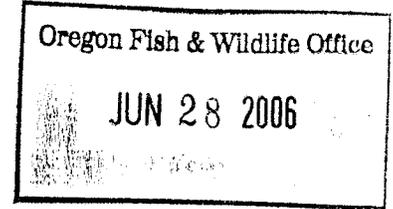


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Final Report – Year 3

June 30, 2006

City of Portland Watershed Revegetation Program  
Oaks Bottom Bluffs Habitat Restoration Project  
Cooperative Agreement Number 1448-13420-03-J334  
September 04, 2003 – June 30, 2006



**I. Project Description (expected and actual goals, accomplishments, benefits)**

The Oaks Bottom Bluffs is comprised of thirty-three acres of critical wildlife habitat in the urban landscape. This project focused primarily on removing exotic plants and restoring oak habitat on thirty-three acres of predominantly public lands. The goal of the project was to restore, protect, and improve habitat for wildlife along the bluffs of the Oaks Bottom Wildlife Refuge.

**Objective 1:** Re-establish native grass, shrub and tree components of the Oregon white oak plant community on 33 acres of upland at Oaks Bottom Refuge.

**Accomplishments:** Native grass was re-established throughout the project acreage (*Bromus carinatus*, *Elymus glaucus*, *Deschampsia caespitosa*, with *Festuca rubra* along to top edge of bluff.) The following herbs were released: piggyback plant (*Tolmiea menziesii*), fringecup (*Tellima grandiflora*), Hooker’s fairybells (*Disporum hookeri*), clasping twisted stalk (*Streptopus amplexifolium*), and jewelweed (*Impatiens noli-tangere*). The native shrub layer was increased by release of existing natives snowberry (*Symphocarpus albus*) and blue elderberry (*Sambuca cerulea*). The native tree canopy had been severely threatened by English ivy (*Hedera helix*) and Western clematis (*clematis vitalba*) vines. By removing the vines from these native tree species, individual Oregon white oak (*Quercus garryana*), Oregon ash (*Fraxinus latifolia*), and big-leaf maple (*Acer macrophyllum*) were literally rescued from suffocation by invasive species.

**Objective 2:** Initiate and sustain a neighborhood based community stewardship program at the project site.

**Accomplishments:** Demonstrated naturescaping principles to eleven adjacent property owners, several of whom are beginning to incorporate these ideas into their private landscaping.

- Lead the following tours: Metro Greenspace Tour, Blue Heron Week Tour, Migratory Bird Week Tour, City of Portland staff tour. A Friends of Oaks Bottom Bluff Walk is scheduled for summer 2006.

**Objective 3:** Provide a location for long-term environmental education activities, ecological field studies, and research by area universities and schools.

**Accomplishments:**

- Mount Hood Community College Natural Resource Program has performed bird surveys as part of their curriculum.

- Portland State University Cornerstone Project began an Oregon white oak survey to identify all native oak trees throughout the project area.
- Cleveland High School has been working toward finishing the Oregon white oak surveys.
- Reed College is studying upland amphibian habitat along the bluff.

**Objective 4:** Contribute to the ongoing regional effort to restore oak woodland habitat along the Willamette River's Eastside Escarpment.

**Accomplishments:** Within the City of Portland, there are approximately two hundred and thirty acres included in the Willamette River's Eastside Escarpment. Much of the ownership is public. Vegetation management along this thirty-three acre project is a significant contribution towards reclaiming the health and function of Oregon white oak habitat in the Portland area.

## II. Actual work tasks implemented

### GENERAL

Partnership outreach	May 2003-December 2003
Greenway permit/LUR	(02/23/04) decision

### Oaks B: East Trail

Herbicide application	(04/27/04)	1.3 acres
Labor manual	(12/13/04)	8.0 hours
Cut hourly	(09/30/04)	4.0 hours
Cut Maintenance	(07/25/05)	1.3 acres
Herbicide application-ivy spray	(10/05/05)	1.3 acres

### Oaks B: Sellwood Drive Bluff

Herbicide application	(04/28/04)	8.0 acres
Labor manual	(12/15/04)	50.0 hours
Cut hourly	(05/09/05)	24.0 hours
Herbicide application- spray maint broadcast	(07/27/05)	1.0 acre
Manual Labor	(12/01/05)	21.0 hours
Cut Hourly	(12/01/05)	12.0 hours

### Oaks B: N Fill Hill

Herbicide application	(03/11/04)	3.0 acres
Cut hourly	(09/30/04)	12.0 hours
Cut hourly	(05/09/05)	12.0 hours
Herbicide application- spary maint spot	(07/25/05)	2.0 acres
Herbicide application- spary maint brdcast	(07/08/05)	2.0 acres
Cut maintenance	(07/26/05)	6.0 acres

