

**5-YEAR REPORT
ECOLA CREEK FOREST RESERVE**

The following materials represent the required 5-year report for the Oregon Watershed Enhancement Board's project described as Ecola Creek 205-001.

The Conservation Easement recorded on the property contains the following Obligations of the Grantor:

a. Preserve and protect the Conservation Values of the Property (as described in Section 3, below), in perpetuity, preserving its predominantly natural, scenic, forested, and open space condition.

b. Take all actions necessary to insure that the Property is used and managed in a manner consistent with the Conservation Values described in Section 3,

c. Take all actions necessary to insure that the Property is not used in violation of the use restrictions contained in section 4, below; and

d. Prepare a proposed management plan and implement an Approved Management Plan as provided in Section 6, below.

Pursuant to the above obligations, the City prepared and adopted a management plan, "Ecola Creek Forest Reserve Stewardship Plan, December 5, 2006."

The Stewardship Plan incorporates specific planning goals and objectives to guide the development of the property in a manner that will protect the conservation values of the property as identified in the conservation easement. See Attachment A.

The Stewardship Plan includes an implementation plan, described as the Implementation Timeline, for actions that will further the stated goals and objectives of the Ecola Creek Forest Reserve. See Attachment B.

The City has been implementing actions identified in the Implementation Timeline. The following is a brief description of actions taken pursuant to each of the activities identified in the Implementation Timeline of the Stewardship Plan.

Invasive Species Control. A limited amount of ivy, holly and Scotch broom was identified and removed from the northern portion of the site. A very small patch of knotweed was identified and removed; this location is being closely monitored. The City is monitoring the edges of the property to ensure that the invasive species described above do not become established.

Powerline Road Repair. A road constructed to provide access to a Pacific Power power line serving Cannon Beach had the effect of creating a fairly substantial wetland. Portions of the fill/berm had deteriorated to the extent that there was the potential for a failure of the fill/berm. Such a failure could have lead to the dewatering of the wetland area. The City retained the services of a geo-tech firm to prepare a repair plan. The plan was coordinated with the Oregon Department of Fish and Wildlife. The repair was undertaken in conformance with the plan. See Attachment C.

Marbled Murrelet Survey. The City retained Turnstone Environmental Consultants to conduct a marbled murrelet survey. The survey was conducted during the 2007 and 2008 marbled murrelet survey seasons. Turnstone conducted ten protocol marbled murrelet surveys at one survey site. No marbled murrelet activity was identified. A full report is on file at the City.

Conifer Planting and Alder Thinning in Riparian Areas. The City retained a consulting forester to prepare a plan for establishing Western Red Cedar in the riparian corridor adjacent to the West Fork of Ecola Creek. This plan was implemented, See Attachment D. A brief monitoring report as on the success of the program was prepared in 2010. See Attachment E.

Hemlock Thinning in Stand 9. The City retained a consulting forester to prepare a plan for thinning a portion of an overstocked uniform Western Hemlock stand with the objective of creating a more diverse forest structure. The City was ready to implement the plan when the windstorm of December 2007 occurred. This windstorm, through blowdowns, created a number of significant gaps in the Hemlock stand. It was determined that additional cutting was unnecessary and that the natural gaps created by the blowdown event were sufficient to allow the underplanting of cedar to go forward. See Attachment D. A brief monitoring report on the success of the program was prepared in 2010. See Attachment E.

Install Entry Sign. The City installed an informational kiosk to provide information to the public on the City's objectives for the Ecola Forest Reserve, as well as the rules for its use. In conjunction with the installation of the information kiosk, the City posted an informational sign for users that may be disabled. See Attachment F& G.

Activities for 2010. In conformance with the Implementation Timeline of the Stewardship Plan, the City's budget for FY 2010-11 contains funds to complete the conifer planting and alder thinning in riparian areas project and a continuation of the cedar underplanting in Stand 9. The City may also create a number of wildlife snags in Stand 9.

In summary, the City has managed the property in a manner consistent with the Conservation Values described in the conservation easement. In addition, no specific actions by the City were required to ensure that the property was not used in violation of the use restrictions contained in the conservation easement.

Management statement

The Ecola Creek Forest Reserve shall be managed to preserve and enhance municipal water quality, as well as the ecological integrity of the forest ecosystem and its constituent aquatic and riparian habitats.

Planning Goals

PROTECT AND ENHANCE FOREST HEALTH

Preserve existing mature forest, and allow second- and third-growth forest areas to mature.

Reduce fragmentation of mature forest habitats through the coordinated management of forested City lands in cooperation with the Oregon Department of Forestry and adjacent private landowners.

