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Developing improved methods for forest land planning on the Olympic Experimental State Forest

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Summary

DNR uses Linear Programming (LP) based forest planning models to optimally allocate silviculture activities and harvest treatments across its forested land base over time in an effort to meet DNR's policy goals and legal commitments in an effective and efficient manner.

DNR manages State Lands according to its 2006 Policy for Sustainable Forests and, specific state and federal laws, as well directives from the Board of Natural Resources. By harvesting timber, DNR provides revenue to the trust beneficiaries to meet its fiduciary obligations. Moreover, DNR is required to meet specific habitat commitments as outlined in its 1997 Habitat Conservation Plan.

While these revenue and conservation outcomes may be achieved at the coarser geographic level without using spatially explicit forest estate modeling techniques, use of integer programming will improve DNR's ability to achieve both revenue generation and habitat conservation objectives in an spatially optimum manner.

Forest modeling helps DNR balance the flows of competing multiple resource values across a forested landscape. DNR aims to achieve this balance by considering the timing and location of future harvest activities. Since DNR managed lands by are highly varied in terms of topography, forest cover and soil productivity as well a as complex mix of accessibility and operational feasibility, finding an spatially optimum solution through use of integer programming is a timely investment to streamline our strategic level planning with operational realities. The focus of the research addresses the following uncertainties of harvest scheduling;

- forest road re-construction and maintenance;
- dynamic calculation of perimeter-to-area ratios and using these ratios to adjust future states of growth and yield; and
- patterns of forest structure across multiple stands.