

POPULATION INTRODUCTION OF THE THIN-LEAVED PEAVINE: 2015 ANNUAL REPORT



2016

Report to the Bureau of Land Management
Agreements # L13AC00098-25 and
L13AC00098-0033

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PREFACE

This report is the result of agreements # L13AC00098-25 and L13AC00098-0033 between the Institute for Applied Ecology (IAE) and the Bureau of Land Management. Projects under both agreements provided funds for the activities describe herein. 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: *Lathyrus holochlorus* flowers. Photo by Ian Silvernail.

SUGGESTED CITATION

Silvernail, Ian. 2016. Population Introduction of the Thin-leaved Peavine: 2015 Annual Report. Institute for Applied Ecology, Corvallis, OR, 8 pages.

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REPORT TO THE BUREAU OF LAND MANAGEMENT

INTRODUCTION

The thin-leaved peavine (*Lathyrus holochlorus*) is a rare member of the Fabaceae. It is a Bureau of Land Management Sensitive Species, a USFWS Species of Concern, and an Oregon Biodiversity Information Center (ORBIC) List 1 species. It is found throughout the Willamette Valley and south toward Roseburg. A few small populations are also found in Lewis County, Washington. The thin-leaved peavine is most commonly found along roadsides, fencerows, or scattered in deciduous woodlands. Most of the remaining populations are along roadsides and unmowed fencerows, where it is commonly associated with Oregon white oak (*Quercus garryana*), common snowberry (*Symphoricarpos albus*), various species of rose (*Rosa* sp.), and poison oak (*Toxicodendron diversilobum*). Many populations are threatened by incompatible mowing practices and herbicide use.

The thin-leaved peavine is a rhizomatous perennial, and many populations are likely composed of a single, self-incompatible genetic clone. Most small populations consistently do not produce any viable seed; very few large populations remain. In a 2012-2014 range-wide inventory performed by IAE, 32% of extant populations had 10 or less stems, and 75% of populations had 100 or less stems.

This report includes information about Phase 3 of a four phase project. Phases 1 and 2 of the project included field surveys of historic populations, seed collection, germination testing, and limited plug production. Phase 3 involves further seed collection, plug grow out, site preparation at selected locations, and population increase by outplanting thin-leaved peavine plugs. Phase 4 objectives will be to maintain thin-leaved peavine seed increase beds, monitor establishment of outplanted plugs, and improve habitat quality at reintroduction sites to enhance outplanting and establishment success.

2015 ACTIONS

In 2015, activities included seed collection, container plant growout, establishment of seed increase beds, and introduction site selection and preparation.

Seed collection

A total of 47.8 grams of seed was collected from 15 different populations in July 2015. Seed quantities were heavily weighted toward the highest producing populations, with two populations yielding 48.8 % of the total collected seed by weight. Table 1 below shows the quantity of seed collected by county and the number of populations from which that seed was collected. No seed was collected from the two largest known populations because sufficient seed from these locations had already been collected in 2013 and 2014.

Table 1: Seed collected by county.

County	number of populations where seed collection occurred	seed collected (grams)
Benton	2	5.0
Lane	2	5.0
Linn	4	27.7
Marion	1	0.6
Polk	4	4.9
Yamhill	2	4.6
Total	15	47.8



Figure 1: Ripening seed pods.

Container plant growout

A total of 1000 plants were grown at the Corvallis Plant Materials Center in 2015. A mixture of seeds from 20 different populations was used to produce the 1000 plants. Additionally, 100 second-year plants were grown at IAE. All second-year plants were produced from seed collected from the largest-known population. All plants will be transplanted to introduction sites in March 2016.

Seed increase bed

A seed increase bed was initiated in late 2014 by direct seeding into a raised bed located at the Forest Sciences Laboratory at Oregon State University. Germination and emergence was poor, resulting in very little establishment.

In order to expand the seed increase bed, an



Figure 2: Young container-grown plants.

additional 250 container plants were initiated in November 2015 by placing seed in cold-stratification. A mixture of seeds from 20 different populations was used. Germinated seed was planted in containers in a greenhouse in January and February 2016, and the resulting plants will be planted into a seed increase bed in spring 2016.

Introduction site selection and preparation

In August and September 2015, IAE visited potential introduction sites in Lane County with Eugene District BLM staff. Additionally, several Army Corps of Engineers sites in Lane County were considered for inclusion and were visited with an Army Corps of Engineers staff member. Four sites were chosen for introduction based on soils, habitat, and geographic location. One of the sites, Bake Stewart Park will include two introduction plots. Figure 3 shows all of the introduction sites. Bake Stewart Park is owned by the U.S. Army Corps of Engineers; all other sites are owned by the BLM.