PROTECT MUNICIPAL WATER QUALITY

Preserve the integrity of existing springs and in-stream water intakes.

Protect municipal water quality through restoration activities that might reduce suspended sediments and enhance natural wetland water filtration processes upstream from City water supply intakes.

PROTECT AND ENHANCE SALMON HABITAT

Preserve existing floodplain forests, riparian wetlands, and side-channel habitats.

Restore salmon habitat through such actions as the restoration of historically degraded riparian wetlands and side-channel habitat, and the identification and stabilization of upland sources of erosion.

FOSTER COMMUNITY INVOLVEMENT WITH THE FOREST RESERVE

Facilitate opportunities for public education, focusing on the Forest Reserve's unique ecosystem.

Facilitate opportunities for passive recreation within the Forest Reserve that are compatible with general goals 1, 2, and 3, above.

6. Implementation Timeline

Year	Activity
2006-7	<ul style="list-style-type: none"> • Invasive species control • Engineering analysis for powerline road repair
2007-8	<ul style="list-style-type: none"> • Begin conifer planting and alder thinning in riparian areas • Survey for Murrelets • Powerline road repair • Thin hemlock – Stand 9 • Install entry sign
2010	<ul style="list-style-type: none"> • Finish conifer planting and alder thinning in riparian areas • Underplant Stand 9
2011	<ul style="list-style-type: none"> • Repair road in Stand 4 • Re-evaluate recreational use and policies
2012	<ul style="list-style-type: none"> • Snag creation in Stand 9 (if needed)
2013	<ul style="list-style-type: none"> • Evaluate success of riparian planting • Evaluate success of hemlock thinning • Evaluate invasive species and control if needed
2014	<ul style="list-style-type: none"> • Pre-commercial thinning in Stand 7
2015	<ul style="list-style-type: none"> • Second thinning in Stand 9, if warranted • Continued thinning and underplanting in Stands 8 and 10, if warranted

Thinning activities will generally be conducted in the summer months, although since no log extraction or other heavy equipment uses are proposed, the work could be conducted during wet weather without any adverse impacts. Normal restrictions on operations during fire season (late summer) would be observed during thinning. Planting is generally done in late winter when seedlings are dormant and newly planted trees will not be subject to moisture stress.

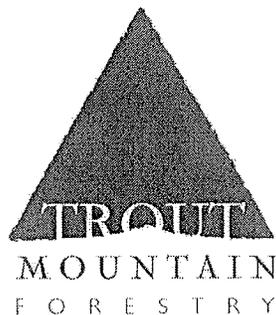


Ecola Creek Forest Reserve
Stewardship Plan Implementation Report

March 14, 2008

Submitted to
Rainmar Bartl, City of Cannon Beach

Submitted by
Barry Sims
Trout Mountain Forestry
721 NW 9th Ave. Suite 228
Portland, OR 97209
503-233-2131



Introduction

The Stewardship Plan for the Ecola Creek Forest Reserve was approved by the Cannon Beach City Council on December 5, 2006. Implementation of key forest restoration activities began in 2007. This report summarizes the first full season of implementation work. The main projects were thinning for diversity and planting of cedar in uniform hemlock/spruce stands, and gap creation and planting of cedar in alder-dominated riparian floodplain areas.

Hemlock/Spruce thinning for diversity (Stand 9)

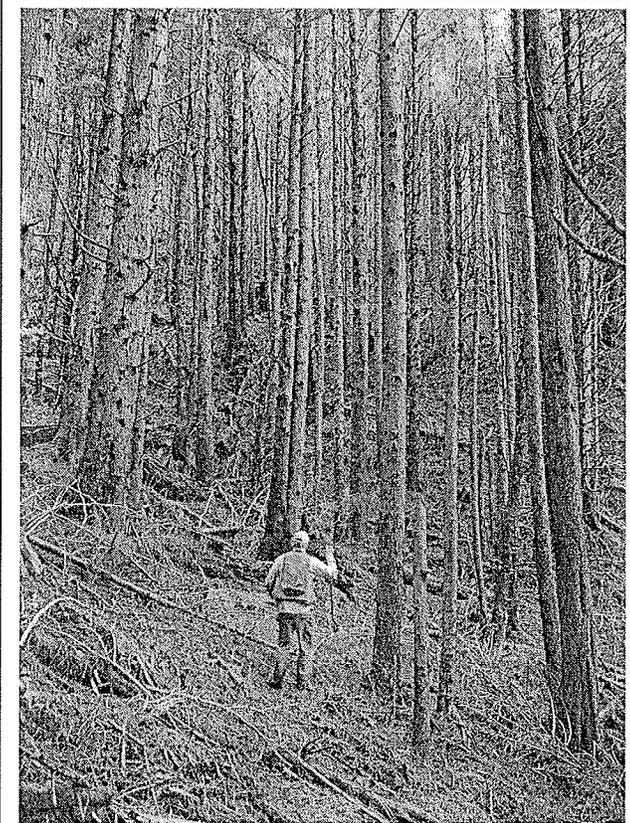
Risk of windthrow is the primary concern associated with thinning in Stand 9. That stand is obviously blasted by high winds and any openings we make could set off further blow down. Partly, this is desirable, because it will overlay our work with an element of randomness. But we certainly don't want a huge blowdown event.

