Garoutte Prairie Restoration: 2021 Annual Report

3/1/2022

Report prepared for the Bureau of Land Management, Agreement #L19AC00044

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Institute for Applied Ecology

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PREFACE

IAE is a non-profit organization whose mission is the 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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Cover photograph: *Prunella vulgaris* var. *lanceolata*, Garoutte Prairie.
Photo by Celeste Lebo, June 22, 2021.

SUGGESTED CITATION

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1. EXECUTIVE SUMMARY

This report summarizes habitat restoration conducted by the Institute for Applied Ecology (IAE) at Garoutte Prairie in 2021. IAE has partnered with the Bureau of Land Management (BLM) Upper Willamette Field Office, Northwest Oregon District, to restore Garoutte Prairie since 2013. This site hosts many native wetland prairie species and is home to the northernmost population of bay horsehair lichen (*Sulcaria badia*). We surveyed for bay horsehair lichen throughout the prairie in 2020. Restoration activities in 2021 focused on reducing woody species encroachment in wetland prairie habitat by cutting Oregon ash (*Fraxinus latifolia*), Scotch broom (*Cytisus scoparius*), oneseed hawthorn (*Crataegus monogyna*), rose (*Rosa* ssp.), and Himalayan blackberry (*Rubus armeniacus*).

2. INTRODUCTION

Garoutte Prairie (Garoutte) is a wet meadow located west of Dorena Lake in Lane County, Oregon and managed by the Bureau of Land Management (BLM) Upper Willamette Field Office, Northwest Oregon District (**Figure 1**). Part of Garoutte is designated a BLM Area of Critical Environmental Concern (ACEC). The Garoutte ACEC is 46 acres in size, 33 of which are included in the Garoutte property boundary. IAE began habitat restoration work at Garoutte as part of another BLM-funded project at the nearby Dorena Prairie in 2013 (Banner and Axt 2013). The site became an independent restoration project in 2016. This report describes Garoutte restoration activities implemented in 2021 funded under BLM assistance agreement #L19AC00044.

Garoutte hosts a population of bay horsehair lichen. Endemic to the Pacific Northwest, bay horsehair lichen is most often found hanging from the branches of apple (*Malus* spp.) and Oregon white oak (*Quercus garryana*) trees in well-lit overstories but can also live on conifers and Oregon ash (Carlberg and Toren 2006). At Garoutte, this epiphytic species is found on mature Oregon ash (C. Mayrsohn, personal communication). While removal of encroaching woody vegetation is an important component of prairie restoration, trees that host bay horsehair lichen will be protected. Garoutte is at the northern edge of bay horsehair lichen's geographical range and is important for preserving genetic diversity in the lichen's population as a whole. Outlier populations may be crucial for species conservation as climate change pushes population distributions outside of their historical range.

3. GOAL AND OBJECTIVES

The goal of this project is to restore regionally rare wet prairie habitat at Garoutte Prairie.
The primary objectives are to:

1. reduce the abundance of non-native, invasive species;
2. reduce encroachment of woody species in the wet prairie habitat; and
3. increase the diversity and extent of the native plant community.

