

THREATENED AND ENDANGERED SPECIES HABITAT RESTORATION: 2016 ANNUAL REPORT



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Report to the Bureau of Land Management
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PREFACE

This report is the result of agreement L13AC000098-0018 between the Institute for Applied Ecology (IAE) and the Bureau of Land Management. IAE is a non-profit organization whose mission is the conservation of native ecosystems through restoration, research and education. Our aim is to provide a service to public and private agencies and individuals by developing and communicating information on ecosystems, species, and effective management strategies and by conducting research, monitoring, and experiments. IAE offers educational opportunities through 3-4 month internships.



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Cover photograph: AmeriCorps volunteer Harris Holland and Conservation & Land Management intern Emily Day prepare showy milkweed (*Asclepias speciosa*) plugs for planting on a cold, wet, December day at Speedway in the West Eugene Wetlands. *Photo by Matt Schultz.*

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INTRODUCTION

In the Willamette Valley of Oregon, multiple plant species, a bird species, and two butterfly species are listed as threatened or endangered under the federal Endangered Species Act (ESA). A primary driver of the decline of these species in abundance and population number is the loss of prairie habitat. A network of public and private partners seeks to recover these species, through protection and restoration of prairie habitat, such that the rare species' populations can be sustained into the future, and eventually leave the protection of the ESA.

The West Eugene Wetlands (WEW), located within and west of the City of Eugene, consist of about 1500 acres, much of which is managed by the Bureau of Land Management (BLM). These sites provide habitat for five federally-listed threatened or endangered species and a number of Bureau sensitive species. Many of WEW sites were acquired with funding from the Land and Water Conservation Fund with the express intent of providing habitat for threatened and endangered species. According to the Final Environmental Impact Statement, "...it is not likely that recovery of these [listed] species can be achieved in this recovery zone without the BLM-administered lands in the West Eugene Wetlands" (USDI 2014).

Actions required to move a species from endangered to threatened, and from threatened to de-listed, are identified by the U.S. Fish and Wildlife Service (USFWS) in the Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington (USFWS 2010). The Recovery Plan sets benchmarks for rare species population size, population trends, number of populations, and habitat quality that are required for the steps in species recovery. For the West Eugene Wetlands, the goals are intended to promote the recovery of three plant species and one butterfly species: Bradshaw's lomatium (*Lomatium bradshawii*), Willamette daisy (*Erigeron decumbens*), Kincaid's lupine (*Lupinus oregonus*), and Fender's blue butterfly (*Icaricia icarioides fenderi*). Other rare plants, such as shaggy horkelia (*Horkelia congesta* ssp. *congesta*) are also expected to benefit from actions undertaken to meet the recovery goals. The recovery goals for prairie habitat quality at threatened and endangered species sites include the following:

- **Cover of native vegetation:** Sites with populations of target species should have relative cover of natives of 50 percent or more.
- **Cover of woody vegetation:** For each site, woody vegetation should make up no more than 15 percent of the absolute vegetative cover, and woody species of management concern will make up no more than five percent (unless the site is savanna habitat, in which case the upper limit would be about 25 percent woody vegetation).
- **Prairie diversity:** For each population site, native prairie species richness must exceed 10 species (measured in 25-m² plots), of which seven or more must be forbs and one must be a bunch grass.
- **Non-native vegetation:** At each reserve, no single non-native plant will have more than 50 percent cover. Non-natives of particular concern will have no greater than 5 percent cover.

Project Objectives

The Institute for Applied Ecology (IAE) was contracted by the Bureau of Land Management in 2016 to assist with prairie habitat restoration of the West Eugene Wetlands for the benefit of threatened and endangered species. The objective of the project is to make progress towards reaching the Recovery Plan prairie habitat quality benchmarks at 17 West Eugene Wetland sites (Figure 1).