Other considerations we addressed were:

- Disease issues in the older hemlock in Stand 11, including mistletoe infections (speaks to favoring spruce in Stand 9 to limit future spread of the disease)
- Presence of alder, which is more windfirm than hemlock, suggests that keeping alder in the stand would promote some measure of stability

Based on these observations, we marked the stand lightly in the fall of 2007, with the idea that windthrow will expand the openings we make by an unknown amount.

We laid out 6 small openings averaging 1/10 of an acre or less. If shaped like a square, these would be 66' by 66' in size. In reality they are more irregularly oval-shaped. These openings were positioned in areas that contained mostly fairly uniform hemlock. We then buffered these openings by at least 100' in all directions where virtually no thinning will take place. This buffer is designed to minimize the spread of blowdown through the stand



Uniform hemlock on Ecola Creek Forest Reserve

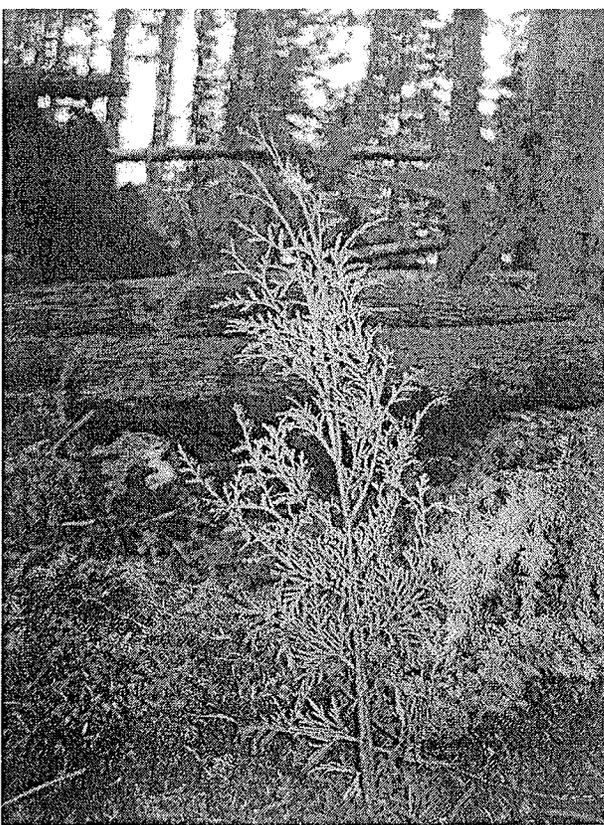
assuming these small gaps do trigger some blowdown. Outside this buffer, the "matrix" of the remaining forest is marked for a light thinning favoring larger trees over smaller trees, and favoring spruce and alder over hemlock.

In effect, this treatment is similar to what is sometimes called "variable density thinning" in the scientific forestry literature, and is usually designed to promote structural complexity in fairly uniform stands.

The tree cutting was scheduled for January 2008. However, in December 2007, a strong wind event occurred that created several gaps in the stand. Five of the six marked openings experienced some blowdown. We decided that additional cutting was unnecessary and that the natural gaps created by the blowdown event were sufficient to allow underplanting of cedar to go forward.



