debris. Coordinate with landowners to the west of the site to protect oak woodland habitat.

Site accessibility issues	The site is easily accessible by foot through the forest from the east, but there is no easy access for heavy machinery.
Restoration action notes	There is riparian habitat present in the site. If considered for restoration, plant with rose spirea ( <i>Spiraea douglasii</i> ) and enhance stream edges.

<b>Modified prairie habitat quality summary (USFWS 2010)</b>				
<b>Oak habitat criteria</b>		<b>Data</b>	<b>Objective</b>	<b>Meets objectives?</b>
Oaks present?		Yes	Yes	Yes
Number of oaks greater than 15 inches DBH?		21	≥1	Yes
<b>Prairie habitat criteria</b>		<b>Data</b>	<b>Recovery Plan threshold</b>	<b>Meets threshold?</b>
Native herbaceous species cover (%)		35	50% min	No
Woody species cover (%)		95	15% max	No
Does any one woody species of management concern exceed 5% cover?		Yes	5% max	No
Prairie diversity	Native forb richness	N/A	7	No Data
	Native bunchgrass richness	N/A	1	No Data
	Total native herbaceous species richness	N/A	>10	No Data
Do any non-native species exceed 50% cover within the relevé plot?		N/A	50%	No Data
Do any non-native species of particular concern exceed 5% cover?		N/A	5%	No Data