### Oaks B: Henry to Knight

Cutting Site Prep	(03/18/04)	5.0 acres
Mashing	(07/02/04)	5.0 acres

Spray SP hand	(07/14/04)	5.0 acres
Spray ivy	(09/20/04)	5.0 acres
Seed application	(10/13/04)	5.0 acres
Labor manual	(12/13/04)	20.0 hours
Spray ivy	(12/15/04)	2.0 acres
Herbicide application- spray ivy	(10/05/05)	5.0 acres
Seed application	(10/24/05)	5.0 acres
Manual Labor	(12/01/05)	13.5 hours
Cut Hourly	(12/01/05)	13.5 hours

### Oaks B: Portland Memorial

Planting	(03/17/04)	3,282 plants
Plant staking	(03/17/04)	3,282 plants
Cut hourly	(05/09/05)	4.0 hours
Spray maint spot	(07/14/04)	7.5 acres
Spray ivy	(09/20/04)	1.0 acre
Labor manual	(12/14/04)	26.0 hours
Spray ivy	(12/15/04)	4.0 acres
Herbicide application- spray maint spot	(07/26/05)	6.5 acres
Manual Labor	(12/01/05)	12.0 hours
Cut Hourly	(12/01/05)	12.0 hours

### Oaks B: South Fill Bluff & Trail

Spray ivy	(12/15/04)	1.0 acre
Cut site prep	(12/16/04)	2.5 acres
Labor manual	(12/16/04)	65.0 hours
Cut maint	(06/13/05)	3.5 acres
Herbicide application- spray maint spot	(07/08/05)	2.0 acres
Herbicide application- spray maint spot	(07/20/05)	2.5 acres
Herbicide application- spray sp hand	(07/26/05)	2.5 acres
Cut Maint	(10/03/05)	2.5 acres
Seed Application	(10/24/05)	2.5 acres
Manual Labor	(12/01/05)	16.0 hours
Cut Hourly	(12/01/05)	8.0 hours
Plant staking	(03/15/06)	800 staked plants
Bare-root installation	(03/15/06)	2800 plants

### III. Proposed Schedule

Permit application (Greenway/LUR)	May 2003
Manual cutting	July 2003, July 2005
Herbicide application	September/November 2003, July/September 2004, September/November 2005
Seed application	September 2003
Native plantings	February 2004

Woody monitoring  
Maintenance monitoring (treatment needs)

October 2004.2005  
Ongoing (minimum 3 X's per  
growing season)

#### **IV. Project Staff, partners, roles, hours**

Andi Gresh (BES, 180 hours): project management, landowner outreach and signed participation agreements, Land Use Review and Greenway permitting, project design, budget, schedule, monitoring and reporting

Jim Schiller (BES, 103 hours): project design, developing invasive weed reduction techniques, oversight of herbicide crews, treatment prescriptions and monitoring

Damion Coe (BES, 70 hours): professional services contracting, developing invasive weed reduction techniques, oversight of herbicide crews

Ken Finney (BES, 73.5 hours): professional services contracting, developing invasive weed reduction techniques, oversight of cutting crews

Toby Query (BES, 40 hours): materials contracting (native plants included), plant allocation and assessment of monitoring

Mark Wilson (Parks, 130 hours): planting design review, landowner outreach/education

Cynthia Milbradt (Neighborhood liaison, 30 hours): landowner issues, education/outreach  
12 Private landowners: landowner access

#### **V. As-built**

See attached map

#### **VI. Description of methods**

The project area was initially a highly degraded plant community with invasive weeds covering over ninety percent of the site. Prior to invasive weed control activities, the worst plant offenders were western clematis (*Clematis vitalba*), English ivy (*Hedera helix*), and Himalayan blackberry (*Rubus discolor*). This biomass of these species was dramatically reduced by sixty percent through a combination of manual cutting and herbicide application. Manual cutting was the primary tool used to reduce the biomass, thereby reducing the amount of herbicide needed to affect the invasive plants. Manual cutting was also used to pull invasive vines out of native tree canopy, thereby releasing native trees and protecting their health. Herbicide applications (Garlon 3A) were then used to selectively target re-growth of invasive species. The addition of native grasses was another important tool in competing against invasive weeds. Native grasses were seeded in the fall and they help to occupy space before weed seed establishes.

#### **VII. On-going tasks (maintenance and monitoring)**

Funding has been identified for near-term (at least three years) vegetation management of this project area. Management will include manual cutting, herbicide application, and occasional planting of native shrubs to increase the structure and density of the native plant community. The next series of treatments will be manual cut (July 2006), herbicide

application (September 2006), and planting (February 2007). Monitoring takes place in the fall of each year, immediately following the growing season. Monitoring is used to guide future invasive weed control treatments.