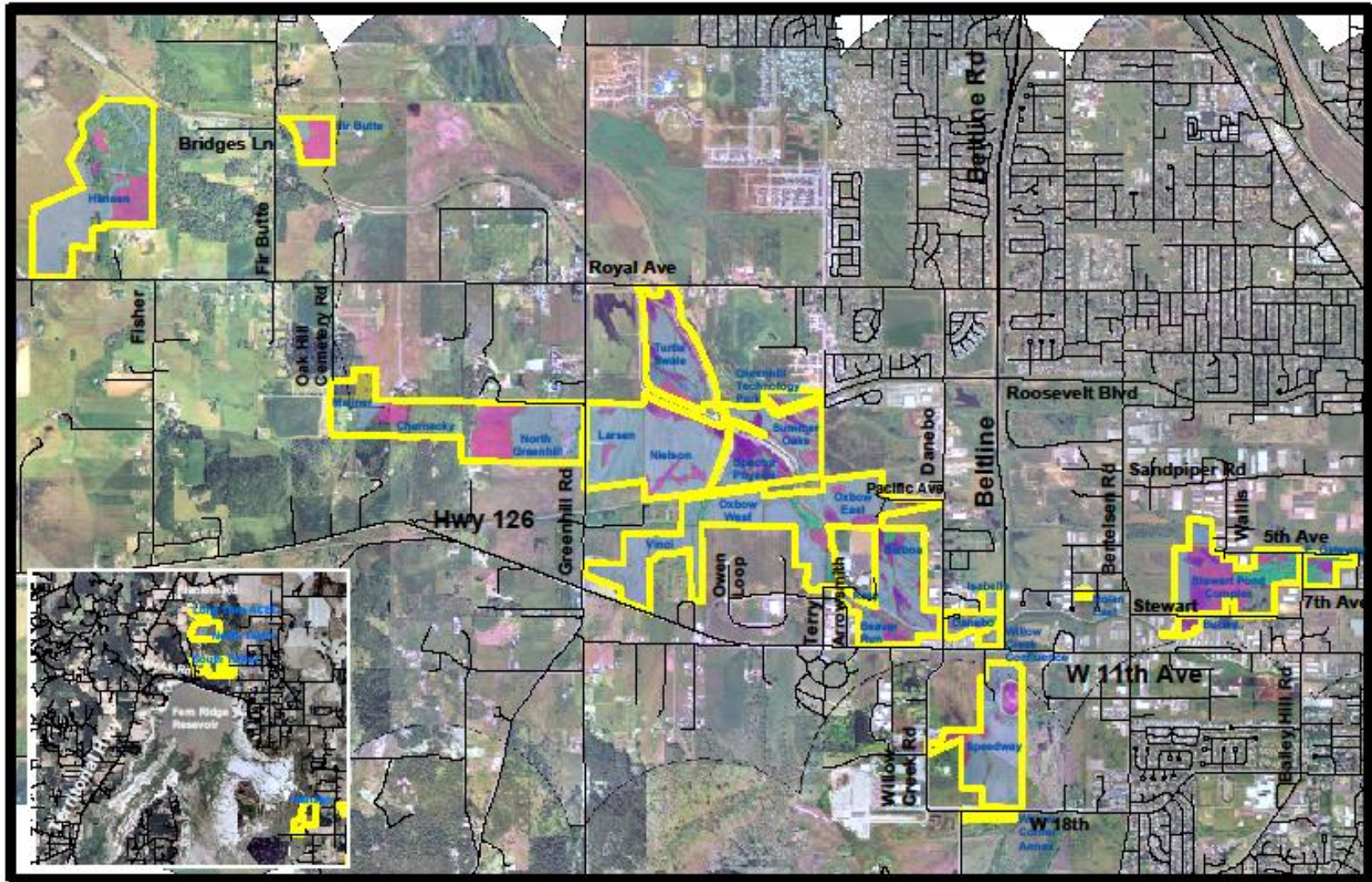


Figure 1. Map of Bureau of Land Management sites in the West Eugene Wetlands.

Report Objectives

This report summarizes habitat restoration actions completed in 2016 and planned for 2017.

