

## 2013 Upland Forest Restoration Planting Project Plan and As-Built Report



*Planting crew at the Barneston upland planting site*

Wendy Sammarco and Sally Nickelson  
Seattle Public Utilities, Watershed Management Division  
December, 2013

## Table of Contents

|   |   |
|---|---|
| Background .....                        | 1 |
| 2013 Planting Project Description ..... | 2 |
| Prescription and Cost .....             | 3 |
| Future Opportunities .....              | 3 |
| Citations .....                         | 4 |

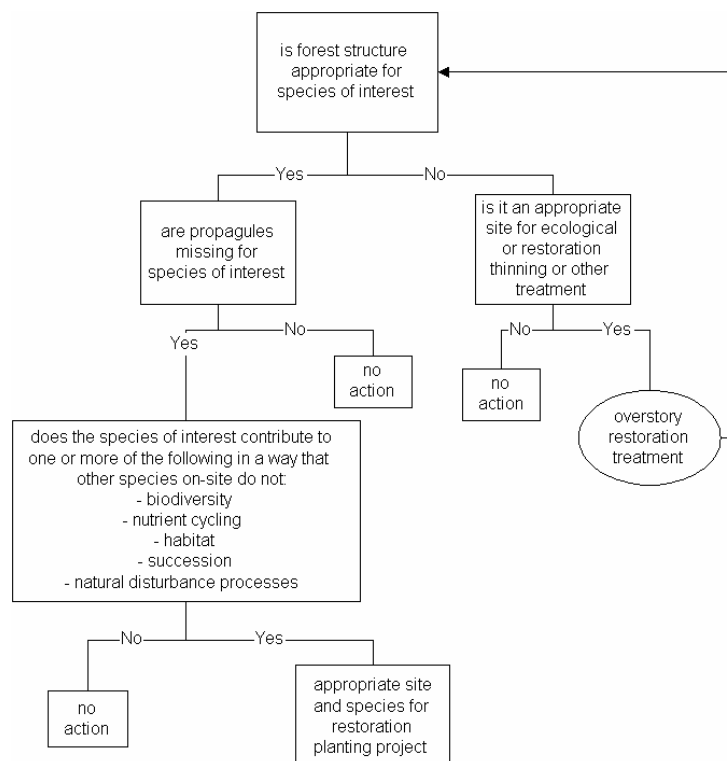
## Background

The goal of the Upland Forest Restoration Planting Program is to diversify forest plant species composition, to provide diverse wildlife habitat, and to reestablish a resilient community of native species in the Cedar River Municipal Watershed (CRMW). Planting projects focus on areas where species diversity has been decreased by past clearcut timber harvest or other human activity, and/or where native species dispersal is limited. Planting projects use site-specific knowledge to identify priority areas and species for restoration work (LaBarge et al. 2008).

Planting projects are implemented that contribute to native ecosystem functioning. Planning considerations include:

- contribution of the plant species to the surrounding habitat
- current and ongoing successional processes
- presence/absence of appropriate seed source
- acquisition of appropriate plant material
- use of native vegetation to inhibit the spread of invasive species

Planting is prioritized where appropriate forest structure exists and propagules are absent, and utilizes species that contribute to ecosystem processes in a way not already addressed by on-site species (Figure 1, LaBarge et al. 2008).



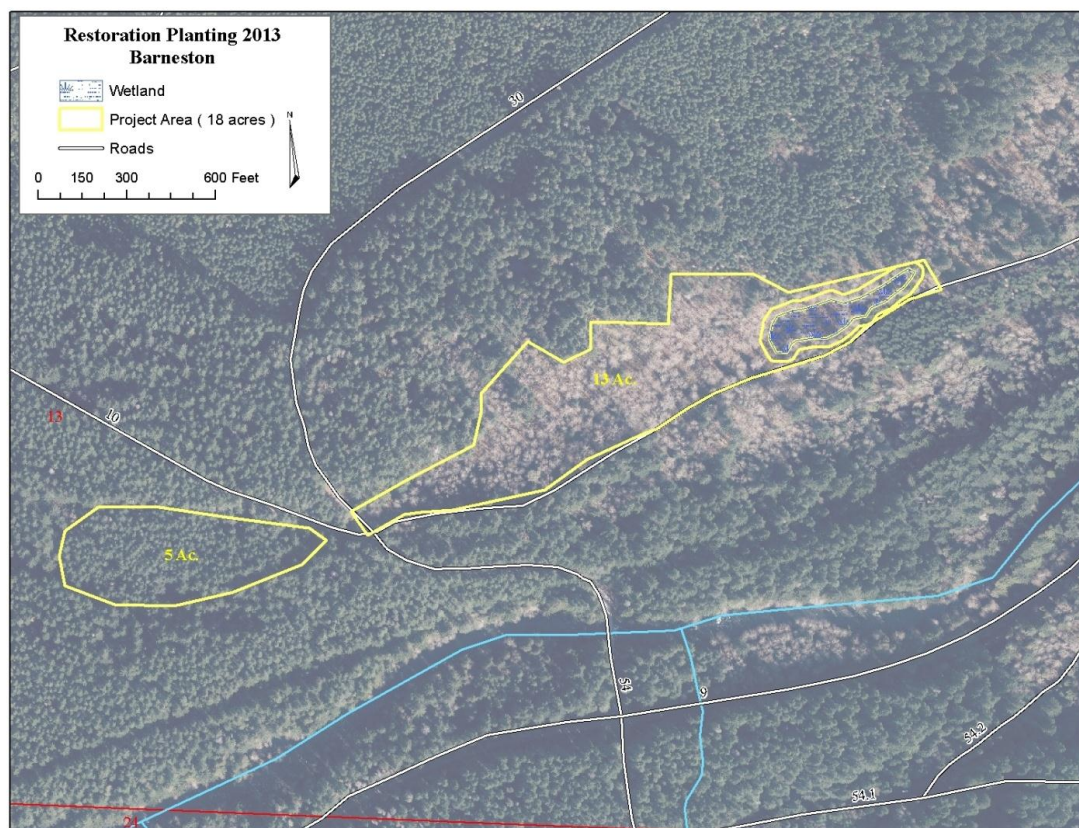
**Figure 1:** Decision tree for upland planting species and site selection.



