

## 2003 Streamside Revegetation Final Report

Summary: Planting of streamside areas was conducted in Taylor, Williams, and McClellan Subbasins during the fall of 2003 in order to accelerate the recovery of streambanks and associated riparian zones disturbed by road decommissioning work. Restoration efforts associated with streamside revegetation were tied to stream crossings on decommissioned roads since these restored stream crossings tend to have extensive bare soils directly adjacent to streams as well as adequate access necessary for the transport of numerous potted plants. Stream crossings along the 13, 64.1, 64.2, 64.4, and 126 roads were planted with 551 shrubs and 170 trees during the fall of 2003.

Goal: Restore natural riparian and streambank processes within the Cedar River Watershed and implement the HCP Streamside Revegetation commitment. By planting a combination of trees and shrubs along several recently disturbed or restored stream crossings, the intent was to promote bank stability, prevent chronic erosion and delivery of fine sediment into flowing water, and to help encourage the establishment of natural riparian vegetation.

Objectives:

- 1) Prevent chronic erosion and delivery of fine sediment into flowing water
- 2) Plant vegetation appropriate for site conditions and intended riparian functions. Strive for 95% survival after first year.
- 3) Plant conifers within 30 feet of streambank to accelerate recovery of shade and natural LWD recruitment processes from riparian zone.
- 4) Use volunteers where feasible as a tool for public outreach and education. Volunteers also greatly increase the amount of work we can accomplish within our existing budget.
- 5) Stabilize perched soils (fillslope material which was not pulled back) and minimize gully formation on 126 road (McClellan Ck).

Site Selection: Based on the assumption that recently decommissioned roads which are within or 200 feet of a stream or which have reconstructed stream crossings are likely to have stream-adjacent erosional features which are delivering fine sediment to flowing water, a GIS exercise was conducted to identify all potential road segments. In addition to the sites planted during 2003 (listed below), the following roads were evaluated: 74, 110.1, 540, 546, 564, 602, 710, and 712. Potential restoration sites were then prioritized based on the following criteria:

- Close proximity of sites to streams with a high resource sensitivity to fine sediment inputs
- Area with chronic erosion which is delivering to flowing water.
- Access. Carrying potted plants onto site is logistically feasible.
- Areas with high potential for mass wasting which would deliver to the aquatic system. Potential mass wasting issues on the 126 road were identified and addressed based on the assumption that root strength would help to stabilize unstable fill material within 100 feet of McClellan Creek.

Table 1: Complete list of roads evaluated in 2003 for opportunities for streamside revegetation

Road	Issues	Priority	Status
13	Fish passage project completed. Potential anadromous fish use. Road parallel to stream for 500 feet.	High	Completed in 2003
73/ 73.1	Numerous stream crossings in deep silt and clay soils with high potential for chronic erosion.	High	Plants ordered; road work postponed to 2004
74	A few areas with stability and chronic erosion. Access is difficult.	Moderate	Potential future sites located approx. ½ mile up road.
64.1	2 stream crossings and stream parallel to road for 200 ft.	High	Completed in 2003
64.2	Several stream crossings	High	Completed in 2003
64.4	2 stream crossings.	High	Completed in 2003
110.1	Poor initial stream crossing designs. Ditch and stream crossing erosion occurring. Road needs to be re-decommissioned.	High	Road work and stream crossings need to be redone.
540	Little chronic erosion or fine sediment delivery	Low	No restoration issues identified
546	Little chronic erosion or fine sediment delivery	Low	No restoration issues identified
564	Stability of inner gorges above mainstem remains an issue. Access difficult	Moderate	Potential future site identified at end of road. Chronic erosion on inner gorge slopes
602	Little chronic erosion or fine sediment delivery	Low	No restoration issues identified
710	Little chronic erosion or fine sediment delivery.	Low	Road reopened to traffic use.
712	Little chronic erosion or fine sediment delivery.	Low	No restoration issues identified



Photo 1: Chronically eroding fill on the 126 road above McClellan Creek. Restoration site number 10



Photo 2: 64.1 road stream crossing restoration prior to planting. Site number 17.



Photo 3: Volunteers planting trees and shrubs at a stream crossing on the 64.2 road. Restoration site number 13.

Table 2: Summary of site locations, characteristics, and plant information for 2003 streambank revegetation work. Shrubs and trees for sites shown in gray were purchased but not planted as these crossings were not yet restored.

Road	Site No.	Site Characteristics	Area	Species	No. of plants
73.1	1 (Culvert 73.1-1) @stn 22+35	Stream crossing. Wet site. Mostly on road bed. Unknown road bed conditions. (30x15x2 area)	900	Cedar	8
				Douglas Fir	8
				Pacific Willow	20
				Salmonberry	20
				Pisocarpa rose	4
				Nine bark	3
73	2 (Culvert 73-11) @stn 38+60	Stream Crossing. Moist site with some pullback. Mostly on fluffed road bed. Site is approximately 315 feet below the 73.1- 73 road junction.	1500	W. Hemlock	9
				Douglas Fir	9
				Pacific Willow	33
				Salmonberry	33
				Nine bark	3
	3 (Culvert 73-8) @stn 27+32	Stream crossing. Dry, fluffed road bed material. (30x15x2 area)	900	W. Hemlock	16
				Ocean spray	20
				Red Currant	20
				Thimbleberry	6
				Snowberry	6
	4 @stn 26+74	Stream crossing and pullback. Dry site. Mostly on fluffed road bed.	1200	W. Hemlock	8
				Ocean spray	27
				Red Currant	27
				Snowberry	6
	5	Stream Crossing. Moist site with some pullback. Mostly on fluffed road bed.	1200	Douglas Fir	10
				Ocean spray	27
				Red Currant	27
				Snowberry	6
	6	Stream Crossing. Moist site with some pullback. Mostly on fluffed road bed.	1200	Douglas Fir	10
				Ocean spray	27
				Red Currant	27
				Snowberry	6
	7	Stream Crossing. Moist site with some pullback. Mostly on fluffed road bed.	1200	Douglas Fir	10
				Ocean spray	27
				Red Currant	27
				Snowberry	6
	8	Stream Crossing. Moist site with some pullback. Mostly on fluffed road bed.	1200	Douglas Fir	10
				Ocean spray	27

