

Riparian Effectiveness Monitoring for the WADNR Riparian Forest Restoration Strategy

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DNR Need for Effectiveness Monitoring

Effectiveness monitoring of riparian silviculture is a means through which DNR will **validate treatments** under the Riparian Forest Restoration Strategy and acquire the data needed to **develop new silvicultural systems** that are more effective and cost-efficient. The purpose of effectiveness monitoring as defined in the HCP (DNR 1997, V. 2) is to determine whether implementation of the conservation strategies results in the anticipated habitat conditions.

This definition implies that effectiveness monitoring should establish cause-and-effect relationships between the strategy and habitat conditions by "field-based before-and-after comparisons" (DNR 1997, V. 2). An initial challenge will be successful integration of silvicultural operations and active monitoring activities to yield scientifically-credible information.

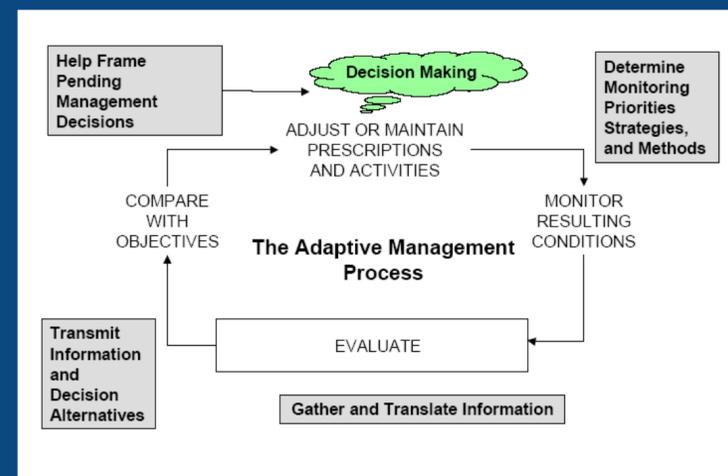


Canopy Complexity and large trees are key to the Fully Functional Forest Development stage.

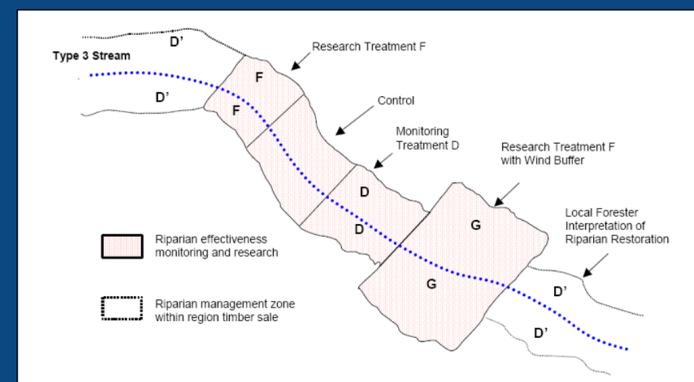
What Will Be Monitored and Where?

Pre-commercial thinning, commercial stand thinning and hardwood conversions are the principal riparian (RMZ) management activities that will be employed to achieve the goal of the riparian restoration strategy. Scientifically valid monitoring of these activities (silvicultural treatments) will require untreated controls and randomized sampling.

Replicate monitoring sites will be established within the six west-side HCP planning units in order to evaluate the full suite of riparian silvicultural treatments and to assess how these activities may be affected by local and regional differences in plant association, soils, disease problems, and other biotic and abiotic factors.



WADNR Adaptive Management Cycle. Grey boxes indicate the role of HCP monitoring.



Possible configuration of riparian silviculture effectiveness monitoring and research plots.



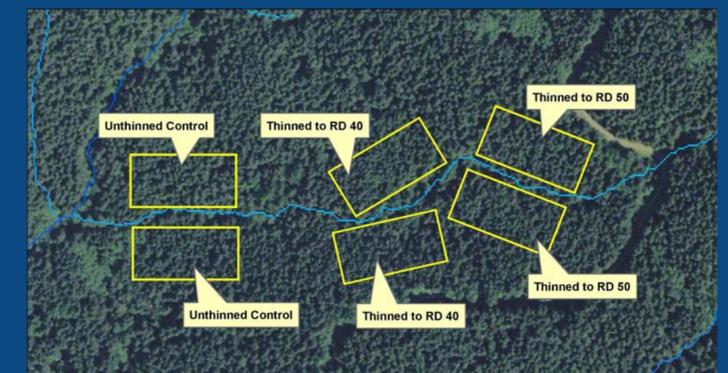
The Role of Understory in Supporting Riparian Habitat Function

- ✓ Dense fine root mats for bank stability and sediment filtering
- ✓ Litter fall to feed the detritus system
- ✓ Near stream substrate to provide habitat for insects and other animals
- ✓ Near stream cover to ameliorate microclimate



Establishing the treatments

After an RMZ has been selected for monitoring, it must be divided into separate treatment areas. A treatment area must be at least 450 ft. long and 300 ft. wide. It consists of a sampling area at least 330 ft long and edge-effect buffers at least 66 ft long on each end of the sampling area. Two 150 ft long by 75 ft wide grids will be established within the sampling area. Each grid will have six permanently marked reference points (plot centers) for collecting information on Large woody debris, understory vegetation and canopy cover. The species, DBH, damage and defects will be determined for all trees pre- and post treatment. Leave trees are tagged so individual tree growth and mortality can be recorded.



Example of plot placement: Riparian restoration effectiveness monitoring plots straddle a stream on the Cougarilla timber sale.

The Role of Our Monitoring Partners

Coordinating silvicultural activities with riparian effectiveness monitoring need not complicate timber sale planning. The term and nature of the timber sale contract can proceed without accommodation for the monitoring other than the location and treatments on the monitoring plots. Clear communications and specifications of the prescriptions on the monitoring plots will be facilitated with 100% marking of leave trees on the monitoring plots. Land management staff will do the majority of the plot establishment and measurements; we anticipate only a small commitment from region staff in coordination and accommodation of the monitoring plots in the timber sales contract.