Restoration of High Priority Ecological Areas in the Portland Metropolitan Area
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Final Report to Metro Greenspaces and United States Fish and Wildlife Service
Metro Greenspaces Restoration Program

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Appendix 1: Comparison of manual versus chemical control of English ivy, Camassia Natural Area, West Linn Oregon: draft manuscript to be submitted for publication winter 2001-2

Appendix 2: A comparison of control methods for Japanese and giant knotweed, Sandy River Gorge, Oregon; results through May 2001: draft manuscript to be submitted for publication winter 2002

Appendix 3: Draft curriculum linking state education benchmarks to weed-based field activities (some work done on this after end of this current project period);

Appendix 4: Presentation on invasive species removal for natural resource (semi) professionals, educators and neighborhood restoration groups.

Appendix 5: Japanese knotweed presentation for non-scientist (photographs excluded)

Appendix 6: Japanese knotweed basic field protocol, including decision tree for treatment method and herbicide treatment method summaries

General Introduction

Funding from the Metro -- United States Fish and Wildlife Service Metro Area Restoration Grants Program supported projects addressing invasive, systems-modifying weed species* at 3 high priority natural areas in the Portland Metro region: 1. Camassia Natural Area, 2. Little Rock Island and the adjacent Willamette Narrows shoreline (collectively referred to as the Willamette Narrows), and 3. The Sandy River Watershed (funds from this program were used specifically within the Sandy River Gorge, river miles 12-19).

> * *A system (or habitat) modifying weed species has the potential to permanently alter fundamental ecosystem characteristics such as structure, process and ultimately, function.*

Each area supports unique, rare and/or high-quality natural features and native habitats that are threatened with degradation or eradication by one or more invasive, system-modifying weed species. The Nature Conservancy (TNC), Metro and the Bureau of Land Management (Sandy only) have each identified these areas as regionally important as part of regional planning processes. Although TNC manages preserves in each of these areas, allocation of restoration effort was based on ecological priority rather than ownership status (see table 1 below). Significant funding or in-kind donations for the project also came from the Bureau of Land Management, the Northwest Service Academy, Oregon Department of Agriculture (2001 only), the Oregon Watershed Enhancement Board, TNC and US Bank. Numerous small in-kind donations of time, discounted equipment or services were also received.

Table 1 -- Working Sites

Site name	Ownership*	Important Weed Species Present^
Camassia	TNC, West Linn School District, City of West Linn	English ivy, Himalayan blackberry, Scots broom, reed canarygrass
Little Rock Island and Willamette Narrows Shoreline	Metro, Oregon State Parks, TNC.	Scots broom, Himalayan blackberry, English ivy, reed canarygrass
Sandy River	BLM, Metro, ODFW, Oregon State Parks, private, TNC, USFS.	Japanese knotweed, Scots broom, Himalayan blackberry, Reed canarygrass, English ivy

* Presented in order of ownership area at the site
^ Presented in order of ecological importance at the site

The project integrated fieldwork with outreach, education and basic research on control methodology. Restoration and protection efforts addressed threats caused by Japanese and giant knotweed (*Polygonum cuspidatum* and *sachalinense* respectively - referred to hereafter as knotweed), English ivy (*Hedera helix*), Scots broom (*Cytisus scoparius*) - and Himalayan blackberry (*Rubus discolor*). The report that follows is divided into three

sections: I. Camassia, II. Little Rock Island / Willamette Narrows, and III. Sandy River; and includes fieldwork conducted between January 2000 and June 2001. Comments on field-work completed during 2001, but after the completion of this phase of the project are occasionally added as notes.

Section 1: Camassia Natural Area

Introduction

General

The Camassia Natural Area (figures 1.1, 1.2), owned and managed by The Nature Conservancy of Oregon contains some of the finest remaining examples of native oak (*Quercus garryana*) savanna and mixed oak - fir (*Q. garryana / Pseudotsuga menziesii* and *Abies grandis*) habitats in the Portland Metro area. Also included in the preserves 27 acres are fine examples of more mesic, mixed deciduous / coniferous forest, rocky bluffs and 4 natural ponds. The result of such habitat diversity is more than 300 species of native plants, including the rare species *Delphinium leucophaeum* (pale larkspur) and *Aster curtis*. At least 39 native bird species have been confirmed to breed at the preserve.

Threats

As in all (sub)urban conservation areas, Camassia's native habitats are threatened with degradation by invasive species. English ivy threatens the forest and the meadow-forest ecotone, Scots broom threatens the meadows and meadow-forest ecotone and Himalayan blackberry threatens meadows, open forests and openings within generally closed canopy forest types. More subtle changes from over-visitation, encroachment or illegal yard waste dumping by neighbors and changes in hydrology are other concerns of note.

Stewardship history

Before the 2000 field season, sporadic ivy removal had been performed, mostly, but not entirely focussed on clearing trees of climbing ivy. Restoration efforts had focussed instead on control of Scots broom in the meadows. The Scots broom control has been an unqualified success. Scots broom has been reduced to pre-reproductive individuals, at a density low enough to not change the structure of the meadow and meadow-forest ecotone habitats. Unfortunately, the multi-years focus on Scots broom and the meadow / savanna systems on the preserve allowed forest dwelling invasive species to increase. English ivy has become well established in at least 10 acres of the forested portions of the preserve (see Camassia vegetation map, figure 1.2). Himalayan blackberry is also apparently increasing, especially in the open oak and oak- fir woodlands.

Project summary

Calendar year 2000 through spring 2001 was the first phase in a 3-5 year effort. The overall goal is to reduce English ivy and Himalayan blackberry to levels that can be controlled with minimal or no external financial support. The project relies heavily on a partnership with the Northwest Service Academy (AmeriCorps), and other youth groups/crews as well as community based volunteers. This structure leverages grant funds and increases on-the-ground action while providing important field-based environmental education opportunities to a diverse mix of youth and adults. Project goals