This document describes information about 2013 upland forest planting projects, prescriptions, costs, plant materials, and future directions.

## 2013 Planting Project Description

There was a single upland forest restoration planting project conducted in 2013. The 18-acre site was at the former Barneston Lumber Mill (13 acres) and in the nearby Douglas fir-dominated forest to the southwest (5 acres, see figure 1). The Barneston area is at an approximate elevation of 800 feet. The site includes an open water wetland that was formerly the mill pond. Because of topographic variation, the surrounding area has upland vegetative characteristics, except for the lowland area immediately adjacent to and directly east of the wetland, which is very mucky. All of the upland area surrounding the wetland was planted as part of this project.



**Figure 2.** Barneston planting project area

The project was installed in March 2013 and was selected for planting for the following reasons:

- Trees growing in the Barneston Mill overstory are predominantly red alder with a dense understory of salmonberry and Himalayan blackberry. The red alder is mature and showing signs of decline. There is little evidence of understory regeneration occurring naturally in this area although there are mature conifer trees surrounding the alder and salmonberry.

- There is an opportunity to improve species diversity, limit the invasive blackberry spread, and contribute to future habitat and function. The planting project re-introduced western red cedar seedlings to the declining alder forest.
- Planting western red cedar under the Douglas fir is intended to initiate canopy diversification.

## Prescription and Cost

Western red cedar seedlings were planted in the understory of both the red alder area and the Douglas fir area. The planting prescriptions emphasized identifying the best available site for a seedling based on soil and sunlight conditions. The seedlings were planted approximately twenty feet apart.

In the Douglas fir area netting tubes (yellow) and bamboo stakes were used to protect the western red cedar seedlings from ungulate browsing. In the red alder area, it was assumed that the dense understory of salmonberry and blackberry would limit browse, so no seedling protection was used.

Total cost of the project was \$1432, excluding staff labor (Table 1)

**Table 1. Seedling and project cost information.**

| <b>Project &amp; Install Date (2013)</b> | <b>Species</b>    | <b>Number of Seedlings</b> | <b>Stock Type</b> | <b>Seedling Cost*</b> | <b>Seed Zone</b>   | <b>Contracted Labor Cost</b> |
|--|-------------------|----------------------------|-------------------|-----------------------|--------------------|------------------------------|
| Barneston Mill area                      | Western red cedar | 2,000                      | P+1               | \$779                 | Western Washington |                              |
| Douglas fir area                         | Western red cedar | 500                        | P+1               | \$195                 | Western Washington |                              |
| <i>Subtotal</i>                          |                   |                            |                   | <i>\$974</i>          |                    | <i>\$458</i>                 |
| <b>Total</b>                             |                   | <b>2,500</b>               |                   |                       |                    | <b>\$1,432</b>               |

\*sales tax included in seedling cost

## Future Opportunities

There are many opportunities for future upland forest restoration planting work in the CRMW:

- Continue evaluating restoration planting as a compliment to HCP road decommissioning, utilizing the restoration planting flow chart as a decision making tool.
- Continue evaluating and implementing restoration planting as a compliment to ecological thinning.
- Continue to utilize planting as a tool to control existing invasive species and minimize invasive species expansion.
- Explore opportunities for contract growing and utilization of plant material using seed collected from the CRMW.
- Explore opportunities for contract growing and utilization of ‘double plugs’. Double plugs will be more robust (larger caliper, healthy root system) than a typical plug and also more expensive than a typical plug. Plug-grown stock provides more flexibility for fall planting. Additionally, larger plugs may provide higher survival rates for fall planting in the higher elevation areas and decommissioned roadbeds in the CRMW.

- Explore opportunities for enhancing mycorrhizae populations in disturbed areas with nearby native material, in conjunction with planting. Design a trial utilizing native mycorrhizae and purchased mycorrhizae in combination with planting. A good location may be a decommissioned road bed where the assumption is that beneficial mycorrhizae populations are minimal or absent.
- Continue western white pine blister rust resistant seedling relationship with US Forest Service Dorena nursery. Incorporate western white pine seedlings in annual planting installations where appropriate.
- Continue seedling survival surveys and evaluations. Supplement plantings where appropriate and utilize adaptive management principles in future installations.

## Citations

LaBarge, A, R., Gersonde, S. Nickelson, B. Richards, D. Munro, C. Antieau. 2008. Upland Forest Habitat Restoration Strategic Plan. Seattle Public Utilities, Watershed Services Division, Ecosystem Section.