



PROJECT STATUS REPORT

Site(s): St. John's Landfill
Date: December 2000
Landowner: METRO Regional Environmental Management

Contact: Dennis O'Neil, St. John's Landfill Supervisor
METRO REM

Totals To Date:

Acres Planted:	14
Feet of Bank Planted:	10,200
Trees Planted:	30,449
Shrubs Planted:	2,709
Pole Cuttings Planted:	26,500
Pounds Seed Sown	170

INTRODUCTION

The Watershed Revegetation Program (WRP) in the Bureau of Environmental Services, City of Portland began revegetating the perimeter of Metro St. John's Landfill in 1996 along the Columbia, Blind, and North sloughs. All plantings, interplantings, and treatments since 1996 are recorded in this report. This report also lists future plantings, interplantings, and maintenance prescribed under existing agreements.

Because of its proximity to and inclusion in the Smith and Bybee Lakes Natural Area, the Landfill is an integral ecological component of the Lower Columbia Slough ecosystem. In accordance with the 1996 and 1999 IGAs, WRP has planted and maintained trees, shrubs, and pole cuttings and seeded native grasses along the landfill perimeter as described in the "Plantings" and "Treatments" tables below and the statistics given at the beginning of this report. These plantings include the "Slope Stabilization" project.

HISTORIC SITE CONDITIONS

Historic and remnant habitats in this area of the Lower Columbia Slough generally consist of a mixed deciduous forest of Oregon ash, black cottonwood, and pacific willow. Other dominant species are *Cornus sericea*, *Sambucus racemosa* and species of willow, with accompanying understory shrubs and herbaceous species of *Symphoricarpos alba*, *Spiraea douglasii*, *Carex aperta*, and *Eleocharis palustris*. Prior to the area's development as a landfill, these species occupied the natural silt levee that now serves as a dike keeping solid wastes and contaminated water from contact with surrounding water bodies.

Much of the original vegetation on the dike has been lost over the years due to physical removal and, increasingly, due to displacement by non-native weeds. In 1996, when the City first partnered with Metro to begin restoring native vegetation around the landfill, most of the dike was covered with a wall of Himalaya blackberry. Only a few scattered patches of ash remained, with a negligible number of native shrubs and essentially no native ground cover.

PROJECT HISTORY

In an attempt to be organic in restoring native vegetation, control of existing weeds was originally limited to manual cutting. Rather than releasing native plants, cutting the blackberry released a Pandora's box of other weeds, including morning glory, nightshade, reed canary grass, and poison hemlock, in addition to vigorously resprouting blackberry canes. Despite repeated attempts to cut back rapidly growing weeds, many planted trees and shrubs were out-competed, or were physically damaged in the process of cutting weeds. More recent efforts at weed control through careful hand-application

of low-toxicity herbicides have been vastly more effective in reducing competition and allowing planted trees and shrubs to survive and grow.

Severe high water, poor soil conditions, drought, and herbivorous animals have also contributed to substantial losses of stocking around the Landfill.

Although there have been numerous setbacks, discernable patterns of planting success have begun to emerge. Oregon ash has done well in most areas. This species has proven to be very tolerant of weed competition and high water levels, as well as resistant to most types of herbivory. The major downfall of this species is meadow voles, which prefer to gnaw the bark of ash over any other. Red osier dogwood from cuttings and rooted stock have proven very hardy under most conditions. Black hawthorn have grown well and are generally free from damage by most animal species except an occasional beaver clip. Snowberry, elderberry, alder, and a few conifers have persisted only above recent spring high water levels. Black cottonwood, which has shown promise to grow rapidly on many parts of the dike, has been almost completely exterminated by beaver. Several thousand have been planted, only a handful remain. Of the grasses and emergent vegetation re-introduced to stabilize the lowest slopes, *Carex aperta* and *C. obnupta* have excelled.

TREATMENT ACCOMPLISHMENT RECORD

Perimeter (incl. "Blind Slough")

Total Acres: 14

Plant Date	Planting Type	Acres	Plants/Acre	Total Plants	Species Planted
3/1/96	Initial	7.1	1345.6	5,969	<i>Abies grandis</i> , <i>Alnus rubra</i> , <i>Fraxinus latifolia</i> , <i>Populus trichocarpa</i> , <i>Salix</i> sp., <i>Thuja plicata</i> , <i>Cornus stolonifera</i>
12/18/96	Interplant	7	385.7	2,700	<i>Populus trichocarpa</i> , <i>Salix</i> sp.
3/7/97	Initial	1	1044	1,044	<i>Alnus rubra</i> , <i>Fraxinus latifolia</i> , <i>Populus trichocarpa</i> , <i>Salix</i> sp.
3/11/97	Initial	11	936.1	9,923	<i>Alnus rubra</i> , <i>Fraxinus latifolia</i> , <i>Populus trichocarpa</i> , <i>Salix</i> sp.
10/16/97	Interplant	2	210	420	<i>Crataegus douglasii</i>
2/11/98	Interplant	7	659.3	4,615	<i>Crataegus douglasii</i> , <i>Fraxinus latifolia</i> , <i>Populus trichocarpa</i> , <i>Pseudotsuga menziesii</i> , <i>Salix lasiandra</i> , <i>Thuja plicata</i> , <i>Salix fluvialis</i>
3/2000	Interplant	?	?	1,110	<i>Crataegus douglasii</i> , <i>Fraxinus latifolia</i> , <i>Populus trichocarpa</i> , <i>Alnus rubra</i> , <i>Rhamnus purshiana</i> , <i>Sambucus cerulea</i> , <i>Sambucus racemosa</i> , <i>Ribes sanguineum</i>
3/1/96	Interplant	0.1	500	50	<i>Cornus stolonifera</i>
4/1/97	Interplant	12	125.8	1,459	<i>Crataegus douglasii</i> , <i>Oemleria cerasiformis</i> , <i>Sambucus racemosa</i> , <i>Symphoricarpos albus</i> ,
3/1/98	Interplant	1	300	300	<i>Cornus stoloniferous</i> , <i>Spiraea douglasii</i>
3/10/99	Interplant	9.5	94.74	2709	<i>Crataegus douglasii</i> , <i>Rosa pisocarpa</i> , <i>Sambucus racemosa</i> , <i>Sambucus cerulea</i>
10/14/99	Seeding	2	18.5 lbs/ac	37 lbs	<i>Agrostis exarata</i> , <i>Bromus carinatus</i> , <i>Elymus glaucus</i> , <i>Festuca occidentalis</i>
4/14/00	Seeding	6			<i>Agrostis exarata</i> , <i>Bromus carinatus</i> , <i>Elymus glaucus</i> , <i>Festuca occidentalis</i>