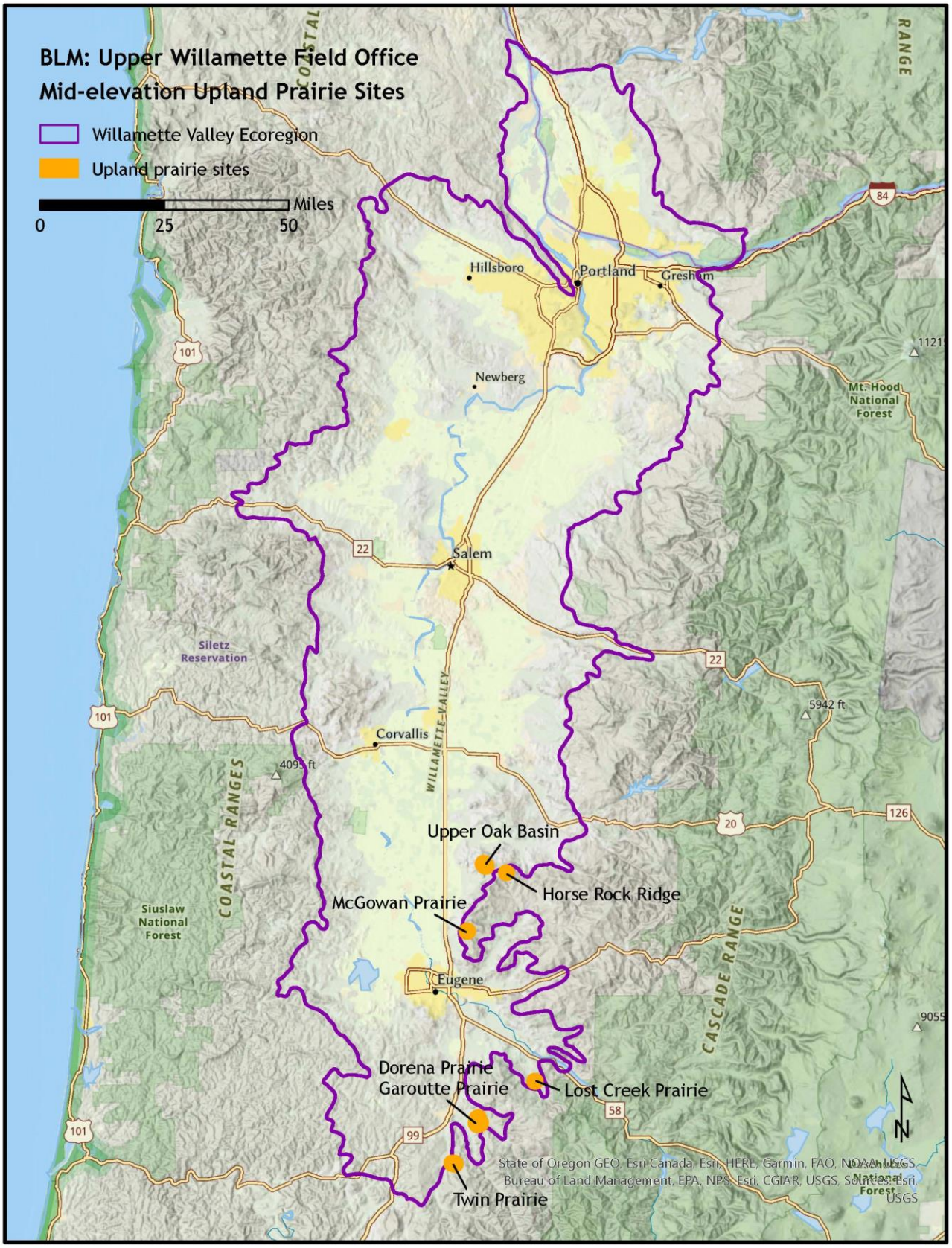

Figure 1. Upper Willamette Field Office upland prairie locations designated as Areas of Critical Environmental Concern.

4. 2021 RESTORATION ACTIVITIES

Restoration activities at Garoutte Prairie in 2021 focused on reducing woody vegetation (Table 1, Figure 2). See **Error! Reference source not found.** for a list of restoration activities completed at Garoutte Prairie.

Table 1. Restoration activities conducted in 2021 at Garoutte Prairie by the Institute for Applied Ecology.

Date	Personnel	Activity
3/23/2021	IAE, Jessica Celis (UWFO BLM botanist)	Project site visit with BLM
4/1/2021	IAE	Continued to clear a corridor between meadows by cutting small Oregon ash trees
4/9/2021	IAE, Jessica Celis (UWFO BLM botanist)	Met with BLM to discuss budgets, workplans, and BLM assistance agreements
4/19/2021	IAE, Jessica Celis (UWFO BLM botanist)	Met with BLM to discuss project work
5/1/2021	IAE	Cut ash trees and blackberry in meadow habitat
6/22/2021	IAE, POI Crew	Took photo points. Cut Oregon ash, blackberry, rose, crabapple, and Scotch broom in meadow habitat.
7/6/2021 and 7/8/2021	IAE, Looking Glass Youth Crew	Cut Oregon ash, blackberry, rose, crabapple, and Scotch broom in meadow habitat
10/6/2021	IAE, Jessica Celis (UWFO BLM botanist)	Met with BLM to discuss project work
10/7/2021	IAE	Covered burn piles with plastic
11/15/2021	UWFO BLM	Burned brush piles
12/15/2021	IAE	Seeded burned brush piles

