

# Twin Prairie – 2015 Annual Report (WEBSITE VERSION)



2016

Report to the Bureau of Land Management  
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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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## SPECIAL NOTE

This report has been modified from its original format by removing maps and/or appendices that include information on the location of rare and sensitive species.

## ACKNOWLEDGMENTS

Funding for this project was provided by the Bureau of Land Management. We thank Cheshire Mayrsohn of the BLM for her guidance and knowledge of the site. We thank Ted Shriro, formerly of IAE, for collecting shaggy horkelia seed and we thank Larkin Guenther of IAE and the female inmates of the Coffee Creek Correctional Facility for growing plugs of the shaggy horkelia to be introduced in this project.

**Cover photographs:** Twin Prairie, southeast of Cottage Grove, Oregon. *Photo by Jenny Getty.*

## SUGGESTED CITATION

M. Schultz. 2016. Twin Prairie Restoration: 2015 Annual Report. Institute for Applied Ecology, Corvallis, Oregon and USDI Bureau of Land Management, Eugene District.

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## REPORT TO THE BUREAU OF LAND MANAGEMENT

### SUMMARY OF ACCOMPLISHMENTS

**Highlights:** The population of shaggy horkelia (*Horkelia congesta* ssp. *congesta*) was monitored, censused, and mapped, expanding data collected in 2013-2014. The number of reproductive plants decreased from 713 to 527 from 2014 to 2015. The weedy species Armenian blackberry (*Rubus armeniacus*) and Scotch broom (*Cytisus scoparius*) were removed from the edges of the meadow. Shrubs and trees encroaching on the shaggy horkelia population were trimmed back from the edge of the meadow and some smaller trees were girdled. Two plots of shaggy horkelia containing a total of 220 plants were outplanted to Twin Prairie. The plugs were established from seed collected in 2014 and grown at the Coffee Creek Correctional Institute greenhouse in a partnership with IAE's Ecological Education program. See Table 1 for a complete list of activities at Twin Prairie.

**Table 1. Restoration Tasks at Twin Prairie**

Date	Task	Personnel	Volunteers
4/28	Site orientation	Matt Schultz, Cheshire Mayrsohn	
5/5	Scotch broom removal	Matt Schultz	
5/28	Horkelia monitoring	Matt Schultz, Rebecca Currin	
6/15	Horkelia monitoring	Matt Schultz	
7/10	Shrub and blackberry removal	Matt Schultz, Andy Neill	Lia Van Steeter
8/26, 8/28	Blackberry removal	Matt Schultz	
10/29	Horkelia plug planting	Matt Schultz, Andy Neill	8 volunteers

### Twin Prairie Monitoring

The shaggy horkelia population at Twin Prairie has been monitored for three years. In 2013, the number of flowering stems was the only datum collected (Table 2). In 2014 and 2015, additional data was collected, including the total number of plants, the reproductive status (rosette or flowering) of each plant, and the number of browsed stems (Table 3). Individual plants were defined as basal rosettes not obviously connected to a single crown, usually 1-2 inches apart (Alverson 2013).

Monitoring was conducted earlier this year (first visit in May 28<sup>th</sup> compared to June 24<sup>th</sup> for 2014) because horkelia was already observed in bloom on April 28<sup>th</sup> in certain parts of the site. However, despite careful searching, on May 28<sup>th</sup> no horkelia stems or rosettes were observed in plot 1, which is located in a shady part of the site with relatively thick vegetation and soils. A second monitoring visit, on June 15<sup>th</sup>, did find plants in plot 1.

One trend that is becoming apparent is for small subpopulations to pop up and wink out from year to year. For example, in 2014 additional plants were found in the vicinity of plot 7 and designated 7A. In 2015, no plants could be found at plot 7A or plot 10, but additional plants were found next to plots 8, 10 and 12 (designated 8A, 10A, and 12A). In general this pattern is reflective of a dynamic population of shaggy horkelia, and demonstrates that recruitment is active.

Shrubs continue to encroach into the prairie negatively impacting the horkelia population. The horkelia plant at plot 10 in 2014 was clearly crowded out by an encroaching manzanita in 2015 (Figure 1).



**Figure 1. Left photo, taken 2014, shows shaggy horkelia in plot 10 (1 individual, multiple flowering stems, just left of pink flag). Right photo, taken 2015, shows no flowering stems at this location, e.g. the individual has been crowded out by the encroaching manzanita. This shrub was removed in July.**

**Table 2. Flowering stems of *H. congesta* ssp. *congesta* at Twin Prairie, 2013-2015**

Plot	# Flowering Stems in 2013	# Flowering Stems in 2014 (# Browsed)	# Flowering Stems in 2015 (# Browsed)	Notes
1	12	12 (24)	27	
2	13	10 (6)	8 (3)	
4 (3-5)	489	212 (315)	325 (168)	Plots 3-5 considered all part of plot 4
6	27	5 (25)	20	
7	77	51 (63)	51 (11)	
7a	0	2	0	No plants found this year
8	61	39 (54)	24	
8a	0	0	2	New plot for 2015
9	3	3 (1)	2	
10	9	6	0	No plants found this year
10a	0	0	1	New plot for 2015
11	2	8	6 (16)	
12	17	113 (79)	54 (23)	
12a	0	0	5	New plot for 2015
13	19	2 (12)	11	
14	6	3 (4)	1 (2)	
15	4	43 (56)	43 (27)	
16	229	205 (287)	111 (98)	
17	4	2	2	
18	102	66 (68)	48 (4)	
19	7	8 (29)	35	
<b>TOTAL</b>	<b>1081</b>	<b>790 (1023)</b>	<b>776 (352)</b>	

