
Restoration of Dorena Prairie ACEC

2011 Annual Report



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Institute for Applied Ecology

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PREFACE

This report is the result of a cooperative Challenge Cost Share project between the Institute for Applied Ecology (IAE) and a federal agency. IAE is a non-profit organization whose mission is 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 Photo: A May photo of Dorena Prairie (foreground).

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Introduction: Dorena Prairie ACEC

Dorena Prairie Area of Critical Environmental Concern (ACEC) is located just west of Dorena Lake in Lane County, Oregon. The BLM portion of the prairie is eight acres in size and is bordered by mature conifer forest, riparian hardwood forest, a campground, and Shoreline Drive. Most of the plants growing at Dorena Prairie are considered upland species, but the prairie is completely flat and ponding rain water exists during the winter and early spring. Additionally, the U.S. Army Corps of Engineers (USACE) manages a drain field under the western portion of the prairie which keeps a portion of the site artificially wet. The USACE has an established M.O.U. with BLM to mow Dorena Prairie every year. Before starting this project the site was mowed annually the week prior to the 4th of July to reduce perceived fire risks and reduce brush encroachment.

In 1996 Dr. Mark Wilson surveyed and ranked 47 upland prairie sites in the Willamette Valley (Wilson 1996a). The results of those surveys showed that upland prairie was an extremely rare habitat in the Willamette Valley and Dorena Prairie was of significant ecological value despite the preponderance of non-native species. Wilson later conducted an Ecological Assessment of Dorena Prairie in which he summarized the condition of the existing vegetation and made management recommendations to BLM (Wilson 1996b). In 1996 Wilson reported that non-native perennial grasses accounted for 41% of the cover at Dorena



Figure 1. Photo of Dorena Prairie in the Fall, following mowing.

Prairie, while native perennial grasses only accounted for 2.6%. Non-native perennial forbs accounted for 14.9% cover, while native perennial forbs made up 16.2% of the cover. Shrubs were recorded at 5.4%, trees 0.5%, and ferns 2.8%. In 1996 the most frequently encountered non-native grasses were *Anthoxanthum odoratum*, *Festuca rubra*, *Arrhenatherum elatius*, and *Schedonorus phoenix*. The most frequent native grass was *Danthonia californica*. The most frequent non-native forbs were *Plantago lanceolata*, *Sanguisorba minor*, *Leucanthemum vulgare*, *Daucus carota*, and *Rumex acetosella*. The most frequent native forbs were *Fragaria virginiana*, *Achillea millefolium*, *Sidalcea virgata*, and *Lupinus rivularis*. The most common fern was *Pteridium aquilinum* and the most common shrubs were the non-native *Cytisus scoparius* and the native *Rubus ursinus*. For a complete species list see Table 2.

Wilson made five management recommendations for Dorena Prairie in 1996. First he emphasized the importance of controlling woody brush like *Cytisus scoparius*. Second, Wilson suggested aggressive control of *Arrhenatherum elatius* and *Pteridium aquilinum*. Following weed control efforts, Wilson recommended seeding with native species. After successfully controlling invasive species and establishing additional native species, Wilson suggested that Dorena Prairie be used as a site for re-establishing rare species such as *Aster curtus*, *Erigeron decumbens* var. *decumbens*, and *Lupinus*

sulphureus ssp. *kincaidii*. Finally, due to the ease of public accessibility at Dorena Prairie, Wilson suggested that BLM pursue educational opportunities at this site.

In 2003 Mark Wilson revisited Dorena Prairie and conducted an Ecological re-assessment of Dorena Prairie after seven years of management (Wilson 2004). Over that time period BLM initiated annual mowing of the entire prairie between July and August. Wilson reported that the non-native grass *Arrhenatherum elatius* increased in abundance over the last seven years while native plants increased slightly in relative cover as well. Annual mowing proved to be very successful at reducing the abundance of *Cytisus scoparius* and greatly reduced the cover of *Pteridium aquilinum*. The only native plant to make a large increase in abundance was the perennial grass *Elymus glaucus*. Wilson recommended mowing the prairie earlier in the season and increasing the number of times the prairie is mowed to help control *Arrhenatherum elatius*. He repeated the earlier recommendations that BLM consider seeding with native species, introduce rare plant species, and capitalize on the educational opportunities at this site. New recommendations in 2004 included reducing the spread of the native shrubs *Symphoricarpos albus* and *Rosa* sp. and avoiding prescribed fire.