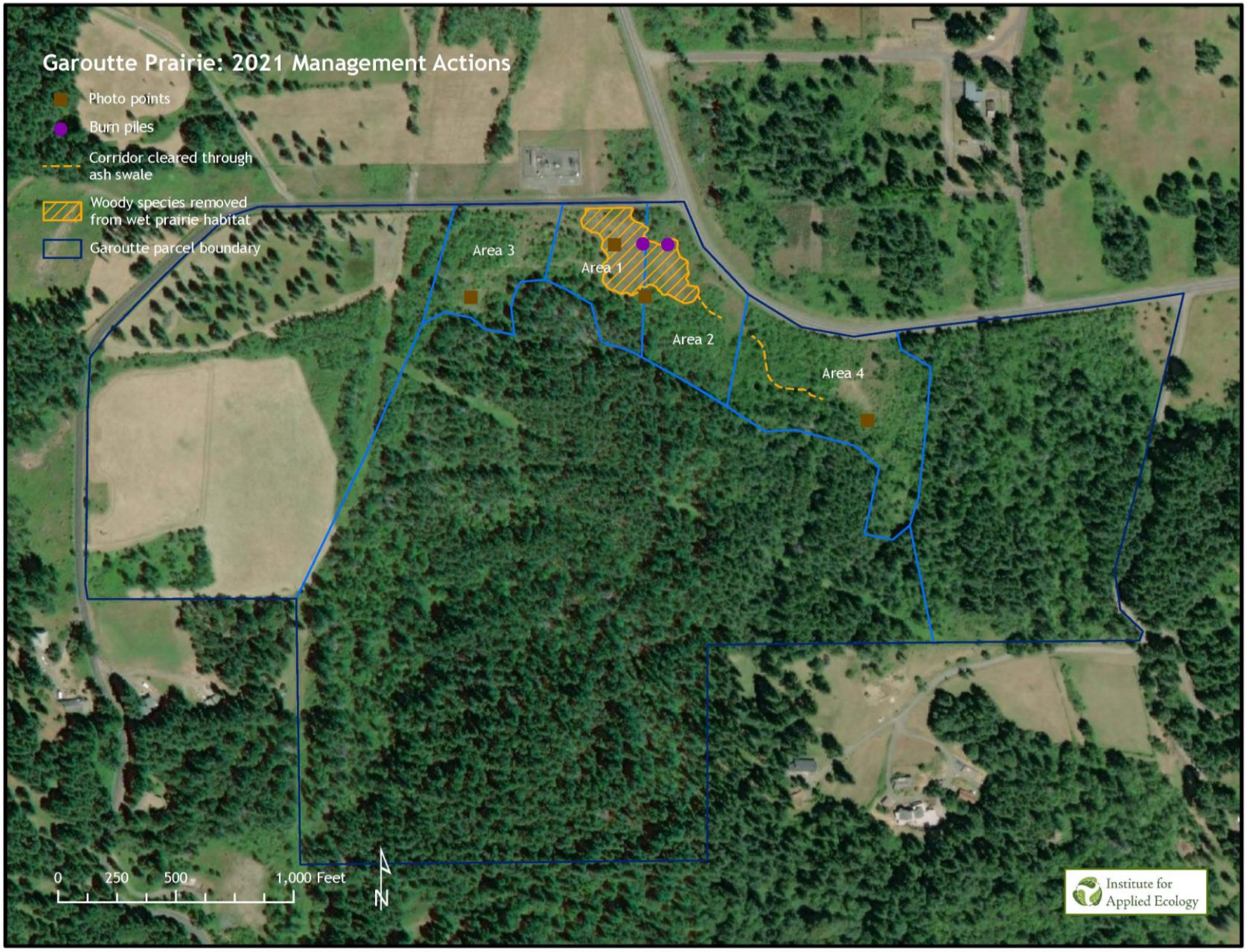

Figure 2. 2021 management actions at Garoutte Prairie.