### VIII. Summary of expenditures

Expenditure Item	Total Amount	Greenspaces Grant	Match
Materials & Supplies	3,848.63	1,868.72	1,979.90
Professional Services	28,925.18	28,131.28	793.90
Permits	3,338.00	0	3,338.00
Personnel (staff time)	32,807.50	0	32,807.50
Project Total:	68,919.31	30,000.00	38,125.40

### IX. Summary & conclusions (observations & advice)

The successes of the project can be summarized as follows:

- Effectively reduced biomass of dominant invasive weed species (clematis, ivy, blackberry)
- Increased the presence of native herbs and shrubs by release the existing natives of the site.
- Increased the presence of native grasses by adding them through fall seeding.
- Rescued native tree canopy by removing invasive plant vines. Prior to vegetation management, native trees were literally engulfed and being taken down by invasive vegetation.
- Drastically reduced the risks associated with catastrophic wildfire by reducing shrub layer highly combustible fuel loads (namely blackberry), removing ladder fuels (clematis and ivy vines), thereby preventing crown fires.
- Raised public stewardship and engagement through field tours, promoting naturescaping, and supporting educational research.

The significant challenges were:

- **Operating outside of the 'potential wildlife use' window from March 15-July 1.** This window restricted invasive weed control activities during this time period. The decision was made part of the decision from the **Greenway Review** and a condition of permit. The decision was not based on the known presence of native species, but rather the possible presence of native wildlife species (based on wildlife lists from the Oaks Bottom Wildlife Refuge). This window of restriction

has greatly limited timing on effective invasive weed management strategies, which are most effective during the growing season and prior to summer dormancy. This restriction will make control of garlic mustard next to impossible.

- Working on steep slopes made covering the terrain a challenge for contractors. Though it is possible to do this kind of weed management, it does highlight the fact that this type of work is more dangerous and in the future, we may see higher costs associated with this terrain.
- Bees can be a real problem in the summertime. They are normally most active from July through September and can pose a human health hazard to contractors. When personnel run into be hives and ground nests, they often have to quit work and return outside of the bee season. This can be a real scheduling challenge considering the prior mentioned wildlife protection work ban from March-July.
- Throughout the history of the project area, plant establishment has been sporadic. On both the north and south ends of the project area, older plantings of trees and large shrubs were successful in native plant establishment. The middle of the site, below Portland Memorial, soils are intensely gravel/cobble with ninety percent shade. These conditions made plant establishment next to impossible. Plantings were scheduled for five acres along the Henry-Knight St. management unit, but these plantings were delayed until winter 2007. Site conditions of not yet likely to support plant establishment. In addition, this project is seeing its greatest benefits from the control of invasive species and release of existing natives.

The next three-year period (2006-2009) will need to address the following **management** considerations in order to further project goals and objectives:

- There are many weedy trees (Siberian elm, locust, Norway maple, sycamore maple, European hawthorn, and tree of heaven) at the site that were uncovered through the removal of the invasive shrub layer. These trees are spreading and crowding out native trees. The challenge here will be in gaining consensus and approval from various City bureaus that this is an appropriate solution to protecting forest health. **Currently, there is no clear policy on weedy tree removal on public lands.**
- **Garlic mustard** has become a significant problem in many portions of the project area. This is consistent with its spread in other parts of the City, where we see an ever-increasing problem from the spread of garlic mustard, especially along trails, access roads, and utility corridors. The most effective way to treat garlic mustard is through the use of herbicide application. It has been reported in recent literature that hand-pulling this plant is not effective, because of the root fragments left behind. Garlic mustard is spreading rampantly throughout the bluff and its presence is difficult to see through the native grasses.
- The following invasive weeds, though not dominant, are present at the site and will require constant control strategies: butterfly bush, prickly lettuce, giant knotweed, blackberry, ivy and clematis (seedlings). Manual cutting and herbicide applications will be effective treatments for these species.

**X. Supplemental data** (photo monitoring, as-built map, plant list)



# Oaks Bottom Bluff Before/After Treatments

A



03-17-03



04-12-04



06-15-06

# Oaks Bottom Bluff Before/After Treatments



03-17-03



04-12-04



06-15-06

B

# Oaks Bottom Bluff Before/After Treatments

c



03-17-03



04-12-04



06-15-06

# Oaks Bottom Bluff Before/After Treatments

D



03-17-03



04-12-04



06-15-06



**City of Portland**  
**Watershed Revegetation Program**  
**Oaks Bottom Bluffs Habitat Restoration Project**  
**33 Acres**  
**Cooperative Agreement Number 1448-13420-03-J334**  
**September 04, 2003 through June 30, 2006**

 **Watershed Revegetation Program**

 **ENVIRONMENTAL SERVICES**  
**CITY OF PORTLAND**  
 1120 SW Fifth Avenue, Room 1000  
 Portland Oregon, 97204-1912



 **Vegetation Mgmt**  
 (noxious weed control & release of native species)

 **Shrub installation**