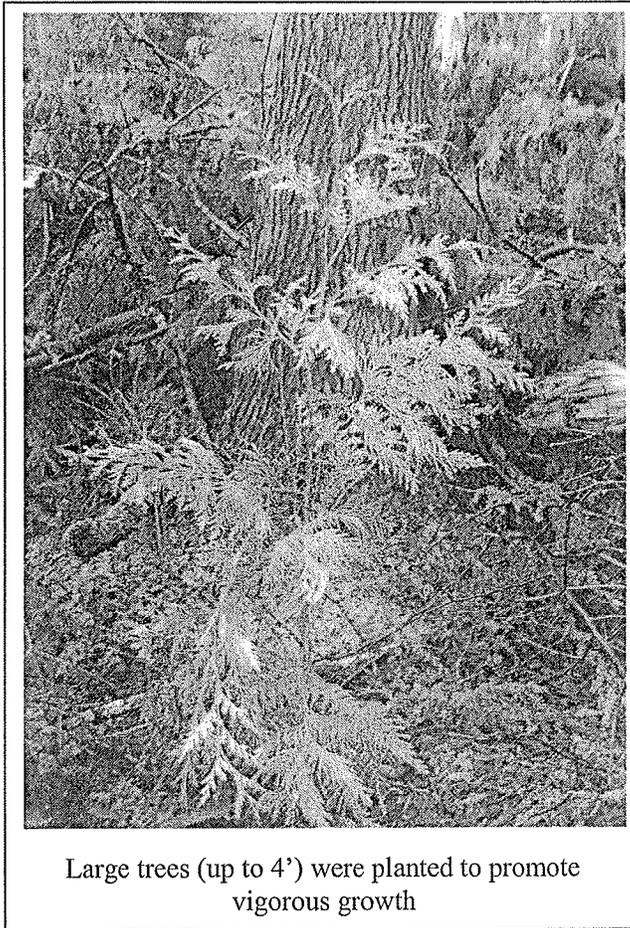
Natural gap creation in Stand 9, rendering planned tree cutting unnecessary



1,200 seedlings were planted in blowdown areas

Tree planting occurred in February and early March 2008. One thousand cedar seedling and 200 spruce seedlings were planted in the gaps created by the December 2007 windstorm. Trees were planted in between blown down trees to create physical barriers to deer and elk which would otherwise be attracted to and heavily browse the cedar seedlings.

No additional seedling protection may be necessary. However, the trees should be monitored periodically to ensure extensive browse damage is not taking place.



Large trees (up to 4') were planted to promote vigorous growth

Cedar establishment in alder-dominated floodplain (Stand 6)

Our strategy in the alder riparian stands was as follows:

The primary objective identified in the plan is to re-establish conifers, particularly cedar, in these alder-dominated floodplain soils. Spruce is regenerating in these stands, albeit slowly, and cedar is virtually absent. The silvicultural approach suggested in the management plan was to create small gaps in the alder and underplant these with a mix of cedar and spruce.

Our examination of conditions on the ground has led us to conclude that conifer establishment is likely only on raised hummocks, down logs, or at the base of old stumps. These are the locations that are evidently somewhat protected from periodic flooding. All the

established spruce regeneration occurs on these types of micro-sites. The area also receives somewhat heavy elk traffic.

In summary, the challenges to successful cedar establishment on these sites include:

- Periodic flooding
- Relative scarcity of suitable planting sites
- Elk and deer browse
- Lack of sunlight to ensure some reasonable growth rate of planted trees

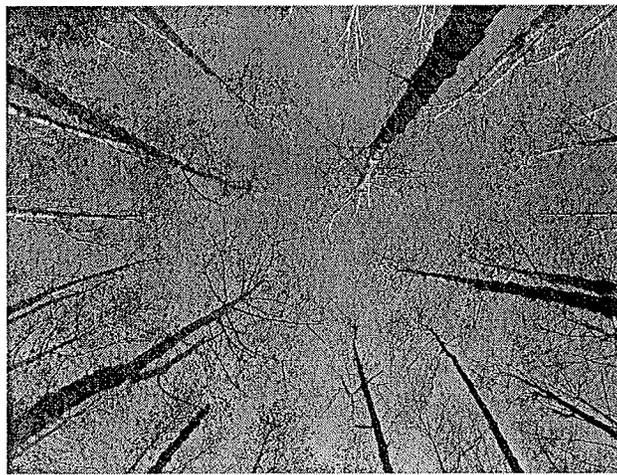
Our proposed strategy to re-establish cedar is to concentrate resources on getting relatively few trees established on appropriate sites, rather than planting lots of trees and simply hoping that some will survive.

We identified 20 suitable planting sites among clumps of three alders. Three nearby alders were marked to cut at 6 feet above the ground, and felled away from the clump center. One large (2 gallon, 4' height) containerized cedar tree was then planted in the

middle of the three “stumps.” Chicken wire was then wrapped around the three tall stumps and stapled into place to provide a significant barrier to elk browse.

To the south of each of these planting sites, we marked additional alder trees to cut to allow enough light into the understory to promote rapid growth of these planted trees. A side benefit of this thinning work will be increased light to established spruce regeneration, which will grow much more rapidly into the canopy of the alders.

The cutting occurred in January 2008, and the planting and seedling protection work was done in February 2008. We concentrated our efforts in Stand 6 along the West Fork of Ecola Creek. Based on the success of this effort, a similar or modified strategy can be applied in Stands 1 and 2 in future years.