Road	Site No.	Site Characteristics	Area	Species	No. of plants
				Red Currant	27
				Snowberry	6
	9	Stream Crossing. Moist site with some pullback. Mostly on fluffed road bed.	1200	Douglas Fir	10
				Ocean spray	27
				Red Currant	27
				Snowberry	6
126	10 (Station 6+00 to 6+50)	Stream crossing. Wet to dry site. Unripped road bed.	1200	W. Hemlock	4
				W. Red Cedar	4
				Scouler's Willow	12
				Thimble berry	6
	(Station 6+50 to 7+00)	Wet site. Erosion and slope stability. Compact road bed.	100	Douglas Fir	1
				W. Hemlock	1
				Ocean spray	3
				Red Elderberry	2
				Pisocarpa rose	4
	(Station 7+00 to 9+00)	Dry site. Erosion and slope stability. Compact road bed.	2600	Doug. Fir	6
				Vine maple	8
				Ocean spray	8
13 (Culvert 13-1)	11	Stream crossing. Dry site. Mostly on road bed with generally fluffed soil. Shrubs (20x15; 20x20); Trees (10x10; 10x50)	1300	W. Hemlock	14
				Ocean spray	15
				Red Currant	15
				Thimbleberry	10
64.1	12	Moist stream crossing and reveg of mound in middle of crossing. Road fluffed.	1300	Cedar	9
				Hemlock	9
				Pacific Willow	28
				Salmonberry	28
				Nine bark	6
				Ribes laustre	10
		Last stream crossing plus reveg of fillslope pullback just beyond crossing. Moist to dry. Road fluffed.	1200	W. Hemlock	8
				Cedar	8
				Scouler's Willow	27
				Sitka Willow	27
				Cascara	8
				Pisocarpa rose	4
				Thimble berry	8
64.2	13	Stream Crossing with gravel mound in middle; dry to moist site. Compact road bed.	800	Cedar	10
				Douglas Fir	9
				Pacific Willow	28
				Snowberry	6
				Cascara	8
	14	Stream Crossing; moist to dry. Road not fluffed	1200	Douglas Fir	8
				W. Hemlock	8
				Ocean spray	27
				Red Elderberry	27
				Cascara	8

Road	Site No.	Site Characteristics	Area	Species	No. of plants
	15	Stream Crossing; moist. Road not fluffed.	2000	Cedar	12
				Douglas Fir	12
				Red Elderberry	27
				Indian Plum	27
	16	Stream Crossing; Dry. Road not fluffed.	1200	W. Hemlock	16
				Ocean spray	27
				Red Currant	27
				Snowberry	6
64.4	17	Stream crossing. Dry. Most trees to be planted on compact road bed.	1200	W. Hemlock	16
				Sc. Willow	27
				Ocean spray	27
	Unrippped road between streams. Dry, compact road material	2000	W. Hemlock	12	
			W. Red Cedar	12	
	Stream crossing. Moist. Most trees to be planted on compact road bed.	1200	Doug. Fir	9	
			W. Red Cedar	8	
			Red Elderberry	27	
			Indian Plum	27	
			Snowberry	12	

Plant material Suppliers: All trees, shown in yellow, were supplied by Mountains-to-Sound Greeway Native Nursery at no cost to the CRW. Shrubs (green) were supplied by Wabash Farms and Storm Lake Growers.

Table 3: Summary (by road) of area planted with shrubs and trees during the 20003 streambank revegetation work.

Road	Planted in 2003		
	Area planted	Shrubs	Trees
13	2800	62	26
64.1	2500	146	34
64.2	5200	196	75
64.4	4400	61	32
126	3900	64	3
<b>Total</b>	<b>18,800</b>	<b>551</b>	<b>170</b>

Table 4: Itemized list of project costs and sources of cost savings for 2003 streambank revegetation work:

<i>Actual Project Costs:</i>				
Item	Source			Cost (\$)
<b>Materials:</b>				
Shrubs	Wabash Farms			728.00
	Storm Lake Growers			1717.20
Wheelbarrow Rental	Hertz Equip. Rental			~54.00
<b>Personnel</b>	<b>People</b>	<b>Hours/person</b>	<b>Hourly Rate</b>	
Ecosystem staff	2	32	56.25	3600.00
Earthcorp	6	8	10.41	1915.00
<b>Total Implementation Cost:</b>				<b>8,014.20</b>
<i>Cost Savings</i>				
Item	Source			Cost
Trees	Mountains to Sound Greenway Native Nursery			695.75
<b>Volunteers:</b>	<b>People</b>	<b>Hours/person</b>	<b>Hourly rate</b>	
October 11, 2003	19	4.5	43.75	3,740.62
November 1, 2003	41	4.5	43.75	8,071.88
<b>Total Cost Savings</b>				<b>12,508.25</b>

Work to be completed: Though road decommissioning work on the 73 and 73.1 roads was scheduled to be completed in 2003, weather and other logistical constraints prevented this from occurring. The trees and shrubs obtained for the 9 stream crossings to be restored on these roads are currently being stored at the CRW headquarters and will be planted as soon as practicable after the road work has been completed. Like the planting work conducted in 2003, an effort will be made to use volunteers to complete this work wherever possible.