2016 ACTIONS AND 2017 ANTICIPATED ACTIONS

West Eugene Wetlands sites with prairie habitat restoration work completed by IAE in 2016 included (Figure 1):

- Balboa
- Danebo
- Greenhill
- Hansen
- Isabelle
- Long Tom ACEC
- North Taylor
- Oak Hill
- Oxbow West
- South Taylor
- Spectra Physics
- Speedway
- Stewart Pond
- Turtle Swale
- Vinci
- Willow Corner Annex
- Willow Corner Confluence

Work at these sites included woody species removal, native species planting, and invasive species control. The primary objective at many sites was the removal of encroaching woody species, often including Oregon ash (*Fraxinus latifolia*), hawthorn (*Crataegus* sp.), rose (*Rosa* sp.), Himalayan blackberry (*Rubus armeniacus*), and Scotch broom (*Cytisus scoparius*). Douglas-fir (*Pseudotsuga menziesii*) trees were felled and piled at Oak Hill. Ash trees were also girdled at several sites, and fences were repaired at Long Tom and North Taylor. In addition, 1200 showy milkweed (*Asclepias speciosa*) plugs were planted at Turtle Swale, Oak Hill, and Speedway. False brome (*Brachypodium sylvaticum*) and shining geranium (*Geranium lucidum*), which are invasive species of concern, were removed at Stewart Pond and Willow Corner Annex, respectively.

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Habitat restoration actions completed by IAE in 2016 and anticipated in 2017 are described in Table 1.

Table 1: On-the-ground prairie habitat restoration activities completed under this project in 2016 and anticipated in 2017.

Site	2016 Completed Actions	2017 Anticipated Actions
Balboa	<ol style="list-style-type: none"> 1) Removed woody species. 2) Mowed Tsanchiifin trail. 	<ol style="list-style-type: none"> 1) Treat woody species in Willamette daisy plots with herbicide. 2) Conduct cut-stump treatments on woody species throughout site, especially female ash trees.
Danebo	<ol style="list-style-type: none"> 1) Pulled Scotch broom. 	<ol style="list-style-type: none"> 1) Pull Scotch broom. 2) Conduct cut-stump treatment on female ash trees.
Greenhill	<ol style="list-style-type: none"> 1) Mowed woody species in ash grove remnant. 2) Mowed blackberries on small hill. 	<ol style="list-style-type: none"> 1) Treat woody species in ash grove remnant with herbicide. 2) Conduct cut-stump treatments on woody species in and near ash grove remnant. 3) Treat blackberry near rare species plots in wet prairie. 4) Spot-spray reed canarygrass where it is emerging from edges of weed fabric.
Hansen	<ol style="list-style-type: none"> 1) Mowed edges of Kincaid's lupine plot. 2) Weeded Kincaid's lupine plot. 3) Pulled meadow knapweed. 4) Removed Scotch broom. 5) Maintained shadecloth. 	<ol style="list-style-type: none"> 1) Hand-pull or spot-spray meadow knapweed. 2) Mow edge of Kincaid's lupine plot. 3) Weed Kincaid's lupine plot.
Isabelle	<ol style="list-style-type: none"> 1) Pulled Scotch broom with Looking glass youth crew. 2) Mowed edge of Kincaid's lupine plot. 3) Weeded Kincaid's lupine plot. 4) Removed blackberries. 5) Patched hole in east fence. 	<ol style="list-style-type: none"> 1) Mow or spray tall oatgrass before seed set. 2) Mow edge of Kincaid's lupine plot. 3) Weed Kincaid's lupine plot. 4) Grub blackberries. 5) Pull Scotch broom.
Long Tom ACEC	<ol style="list-style-type: none"> 1) Conducted fence maintenance. 	<ol style="list-style-type: none"> 1) Grub blackberry or spot-spray with herbicide. 2) Continue fence maintenance. 3) Treat tall oatgrass with herbicide.
North Taylor	<ol style="list-style-type: none"> 1) Removed fallen trees from fence. 2) Repaired gaps in south fence. 3) Documented cattle intrusion. 4) Mapped shining geranium. 	<ol style="list-style-type: none"> 1) Treat shining geranium. 2) Remove/masticate woody plants. 3) Conduct fence repair.