Dense young alder dominates the floodplains on ECFR



Alder stumps were used as stakes with chicken wire stapled around them to protect planted cedar

Contractor selection

Due to the unusual nature of the work, and the relatively small contracts involved, the selection of contractors was not done on a bid basis. Rather, qualified local contractors that had expertise in similar projects conducted by Trout Mountain Forestry were used to ensure quality work and timely completion.

Kevin Schubert of Gearhart was hired for the planting work. Kevin is a very experienced planter and has experience in

planting in natural and simulated wind-throw gaps throughout northwestern Oregon.

For the tree cutting, Doug Rodgers of Nehalem Timber in Seaside was hired, based on his demonstrated experience in careful and efficient timber falling work.

Summary of 07/08 accomplishments

- 30 two gallon western redcedar trees were planted in Stand 6 – riparian alder – and protected from elk browse with 6’ chicken wire around high cut alder stumps.
- Gaps were created in the alder stand to enhance light levels to the planted cedar as well as already established spruce
- 1,000 western redcedar trees and 200 Sitka spruce trees were planted in Stand 9 after Dec. 07 blowdown event created gaps in the canopy



Cut alder results in increased light to forest floor, as well as more woody debris for the stream system

Costs

Trout Mountain Forestry

May - Sept. 07 8 hours contractor review and project planning
Oct - Dec 07 42 hours tree marking and layout
Nov 07 4 hours memo and notification
Jan 08 8 hours field tours for contractors
Jan 08 8 hours supervision of cutting
Jan 08 16 hours tree seedling selection, purchase, delivery, protection
Feb 08 16 hours planting supervision and inspection
Mar 08 8 hours summary report

Total: 110 hours @ \$70/hour = \$7,700

Kevin Schubert planting crew

Jan. 08 30 hours planting and seedling protection – Stand 6 (riparian area)
Feb-Mar. 08 72 hours planting – Stand 9 (hemlock stand)

Total: 102 hours @ \$20/hour = \$2,040

Nehalem Timber Cutting

Jan. 08 10 hours @ \$60/hour = \$600 (Stand 6 – riparian area)

Materials

30 two gallon Western redcedar @ \$8 = \$240.00
300' x 6' poultry net = \$259.98
200 Sitka spruce 2-0 seedlings @ \$.447 = \$89.40
1,000 Western redcedar 1-1 seedlings @ \$.34 = \$340.00

Total materials: \$929.38

Total costs: \$11,269.38

Rainmar Bartl

From: Barry Sims [barry@troutmountain.com]
Sent: Wednesday, March 10, 2010 3:52 PM
To: Rainmar Bartl
Subject: cedar trees

Rainmar,

It was nice seeing you yesterday.

I had a fun couple hours tromping through the brush. Here's what I found:

1) Our chicken wire protection strategy worked quite well. Of the twelve protective structures we built, each enclosing a 2-gal cedar planted 2 years ago, all are still viable. The trees range in size from 6 to 8 feet in height and appear quite healthy and vigorous. Three of these trees had been browsed. One was a case where a branch fell on the fencing and lowered it such that the elk could reach in. The second the elk were able to reach because the fencing was fairly narrow and had chewed the top. The third the elk were able to nudge up the fencing and chew off lower branches, but the tree should grow fine.

2) We also planted 18 2-gal trees that we did not protect with fencing. Of these all but one had been browsed. Many of these will probably survive because the browse is not excessive and the trees are growing in height. I was able to locate 14 live trees and one dead one. The remaining 3 are either dead or browsed back such that they would be hard to find.

3) The cutting of alder seems to have helped. I observed good growth, not only of the planted cedar, but natural spruce and hemlock as a result of the increased light. Further, the down alder has created more stability for the riparian soils and will probably become nurse logs for even more conifer development.

4) In the blowdown up above the springs, I estimate 1/3 of the planted cedar remains unbrowsed and growing well, 1/3 has been lightly browsed and has a good chance of surviving, and 1/3 has been heavily browsed and may not survive. This appears to be directly related to the amount of obstacles to elk travel. For example, in areas with jackstrawed down timber where climbing over several layers of down trees is required, the trees have not been browsed. Where lesser obstacles are present, some browse is occurring, and on trees planted outside the blowdown areas, heavy browse is occurring.

I think we can learn from this and design another round of restoration planting. I'll give it some more thought and get back to you soon, but in the meantime wanted to share what I saw with you.

Thanks,

Barry

--

Barry Sims
Trout Mountain Forestry
503-233-2131
troutmountain.com

ATTACHMENT F



