Kootowis Creek Riparian Restoration Compendium 2002/2003

Objectives
The objective of riparian restoration at Kootowis Creek for the 2002/03 fiscal year was to improve riparian attributes needed for restoration of fish habitat, water quality, channel stability, wildlife, and biodiversity. Targeted sites were: 1) Sites where brush competition has resulted in low conifer stocking; 2) Overstocked Sitka spruce (Ss) and Douglas fir (Fd) plantations that had densities in the 1500–2000+ sph range; 3) Overstocked Western red cedar (Cw) plantation lacking species diversity. Treatments consisted of brushing out (releasing) and fertilizing selected conifers; thinning overstocked conifer plantations by felling; creating a component of dead and dying trees by topping, top girdling, and girdling at the base; planting in gaps under new snags and on/around stumps; and using downed wood to create old growth habitat features for small mammals and invertebrates. Thinning treatments focused on retaining the largest diameter trees while at the same time increasing the species diversity in the post-treatment stand by retaining as much Western hemlock (Hw) and Cw as possible. Snag creation is aimed at reducing canopy closure and diversifying stand structure, thereby encouraging groundcover vegetation and juvenile conifer growth. These techniques, in conjunction with biodiversity/habitat enhancements and tree planting, will serve to accelerate the re-establishment of old growth forest characteristics in the riparian zone.

MWLAP Region / MOF Region00
Vancouver Island / Pacific

Proponent
International Forest Products

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Watershed / Stream
Kootowis Creek

Location
The Kennedy Watershed is located on the west coast of Vancouver Island between Tofino and Ucluelet. Kootowis Creek is located in the SW corner of the watershed in an area known as the "Kennedy Flats".

Introduction
Forest harvesting practices have resulted in replacement of old growth stands by young stands that have limited functionality in terms of fish habitat, water quality, channel stability, wildlife, and biodiversity.

Assessments and Prescriptions
Level 1 and level 2 Stand Management Prescriptions (SMP) were completed by Poulin and Simmons for a portion of the watershed in March of 1999, with implementation occurring in 2000/01. A further SMP was prepared in March of 2002 for an additional 129.3 hectares (ha) of riparian polygons along the Kootowis mainstem and tributaries. Implementation of this SMP was carried out over 62.5 ha in 2002/03, with some treatment of polygons covered in the 1999 SMP. These prescriptions recommended altering current stand densities and species composition by hand falling and spacing of retained trees, releasing conifers in brush dominated areas by removing competing shrubs and planting rapidly growing Black cottonwood trees along shade deficient areas of Kootowis Creek. Biodiversity and habitat enhancements were also prescribed, along with recommendations to plant in created gaps, around new snags, and on top of and around first-growth stumps.

Rehabilitation Work
Restoration work was completed from June 24th – July 12th, 2002 providing 16 workers with 127 person days of work; Sept. 27th – Oct. 11th, 2002 with 10-13 workers doing 99 person days of work; and Mar. 3rd-19th with 8-15 workers doing 128 person days of work. Over half were returning crewmembers, some having over 7 years of experience on Kennedy Flats in-stream restoration and riparian restoration

projects. Most of the polygons treated in 2002/03 involved either brushing and fertilizing high value conifer trees to release them or thinning treatments that focused on retaining the largest diameter trees while at the same time increasing the species diversity in the post-treatment stand. Biodiversity enhancement techniques and conifer re-stocking were applied in polygons 3 and 25 by experienced workers and new trainees.

Cost Summary: Labour: $151,790; Equipment/Supplies: $26,217 ; **Total $178,000**

Outputs

Riparian stand improvements were conducted along Kootowis Creek and tributaries for a total treatment area of 54.5 hectares (ha) for 2002. Work conducted included the monitoring and maintenance of existing treatments completed in 2000/01. In March of 2003, biodiversity enhancements and tree planting were implemented over 8.0 ha, yielding a total treatment area of 62.5 ha for the 2002/2003 fiscal year. All works are consistent with the approved Stand Management prescriptions, based on Watershed Restoration Technical Circular 6 guidelines.

Table 2: Polygon Treatment Summary by Area and RVT

Restoration Polygons	RVT	Restoration Ha's	Maintenace Ha's
13,10,15,8a,3,14,20,34,25	2,3	38.5	8.0
Total Restoration Ha's		**46.5**	
Fertilization Polygons		Ha's	
Polygon 13	3	8.0	
Total Fertilization Ha's		**8.0**	
Biodiversity Polygons		Ha's	
Polygon 25	2	3.0	
Polygon 3	2	2.0	
Total BioD Ha's		**5.0**	
Planting Polygons		Ha's	
Polygon 3	2	3.0	
Total Planting Ha's		**3.0**	
Total Ha's Treated		**62.5**	

Monitoring/Restoration Results

Monitoring and maintenance of riparian restoration from 2000/01 was undertaken at the time of re-brushing and fertilization. Re-growth had resulted from coppicing of the willow cut in previous years which, although vigorous, was restricted in height to under 2 metres. Further brushing treatments will not likely add much benefit as leader growth in the released trees was in the 30–40 cm range and is expected to continue to increase. 50–60 % of the planted Black cottonwoods were doing well, some having attained heights of 3 m. Permanent plots were established in all other treatment polygons. Plots were marked with an orange tag, GPS coordinates were taken, and DBH was recorded for future comparisons.

Proposed Work

Further riparian restoration work should be undertaken in stands along the 100 Road as well as any polygons adjacent to previously completed in-stream work. Subsequent treatments can then occur in all other polygons delineated in the 1999 and 2002 SMPs.

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UTM (NAD83) Coordinates
Kootowis Creek - Zone 10
301010E 5441122N