Treatment Date	Treatment	Acres
8/20/96	Manual cutting (site prep)	7
6/6/96	Manual cutting	4
8/6/96	Irrigation	7

8/8/96	Manual cutting	10
8/18/96	Irrigation	7
10/20/96	Manual cutting	10
11/12/96	Manual cutting (site prep)	3
3/7/97	Tubing	1
5/14/97	Mulching/scalping	9
5/21/97	Manual cutting	6
7/16/97	Manual cutting	6
8/20/97	Irrigation	4
9/17/97	Manual cutting	8
11/5/97	Manual cutting (site prep)	1.8
2/11/98	Tubing	7
2/18/98	Tubing	2
3/1/98	Staking	1
5/18/98	Manual cutting	1
5/21/98	Manual cutting	2
5/30/98	Mulching/scalping	2
8/7/98	Manual cutting	2
8/18/98	Irrigation	4
10/31/98	Manual cutting	10
4/12/99	Mulching/scalping	0.3
9/1/99	Herbicide application	4
9/28/99	Manual cutting	0.5
9/28/99	Mowing	2
2/24/00	Herbicide application	6
5/27/00	Mulching/scalping	2

Slope Stabilization
Total Acres: 1.8

<i>Plant Date</i>	<i>Planting Type</i>	<i>Acres</i>	<i>Plants/Acre</i>	<i>Total Plants</i>	<i>Species Planted</i>
? 2000	interplant	1	1,110	1,110	<i>Alnus rubra, Crataegus douglasii, Fraxinus latifolia, Populus trichocarpa, Rhamnus purshiana, Ribes sanguineum, Sambucus racemosa, Sambucus cerulea</i>
? 2000	Interplant Pole cuttings	1	26,500	26,500	<i>Cornus stolonifera, Salix sp.</i>

<i>Treatment Date</i>	<i>Treatment</i>	<i>Acres</i>
6/27/00	Mulching/scalping	13.6

East Side 1998
Total Acres: 2

<i>Plant Date</i>	<i>Planting type</i>	<i>Acres</i>	<i>Plants/Acre</i>	<i>Total Plants</i>	<i>Species Planted</i>
2/18/98	Initial	2	902	1,804	<i>Acer macrophyllum, Crataegus douglasii, Fraxinus latifolia, Populus trichocarpa, Rhamnus purshiana, Salix lasiandra, Thuja plicata, Salix fluviatilis</i>

Engineered Slopes

Total Acres: 3.2

Plant Date	Planting type	Acres	Total pounds	Species Planted
10/00	Initial	3.2	~25	450g <i>Helenium autumnale</i> , 900g <i>Bidens cernua</i> , 20 lbs <i>Triticum</i> sp. 2 <i>Agrostis exarata</i> 1 <i>Deschampsia caespitosa</i> .75 <i>Eleocharis palustris</i> .75 <i>Alopecurus geniculatus</i>

CURRENT MONITORING RESULTS

Recent monitoring (November 2000) revealed an average of 483 planted trees and 216 shrubs per acre around the Landfill perimeter. *Cornus sericea* and *Fraxinus latifolia* are the woody species showing greatest survival. Red alder, Douglas-fir, and western redcedar, snowberry and red elderberry are doing well on the highest elevations above spring high water. Only a few widely scattered cottonwood remain. Remnant cottonwoods are generally very large and healthy (probably beacons for hungry beaver).

Plant distribution is highly variable, with some clumps of dense stocking interspersed with large non-stocked or poorly stocked areas. Trees average between 3 and 4 feet in height, with some of the largest cottonwood and willow exceeding 15 feet. While most remaining plants are in fair to good condition, past and current animal damage was noted on nearly every monitoring plot.

Cause of mortality:	Percent of total loss:
Predation (beaver, nutria, mice)	20
Flooding	15
Poor soil conditions	5
Competition with weeds	20

RECOMMENDED TREATMENTS

- Implement actions described in existing IGA's
- Increase "Enhancement" section of new IGA to allow additional interplantings with successful species in selected areas around the perimeter.
- Consider permanent wire protection for remaining and additional planted black cottonwood at strategic locations around the perimeter.

Work remaining under the existing IGA's:

IGA	Site	Work remaining	Acres	Through FY
1996 IGA	Landfill perimeter	• Maintenance and monitoring	10	Dec. 2003
2000 IGA	Engineered Slopes	• Planting	1.2	2001
		• Additional perimeter revegetation	5	2001
		• Maintenance, Monitoring, and Reporting		2003