**Figure H-117.** Overview of UPW\_032 with habitat, forested buffer areas, and photopoint location.



**Figure H-118.** Oaks, large trees, pines, and wildlife observed, if applicable.

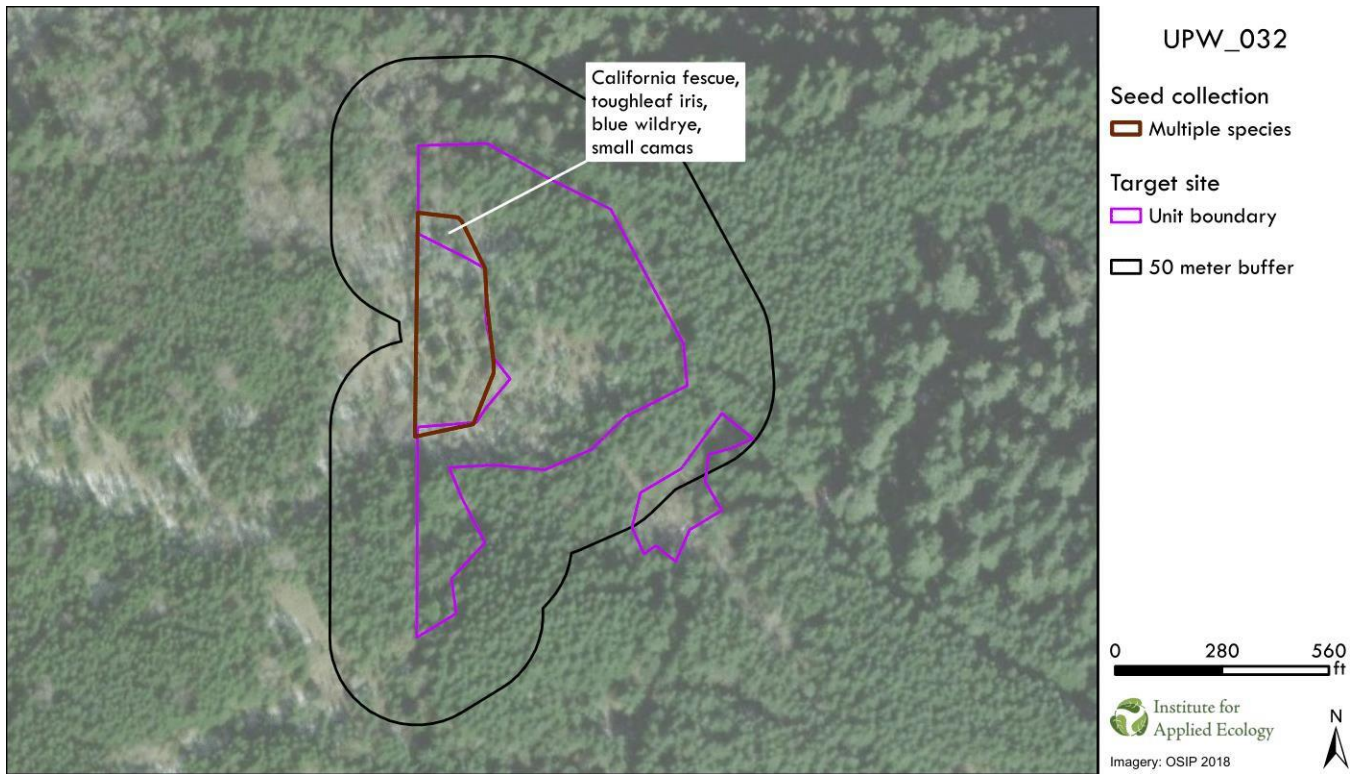


Figure H-119. Seed collection species observed.