4.1 Vegetation management

Vegetation management at Garoutte focused on reducing the extent of woody and non-native plant species in open meadows by cutting Oregon ash saplings, Scotch broom, oneseed hawthorn, rose, and Himalayan blackberry. Oregon ash trees that were cut, beginning in 2016, continue to sprout vigorously from cut stumps. In June 2021, sprouts were cut again to prevent Oregon ash from dominating the prairie habitat. Because ash will continue to sprout from dormant buds in stumps, annual cutting of sprouts will be needed to maintain open prairie unless stumps are ground out or herbicide treatments are approved for controlling aggressive native species such as ash.

A corridor between pockets of meadow located on the eastern side of Garoutte Prairie and the largest wet prairie patch was cleared using chainsaws in 2020 and 2021. The corridor is intended to provide connectivity between meadows for wildlife and to allow easier access to other parts of the prairie for restoration activities.

Photo points were taken on June 22, 2021, to track vegetation changes at the site. See Appendices B and C for photo-point locations and photos.

Figure 3. A. Brush pile burned in November 2021.
B. Bay horsehair lichen. Photos taken by Celeste Lebo.

4.2 Seeding

Following the burning of brush piles, we seeded bare soil with a few handfuls of seed from the native seed mix that we used at Dorena prairie. We seeded only native forbs at the Garoutte burn piles.

Table 2. Native forb species seeded at Garoutte Prairie in fall 2021.

Species	Common Name	Growth Form	Seed Source*	Quantity (lbs.)
Achillea millefolium	common yarrow	forb	ME	0.02
Aquilegia formosa	western columbine	forb	WV	0.14
Clarkia purpurea	winecup clarkia	forb	ME	0.04
Eriophyllum lanatum	common woolly sunflower	forb	ME	0.06
Madia elegans	common madia	forb	WV	0.33
Plectritis congesta	shortspur seablush	forb	ME	0.05
Potentilla gracilis	slender cinquefoil	forb	ME	0.02
Prunella vulgaris var. *lanceolata*	lance selfheal	forb	ME	0.09
Sidalcea malviflora ssp. *virgata*	dwarf checkerbloom	forb	WV	0.52

*WV = Willamette Valley; ME = mid-elevation

4.3 Habitat management plan

IAE drafted a habitat management plan in 2020 to guide restoration actions at Garoutte. The habitat management plan will be completed in 2022.

5. DISCUSSION

IAE maintained and expanded prairie habitat at Garoutte by manually removing and cutting woody species (native and non-native) from wet prairie habitat in 2021. The BLM Upper Willamette Field Office approved the use of herbicide to treat non-native plants in September 2020, which will improve the efficacy of weed-removal efforts. Dense patches of Himalayan blackberry along the forest edge should be mowed and targeted with herbicide applications in the fall to further expand prairie habitat. Canada thistle, Fuller's teasel (*Dipsacus fullonum*), meadow knapweed (*Centaurea* × *moncktonii*), and perennial grasses should be treated with herbicide in the spring before flowering. Continued removal of non-native plant species in the prairie will reduce direct competition with native plants. Native species should be planted and seeded after treatments to limit establishment of non-native species and to improve native species diversity and abundance throughout the prairie.

Oregon ash is the dominant encroaching woody species at Garoutte. Many trees were cut in 2016, but ash continues to sprout from dormant buds in stumps despite repeated cutting. Annual removal of smaller ash trees and stump sprouts will be necessary to maintain open prairie unless the use of herbicide is approved for treating aggressive native species or the stumps are ground out to prevent resprouting.

6. MANAGEMENT RECOMMENDATIONS

The goal of this project is to restore regionally rare wet prairie habitat at Garoutte by controlling non-native invasive plants and managing woody species encroachment. To achieve this goal, the following restoration activities are recommended:

- Prior to removing Oregon ash, ensure that none are marked with dark blue flagging, which indicates that bay horsehair lichen is present in the canopy. Also complete a cursory check for the lichen, especially if removing trees near where individuals or populations of the lichen were observed in 2020. If a tree hosts bay horsehair lichen, it should be flagged and left uncut.
- Remove encroaching woody species (native and non-native) from the prairie and place in burn piles. Without the use of herbicide to prevent resprouting of Oregon ash and other tree stumps, sprouts should be cut annually or stumps ground out to prevent resprouting.
- Treat with herbicide or manually remove non-native species such as Scotch broom, Himalayan blackberry, Canada thistle, Fuller's teasel, meadow knapweed, and perennial grasses.
- Plant and seed native species after ground-disturbing activities to increase the abundance of native plant species and the areal extent of the native plant community.
- Continue woody species removal for corridor creation between Area 2 and Area 4.
- Complete Garoutte habitat management plan.