**Table 3. Number of total and reproductive individuals of *H. congesta* ssp. *congesta* 2014-2015**

Plot	# of plants 2014	# of plants 2015	# of flowering plants 2014	# of flowering plants 2015	Notes
1	12	11	12	9	
2	7	5	7	5	
4 (3-5)	407	406	235	216	Plots 3-5 considered all part of plot 4
6	20	16	10	9	
7	62	35	50	30	
7a	1	0	1	0	No plants found this year
8	68	12	35	12	
8a	0	1	0	1	New plot for 2015
9	3	1	3	1	
10	1	0	1	0	No plants found this year
10a	0	1	0	1	New plot for 2015
11	5	9	4	8	
12	104	67	64	37	
12a	0	2	0	2	New plot for 2015
13	3	6	3	5	
14	1	1	1	1	
15	92	80	45	37	
16	355	216	184	116	
17	2	2	2	2	
18	76	44	46	24	
19	15	14	10	11	
<b>Total</b>	<b>1242</b>	<b>929</b>	<b>713</b>	<b>527</b>	

## SUCCESSES & LESSONS LEARNED

**Twin Prairie Restoration:** In 2015 nearly all Scotch broom was removed from the meadow and much blackberry was also removed. The blackberry removal efforts were concentrated in areas that were treated in 2014. There are still dense patches of blackberry, especially in the lower meadow in the south-central and south-eastern portions of the site. Patches of blackberry that were treated in 2014 did resprout to some extent, but were much reduced in vigor compared to untreated patches. This suggests that our treatment methods are effective, but still must be repeated for several years to be effective. The steep slope of this site makes invasive plant removal more time consuming and expensive than a site with less slope. The area of the site where false brome was found in 2014 was checked carefully, but no false brome was found.

Trimming back encroaching vegetation, mainly the lower branches of Douglas-fir trees and manzanita was an important task accomplished in 2015 (Figure 2). Trimming was done along the entire northern extent of the meadow where shaggy horkelia was present (e.g. from plots 1-11 and 13-19). It will be important to monitor the extent of resprouting shrubs and further trim, entirely remove, or girdle selected shrubs and trees in the future. It will also be interesting to monitor whether horkelia expands into areas where shrubs encroachment took place.

We learned a bit more about shaggy horkelia phenology at the site. In particular it was noteworthy that shaggy horkelia can be in bloom at exposed parts of the site while not having formed rosettes in more shady spots. Even in an abnormally warm spring, such as 2015, monitoring should be conducted no earlier than mid-June.



**Figure 2. Left photo shows manzanita shrub with half of lower branches removed. Right photo shows the shrub with all lower branches removed.**

Two 10 m x 10 m plots were established and planted with 110 shaggy horkelia plugs with 1 m spacing (Figure 3). The plugs were grown at the Coffee Creek Correctional Institute greenhouse. Shaggy horkelia generally does not do well in a greenhouse environment, especially during the heat of summer (Larkin Guenther & Amy Bartow, personal communication). The shaggy horkelia rosettes were generally small, although there was a surprisingly large amount of root material for the size of the rosette (see right photo on Figure 3). Due to the dry and exposed nature of the introduction site, a fall introduction was considered more promising than a spring introduction.

Having a record of the population of shaggy horkelia is important for monitoring the health of the overall horkelia population, and the baseline information recorded in 2013-2015 will inform any changes in subsequent years.





**Figure 3. Left: Matt Schultz demonstrating planting of shaggy horkelia to volunteers. Right: planted shaggy horkelia rosette.**

## NEXT STEPS

**Twin Prairie Restoration:** Restoration efforts at Twin Prairie should continue to insure that the identified invasive plant populations do not expand. The method of blackberry treatment at this site requires several years of treatment to be effective, and restoration efforts should continue annually to ensure we do not lose ground. Most of the remaining large populations of blackberry are in wooded areas and future removal will be more challenging. Almost all of the Scotch broom population has been removed, and additional treatments in 2016 would prevent reestablishment. The shaggy horkelia monitoring should continue in 2016 to determine if this population is expanding, contracting or remaining stable, and more extensive monitoring methods should be considered for the future. Monitoring of the plugs planted in 2015 will allow for an evaluation of the success of shaggy horkelia introductions. Further monitoring should elucidate whether the decline in the population of shaggy horkelia at Twin Prairie was due to the abnormally warm spring in 2015 or if it is part of a general trend that could continue over time.

**Appendix 1. Site Map (This appendix has been removed to protect locations of sensitive species)**

## References

Alverson, Ed. R. 2013. Lomatium Prairie *Horkelia congesta* 2013 Monitoring. Report to Long Tom Watershed Council. 22pp.