

Pioneer Butte Prairie Restoration: 2017 Annual Report-Web version



2/2/2018

Report for the U.S. Forest Service, Siuslaw
National Forest, Agreement #17-SA-11061200-
016

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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

The Pioneer Butte Prairie restoration project was funded by the U.S. Forest Service, Siuslaw National Forest, for agreement #17-SA-11061200-016. We are grateful to Marty Stein of the Siuslaw National Forest for sharing his knowledge of the site and his dedication to ecological restoration of National Forest lands. We thank Matthew Smith of the Siuslaw National Forest for his time and energy managing non-native species and providing input on management actions.

Cover photographs: Looking south across the remnant prairie at Pioneer Butte. Photo by Andrew Esterson, September 19, 2017.

SUGGESTED CITATION

Esterson, A. 2018. Pioneer Butte restoration: 2017 annual report. Unpublished report prepared for the U.S. Forest Service, Siuslaw National Forest. Institute for Applied Ecology, Corvallis, OR.

SPECIAL NOTE

This report has been modified from its original format by removing directions to the site and photo point locations.

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1. EXECUTIVE SUMMARY

In 2017, management actions at Pioneer Butte Prairie (Pioneer Butte) focused on weed abatement, native seed production, photo point establishment and the development of a revegetation plan. Specifically, U.S. Forest Service (USFS) staff mowed woodland ragwort (*Senecio sylvaticus*) and tansy ragwort (*Senecio jacobaea*) in late summer to reduce seed-set and targeted non-native species with herbicide treatments throughout the 11.25-acre project area in October. Institute for Applied Ecology (IAE) staff maintained seed production beds at the Forest Science Lab (FSL), and harvested and cleaned seed of the following species produced at these beds: yarrow (*Achillea millefolium*), Oregon sunshine (*Eriophyllum lanatum*), and lance self-heal (*Prunella vulgaris*). IAE staff established five photo point locations at Pioneer Butte in order to visually assess site conditions over time. Finally, IAE began writing the revegetation plan that will be used to guide future management actions at Pioneer Butte.

2. INTRODUCTION

2.1. Background

Pioneer Butte is a mid-elevation (1285 feet) prairie in the Oregon Coast Range, located west of Corvallis. It is part of Siuslaw National Forest (SNF) and is managed by the USFS. IAE began conducting habitat restoration activities on the one-acre remnant mid-elevation prairie at Pioneer Butte in 2013, with initial goals of managing non-native species, focusing primarily on false brome (*Brachypodium sylvaticum*), and collecting native mid-elevation prairie species seed from the site to put into production. In 2016 USFS removed trees and expanded the potential prairie habitat to 11.25 acres. In response to this expansion, in 2017, Pioneer Butte project goals were updated to include the following:

- Establish native flora that will provide resources for pollinators and other wildlife.
- Create structural diversity in the ecotone between the forest and prairie to provide forage and shelter for songbirds.
- Manage and reduce non-native species cover.
- Maintain and harvest seed from FSL native seed production beds.
- Establish photo points.
- Develop a revegetation plan for the newly cleared habitat.

2.2. 2017 Site Description

In 2017, vegetation at Pioneer Butte consisted primarily of non-native species. The most abundant species were woodland ragwort (Figure 1) and a mixture of non-native grasses, including tall oatgrass (*Arrhenatherum elatius*) and bristly dogs tail (*Cynosurus echinatus*). Other non-native species present, but less abundant, included Canadian thistle (*Cirsium arvense*), bull thistle (*Cirsium vulgare*), foxglove (*Digitalis purpurea*), creeping bent grass (*Agrostis* sp.) and false brome. Of the native species present, California blackberry (*Rubus ursinus*) was the most prevalent. A few native species were observed in the remnant prairie, including farewell to spring (*Clarkia purpurea*), lance self-heal, yarrow and blue wildrye (*Elymus glaucus*).

Slash piles generated from the 2016 thinning operations remained on site most of the year (Figure 1). In October of 2017, Miller Timber Services Inc. removed the vast majority of the slash. Slash removal equipment operators primarily accessed the site by using established roads; however, some off-roading was needed to remove slash. Soil conditions appeared to be heavily compacted after slash removal.



Figure 1. Woodland ragwort (*Senecio sylvaticus*) on west side of site (left). Slash left from 2016 logging activities (right). Photos from August 10th, 2017.

3. 2017 RESTORATION ACTIONS

Restoration actions in 2017 were completed by IAE and USFS staff. Completed actions included weed control, mid-elevation native seed production, photo point establishment, and the development of a revegetation plan.

3.1 Weed control

Management actions included mowing and herbicide treatments. To prevent seed-set of woodland ragwort and tansy ragwort, USFS staff used string trimmers in June 2017 to cut inflorescences. In October, USFS staff used backpack sprayers to apply a 2% glyphosate solution to non-native species throughout the site.