7. REFERENCES

Banner, G and B. Axt. 2013. Restoration of Dorena Prairie ACEC. Unpublished report prepared for the Bureau of Land Management Northwest Oregon District. Institute for Applied Ecology, Corvallis, Oregon.

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APPENDIX A. HISTORY OF COMPLETED AND PROPOSED RESTORATION ACTIVITIES (2013-2022)

2013 Management Actions

- Brush cut Himalayan blackberry and Scotch broom.

2014 Management Actions

- Site inspection and partner coordination
- Scotch broom, Himalayan blackberry, and fruit tree removal

2016 Management Actions

- Site inspection and partner coordination
- Scotch broom, Oregon ash, oneseed hawthorn, and fruit tree removal with AmeriCorps Gold 5 youth crew

2017 Management Actions

- Site inspection and partner coordination
- Oregon ash trees in the meadow were felled, bucked, and piled for burning by the BLM fire management crew.
- Covered burn piles with plastic for fall burning
- Removal of Scotch broom in prairie
- Purchased native seed for sowing into burned areas

2018 Management Actions

- Site inspection and partner coordination
- Manual removal of Himalayan blackberry
- BLM fire management crew burned slash piles in the fall.
- Broadcasted native seed mix in areas burned or disturbed by restoration activities

2019 Management Actions

- Site inspection and partner coordination
- Manual removal of Himalayan blackberry and Scotch broom
- Cut and piled sprouting Oregon ash, fruit trees, and oneseed hawthorn and removed from open prairie
- Seeded areas disturbed by restoration activities

2020 Management Actions

- Site inspection and partner coordination
- Surveyed for bay horsehair lichen and riparian loop lichen (*Hypotrachyna riparia*)
- Pulled Scotch broom and cut sprouting Oregon ash
- Began cutting a corridor between Areas 2 and 4 on the eastern side of the prairie
- Drafted a habitat management plan

2021 Management Actions

- Site inspection and partner coordination
- Pulled Scotch broom
- Cut and piled sprouting Oregon ash
- Surveyed for bay horsehair lichen prior to cutting trees
- Removed trees from open meadow that do not have bay horsehair lichen
- Treated meadow knapweed and other perennial weeds with herbicide in the spring
- Treated Himalayan blackberry and other non-native woody species with herbicide in the fall
- Coordinated with BLM fire management crew to burn piles of woody material
- Seeded areas disturbed by restoration activities
- Took photo points in June
- Completed habitat management plan

2022 Management Actions (proposed)

- Site inspection and partner coordination
- Pull Scotch broom.
- Cut and pile sprouting Oregon ash in the spring after it is fully leafed-out or grind stumps out to prevent resprouting.
- Survey for bay horsehair lichen prior to cutting trees.
- Remove trees from open meadow that do not have bay horsehair lichen.
- Continue woody species removal for corridor creation between Area 2 and Area 4.
- Treat meadow knapweed and other perennial weeds with herbicide in the spring.
- Treat Himalayan blackberry and other non-native woody species with herbicide in the fall.
- Coordinate with BLM fire management crew to burn piles of woody material.
- Seed areas disturbed by restoration activities.
- Take photo points in June.
- Complete habitat management plan.

APPENDIX B. GAROUTTE PRAIRIE PHOTO POINT LOCATIONS

Photo Point	Coordinates
1	-122.964585, 43.777740
2	-122.964229, 43.777306
3	-122.961644, 43.776263
4	-122.966254, 43.777299

APPENDIX C. GAROUTTE PRAIRIE PHOTO POINTS (2021)

Photo point 1

Photo point 2

Photo point 3

Photo point 4