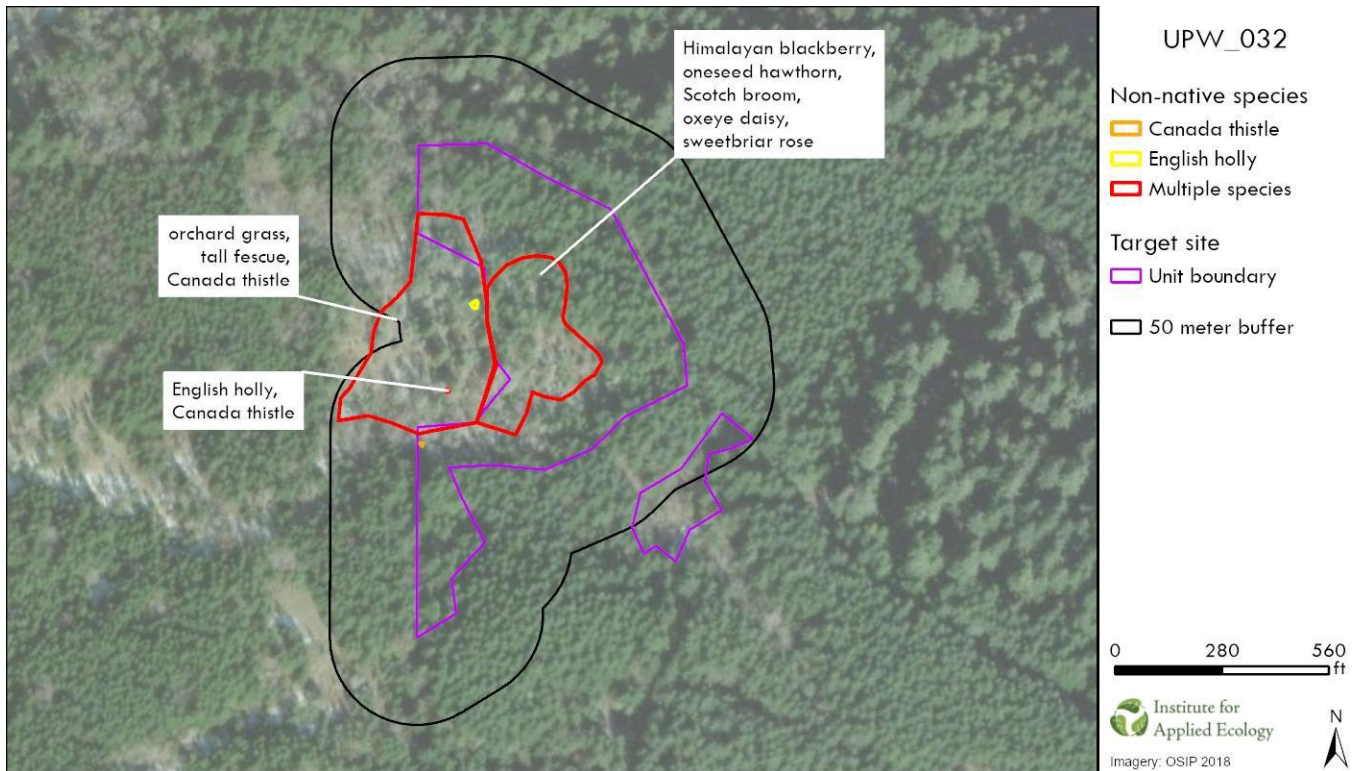
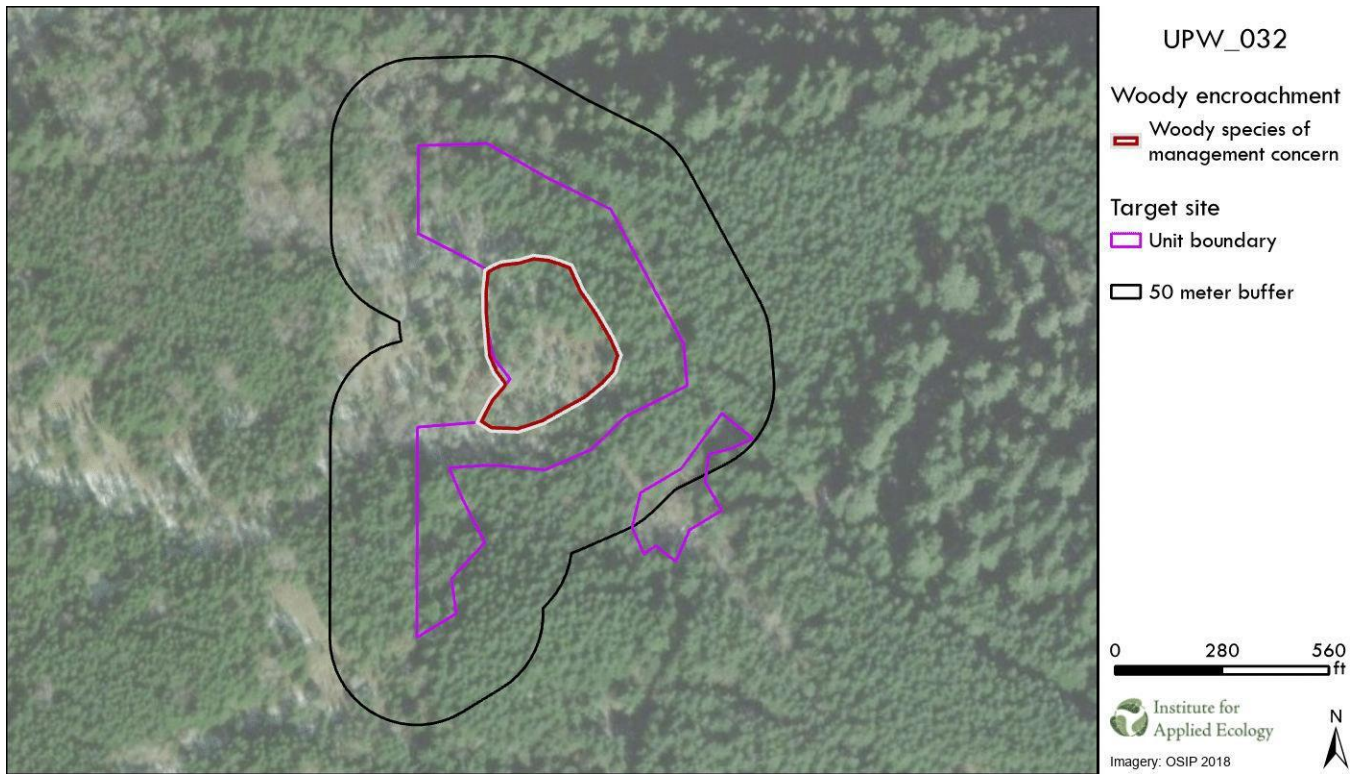


Figure H-120. Non-native species observed.



**Figure H-121.** Woody encroachment and human activity observed. Woody species of management concern observed in 2022 were poison oak, Himalayan blackberry, oneseed hawthorn, Scotch broom, and sweetbriar rose.



**Figure H-122.** Recommended changes to the unit boundary based on habitat and/or oaks present.



North:



East:



South:



West:



**Figure H-123.** UPW\_032 photopoints taken at -122.985865, 44.111946.