3.2. Mid-elevation native seed production

A lack of appropriate seed has been identified as a barrier to restoration of mid-elevation sites in the Coast Range. To remedy this, in 2014 IAE collected seed from various mid-elevation sites in the Coast Range and established seed production beds for five native species commonly used in restoration: Oregon sunshine, lance self-heal, common yarrow, farewell to spring, and narrowleaf mule’s ear (*Wyethia angustifolia*). More details about seed collection sites and method can be found in the Pioneer Butte 2014 annual report (Shiro 2014). The raised beds are located at the Forest Science Laboratory (FSL) at Oregon State University (OSU) in Corvallis. IAE maintained the FSL beds during 2017, and harvested seed in August. The seed is in the process of being cleaned (Table 1, Appendix B), after which it will be stored in IAE’s temperature-and humidity-controlled seed cooler housed at Finley National Wildlife Refuge until used.

Table 1. Seed harvested from the Forest Science Laboratory production beds in 2017.

Species name	Common name	Seed produced (lbs.)
<i>Eriophyllum lanatum</i>	Oregon sunshine	0.21
<i>Prunella vulgaris ssp. lanceolata</i>	lance self-heal	0.23
<i>Achillea millefolium</i>	common yarrow	0.16
<i>Clarkia purpurea</i>	farewell to spring	None produced
<i>Wyethia angustifolia</i>	narrowleaf mule’s ear	None produced

3.3. Photo point establishment

Five photo points were established (Figure 2, Appendix A) by IAE to monitor changes to vegetation through time. To mark each photo point, a four-foot piece of rebar was hammered into the ground and a

white PVC pipe was placed over it; a GPS point was taken at each location. For each photo point, photographs were taken in each of the four cardinal directions.



Figure 2. Looking east from photo point 5 across the upland and remnant prairie (left). Looking north from photo point 3 at conifers lining the center ridge through the site (right). Photos taken on September 18th, 2017.

3.4. Revegetation plan

IAE began working on a revegetation plan for Pioneer Butte in 2017. The plan provides a detailed description of all recommended management actions through 2020, and includes herbicide application timing, rates and chemical type; plant materials to be seeded/planted, and monitoring protocols.

4. DISCUSSION

Prairies are one of the most imperiled habitats in Oregon, and Coast range prairies are no exception (ODFW 2016). Woody encroachment has caused all but a few of these important meadows to disappear, and the species that depend upon this habitat have declined as well (Vesely 2013). The newly expanded Pioneer Butte prairie has the potential to provide critical habitat for declining songbirds, pollinators and other wildlife. However, 2016 thinning released a variety of non-native weed

species, and these will need to be controlled before introducing native species that provide prairie matrix structure and wildlife resources into the site. In addition, there is a lack of high quality, genetically appropriate native prairie species seed in production for mid-elevation sites such as Pioneer Butte. Partners interested in mid-elevation prairie restoration are working together to develop seed production resources, and USFS should be a part of that discussion.

5. 2018 MANAGEMENT RECOMMENDATIONS

The following management actions are recommended for Pioneer Butte in 2018:

- Continue herbicide treatments for at least one additional year to manage non-native species.
- Take annual photo point pictures in mid-June in order to annually document vegetation change at the same time of year.
- Maintain native seed production beds at the FSL.
- Harvest and clean native seed produced at FSL beds and store seed in climate-controlled seed storage facility until needed.
- Consider expansion of native, mid-elevation, coast-range prairie species seed production, since current seed production is insufficient to meet future seeding needs at the site.
- Finalize the Pioneer Butte revegetation plan.

6. REFERENCES

ODFW (Oregon Department of Fish and Wildlife). 2016. Oregon Conservations Strategy. Oregon Department of Fish and Wildlife, Salem, Oregon.

Shriro, Ted. 2014. Pioneer Butte Prairie Restoration. Annual Report to the United State Forest Service. Institute for Applied Ecology, Corvallis, OR. 6 pp.

Vesely, D. 2013. Monitoring songbird populations at the meadow restoration project, Siuslaw National Forest. Unpublished report for the U.S.D.A Siuslaw National Forest. Oregon Wildlife Institute. Corvallis, OR.

APPENDICES

Appendix A. Photo Point Locations

Photo point locations have been removed from this report.

Appendix B. 2015-2017 Native Seed Production

Species name	Common name	Seed production (lbs.)		
		2015	2016	2017
<i>Eriophyllum lanatum</i>	Oregon sunshine	0.25	0.94	0.21
<i>Prunella vulgaris ssp. lanceolata</i>	lance self-heal	0.4	1.1	0.23
<i>Achillea millefolium</i>	common yarrow	0.3 (well-cleaned); 0.12 (with chaff)	0.66 (well-cleaned); 0.66 (with chaff)	0.16
<i>Clarkia purpurea</i>	farewell to spring	1.87	In process of being cleaned	None produced
<i>Wyethia angustifolia</i>	narrowleaf mule's ear	None produced	None produced	None produced

Appendix C. Driving Directions

Directions have been removed from the web version of this report.