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Site	2016 Completed Actions	2017 Anticipated Actions
Oak Hill	1) Removed one large tree and made slash piles from downed tree branches. 2) Planted 400 milkweed plugs.	1) Remove or girdle 11 remaining large fir trees and pile slash.
Oxbow West	1) Removed woody plants from areas adjacent to Willamette daisy plot and western portion of site. 2) Removed Scotch broom.	1) Treat woody species in Willamette daisy plots with herbicide. 2) Conduct cut-stump treatments on woody species throughout site, especially on female ash trees. 3) Remove Scotch broom.
South Taylor	1) Removed Scotch broom.	1) Remove Scotch broom. 2) Spot-spray reed canarygrass in wet prairie.
Spectra Physics		1) Remove Scotch broom.
Speedway	1) Pulled Scotch broom, blackberry, and removed woody species in rare species areas. 2) Planted 400 milkweed plugs.	1) Remove Scotch broom in rare species areas. 2) Spot-spray woody species in rare species areas. 3) Remove teasel.
Stewart Pond	1) Pulled false brome.	1) Mow or spray false brome.
Turtle Swale	1) Mowed edge of Kincaid's lupine plot. 2) Weeded Kincaid's lupine plot. 3) Removed teasel with youth crew. 4) Removed Scotch broom near Kincaid's lupine plot. 5) Planted 400 milkweed plugs.	1) Mow edge of Kincaid's lupine plot. 2) Weed Kincaid's lupine plot.
Vinci	1) Weeded Willamette daisy plot. 2) Collected Willamette daisy seed. 3) Mowed woody species. 4) Removed Scotch broom with Looking glass youth crew.	1) Girdle or conduct cut-stump treatment of remaining female ash trees. 2) Pull Scotch broom. 3) Weed Willamette daisy plot. 4) Mow edge of Willamette daisy plot. 5) Treat woody species in rare species areas.
Willow Corner Annex	1) Pulled shining geranium. 2) Removed woody species in site interior. 3) Removed woody species along roadside.	1) Check site and remove woody plants that cannot be mowed. 2) Girdle remaining female ash trees. 3) Spot-burn or pull shining geranium. 4) Grub blackberry.
Willow Corner Confluence	1) Checked site for Scotch broom, none found.	1) Remove Scotch broom, if found.

RESTORATION PHOTOS

Habitat restoration work in progress in the West Eugene Wetlands in 2016 is shown in Figures 2-5.



Figure 2. Scotch broom removal at South Taylor in 2016, before (left) and after (right).



Figure 3. New fencing patches a hole which had allowed a neighbor's cows to access North Taylor.