Legal Location

T21S R2W S32

GPS coordinates

43° 47' 10.75" N

122° 57' 57.53" W

WGS84

Elevation: 757 feet



Figure 2. Photo of *Sidalcea virgata* flowering at Dorena Prairie on June 3, 2011.

Driving Directions

Dorena Prairie is adjacent to Schwarz Park, Cottage Grove, OR

The Google map address is: Schwartz Park, Cottage Grove, OR 97424 (note typo).

Take I-5 South to Exit 174 Cottage Grove/Dorena Lake. Turn left at the end of the ramp onto E Cottage Grove Con. This turns into Row River Rd. Follow for 4.0 miles and this road turns into Government Rd. / Shoreline Dr. Continue for an additional 0.5 miles and turn left into Schwarz Park (A US Army Corp Engineers Camp ground and picnic site). The BLM parcel is the open meadow on the south side of the park, there are no signs marking the boundary. You may need to tell the camp ground host who you are and what you are doing.

Project History

The Institute for Applied Ecology (IAE) began working at Dorena Prairie in 2010. IAE has worked on two separate projects that occur on this same BLM parcel. This report only covers activities funded under the restoration agreement for 2011. Previous restoration work performed at Dorena Prairie is covered in Blakeley-Smith 2010a. Additional work that was performed at Dorena Prairie under the Seeds of Success project can be found in two separate annual reports (Blakeley-Smith 2010b and Blakeley-Smith 2011).

Dr. Mark V. Wilson conducted an ecological assessment of Dorena Prairie for BLM in 1996 (Wilson 1996) and a re-assessment following seven years of management in 2003 (Wilson 2004). Additional information about the ecological condition of Dorena Prairie is discussed in “A survey of the native upland prairies of the Willamette Valley” (Wilson 1996).

Restoration Goal

The overarching goal for Dorena Prairie is to actively restore regionally rare upland prairie habitat by controlling priority invasive species and augmenting native plant populations through out-planting of nursery grown plugs.

Restoration Strategy

In 1996 Mark Wilson made management recommendations for improving the prairie habitat at Dorena Prairie. Mark’s recommendations remain pertinent in 2010. We repeat those management suggestions here:

1. Control invasive brush species
2. Reduce dominance of the invasive grass *Arrhenatherum elatius*
3. Establish additional native plant species
4. Consider establishing rare species
5. Pursue public educational opportunities

Restoration Activities completed in 2011

Restoration activities in 2011 centered around weed control and surveying for *Astragalus umbraticus*. A detailed description of activities can be found below, while the list of actions that occurred at Dorena Prairie are listed in Table 1.

Table 1. Restoration activities at Dorena Prairie during the 2011 field season.

DATE	TASK
4/22/2011	Site inspection and partner coordination
6/17/2011	Scotch broom, blackberry removal, and <i>Astragalus umbraticus</i> survey
7/15/2011	Site inspection and <i>Astragalus umbraticus</i> survey
8/5/2011	Site inspection and <i>Astragalus umbraticus</i> survey
8/15/2011	mow entire site, USACE
10/26/2011	site visit

Control invasive brush species

On-the-ground restoration activities in 2011 focused on manual removal of Scotch broom. IAE sub-contracted the Walama Restoration Project to physically remove Scotch broom from the southwest portion of the prairie. In addition, the labor crew also mowed blackberries in that same area. The BLM reported that this is the area most likely to support the historical sighting of *Astragalus umbraticus*. Scotch broom has a seed life of over 50 years, so searching for new seedlings and removing them will continue to be an annual task. Himalayan blackberry is present in small patches throughout Dorena Prairie. Mechanical removal has proven to be difficult since the plants were mowed annually for a decade and they have extensive underground root systems. In the future we recommend cutting the blackberry stems in October and immediately applying herbicide to the cut stems. This method is very effective at killing blackberry and has minimal negative impact on the surrounding native vegetation.



Figure 3. Photo of Scotch broom prior to manual removal on June 17, 2011.

Reduce dominance of the invasive grass *Arrhenatherum elatius*

In the late summer of 2011 the USACE mowed the entire site in order to reduce the stature of the non-native grasses and allow for a robust spring bloom of wildflowers. Wilson notes that late season mowing is ineffective at reducing *Arrhenatherum elatius* over the long-term. He suggests mowing earlier in the season prior to flowering. This approach would likely impact the flowering ability of the native forbs. We suggest using an herbicide wicker mounted on an ATV. This approach has been used successfully at Baskett Butte National Wildlife Refuge. This method allows one to apply herbicides