In December 2015 and January 2016, management activities occurred at several sites in preparation for plant introduction. Plots at South Taylor, Dorena, and 1 plot at Bake Stewart were mowed with a hand-held brush

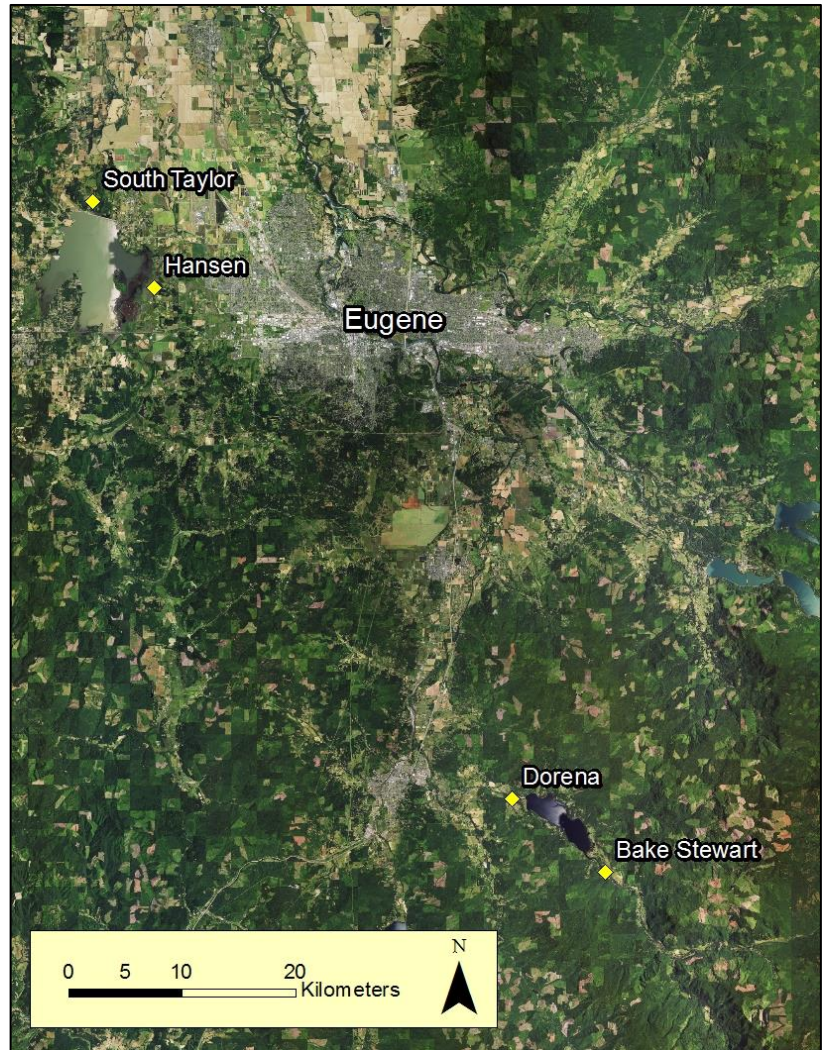


Figure 3: (Above) Introduction sites (indicated by a yellow diamond).

cutter to reduce vegetation height and eliminate some competing vegetation. At Hansen, South Taylor, and Dorena, roots of *Rubus bifrons* were grubbed out. The introduction site at Hansen and the second planting plot at Bake Stewart were mowed during the late summer and did not require further mowing in preparation for planting.



Figure 4: (Left) Introduction site at Dorena.

BUDGET

Table 2. Summary of all expenses in 2015.

Table 2 is a summary of all costs associated with the 2015 activities described in this report.

Activity	Cost
Project Coordination	\$3484
Seed collection	\$1443
Introduction site management	\$271
Seed increase	\$229
Contract grow out (NRCS Plant Materials Center)	\$1447
Equipment and Materials	\$200
Transportation	\$511
Admin	\$1394
Total	\$8,979

SUCCESSSES AND CHALLENGES

Seed was collected in 2015 without the use of pollination bags. Sites were visited once when in fruit and the locations of developing pods were flagged. Sites were revisited upon fruit maturation and pods were collected. None of the pods dehisced prior to seed collection. By not using pollination bags, seed was effectively collected with only two trips to each site as opposed to the three trips required previously when pollination bags were used.

An attempt to establish a seed increase bed via direct seeding was not successful. However, seeds will readily germinate when scarified and cold-stratified for 8 weeks at 4°C. Container plant cultivation has been successful, suggesting that this may be a more successful way of initiating a seed increase bed than direct seeding. Activities in 2016 will focus on expanding the seed bed with container plants.

Scouting for introduction sites did not occur until late in the summer, so it was not possible to collect representative pre-planting quantitative plant community data. Qualitative notes were taken on pre-planting conditions. Plants will be transplanted to introduction sites in March 2016 and plant community data will be gathered in June.

FUTURE ACTIONS

In March 2016, outplantings of a total of 1000 plants will occur at locations listed in this report. Each planting will require successful partner coordination, planning, and site preparation. Monitoring and maintenance will also occur at all introduction sites. Further funding is secured to continue monitoring and maintenance on these plantings in 2017, 2018, and 2020.

The seed increase bed will be expanded with greenhouse-grown plugs in April and will be maintained during the rest of the year. This bed is not expected to produce any seed until at least 2018.