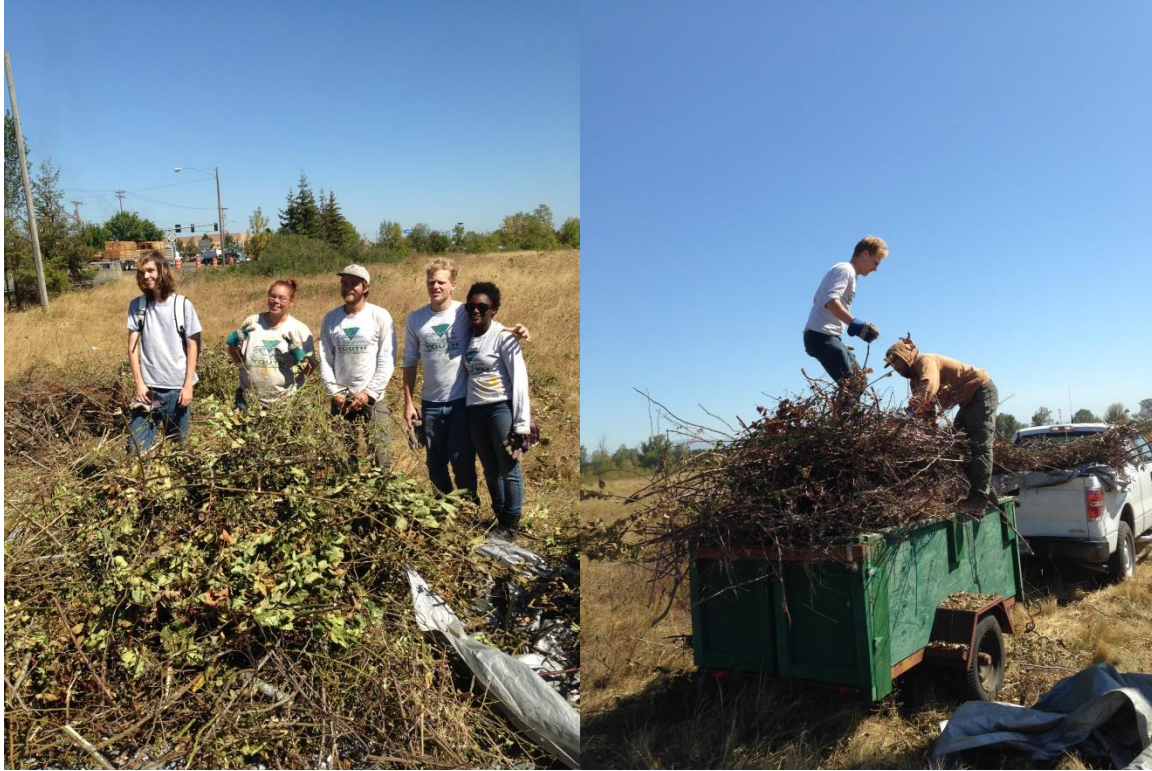


Figure 4. Looking Glass youth crew removing woody species from Speedway (left) and Oxbow West (right) to improve habitat for rare species.



Figure 5. Douglas-fir tree felled at Oak Hill to open ground for future prairie restoration.

CONCLUSIONS AND FUTURE ACTIONS

The habitat restoration actions taken in 2016 moved 17 sites in the West Eugene Wetlands closer to Recovery Plan prairie habitat quality benchmarks by reducing woody species cover within and invasive species encroachment into rare species habitat. In many cases, this habitat restoration is critical not only to maintain existing rare species populations but also to prepare sites such as Hansen, Turtle Swale, Greenhill, Balboa, and Speedway for future rare species population augmentations or introductions.

To date, habitat restoration work on BLM lands in West Eugene has occurred without the use of herbicides, a common tool in habitat restoration. Work to control woody or invasive species has been limited to manual and mechanical means (e.g., cutting, mowing, shade cloth). As many woody species resprout and rapidly regrow after cutting and mowing, or grow out from under shade cloth [e.g. reed canarygrass (*Phalaris arundinacea*; Figure 6)], regular re-treatment or further deployment of shade cloth (e.g., Greenhill) has been or will be required.

Herbicides are expected to be approved for use in restoration across the West Eugene Wetlands by spring 2017. The ability to use carefully targeted herbicide applications should enhance the effectiveness and longevity of future woody and invasive species removal treatments by inhibiting regrowth. With this new tool available, the main change in this project will be the targeted use of herbicide in specific circumstances, such as wiping cut stems and stumps with herbicide after shrub



Figure 6. Shadecloth installed to eradicate reed canarygrass at Greenhill. Shadecloth was installed in 2014 but by 2015, reed canarygrass was found growing at the edge of all 5 pieces of shadecloth installed at the site.

and tree removal. Limited spot-spraying of herbicide might occur in high quality areas, such as to control reed canarygrass at Oxbow West and Greenhill. All use of herbicide will be in accordance with the Resource Management Plan approved in 2015 (USDI 2014) and the USFWS Biological Opinion for the West Eugene Wetlands, Eugene District, Bureau of Land Management (USFWS 2015).

REFERENCES

USFWS (U.S. Fish and Wildlife Service). 2010. Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington. U.S. Fish and Wildlife Service, Portland, Oregon. xi + 241 pp.

USFWS (U.S. Fish and Wildlife Service). 2015. Programmatic Restoration Opinion for Joint Ecosystem Conservation by the Services (PROJECTS) program “PROJECTS Biological Opinion” O1EOFWOO-2014-F-0222.

USDI Bureau of Land Management, Eugene District. 2014. Final Environmental Impact Statement West Eugene Wetlands Resource Management Plan. Eugene, Oregon, USA.