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Chapter 5

CUMULATIVE EFFECTS

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Chapter 5

Cumulative Effects

Guidance on assessing cumulative effects

SEPA REGULATIONS

Under Washington State Environmental Policy Act (SEPA) Rules, the scope of impacts analyzed in an Environmental Impact Statement includes cumulative impacts (WAC 197-11-060(4)(e); 197-11-792).

Evaluation criteria

Two main questions are used in this chapter to analyze potential cumulative effects:

- *Would the alternatives involve individually minor but collectively significant actions taking place over a period of time?*
- *Would the incremental impacts of the alternatives—when added to other past, present, and reasonably foreseeable future actions—result in significant adverse effects?*

Significant cumulative adverse effects are determined based on whether the cumulative effects of proposed timber harvest levels would result in adverse impacts that have not already been considered and addressed by previous DNR decisions and associated SEPA administrative records, including the following:

- *Final (Merged) Environmental Impact Statement: Habitat Conservation Plan* (DNR 1998).
- *Final Environmental Impact Statement on Alternatives for Sustainable Forest Management of State Trust Lands in Western Washington* (DNR 2004).
- *Final Environmental Impact Statement on the Policy for Sustainable Forests* (DNR 2006b).
- *Final Environmental Impact Statement for the Proposed Issuance of Multiple Species Incidental Take Permits or 4(d) Rules for the Washington State Forest Practices Habitat Conservation Plan* (NMFS and USFWS 2006).
- *Addendum to a Final Environmental Impact Statement* (SEPA File #02-022201) (DNR 2007a).
- *South Puget HCP Planning Unit Forest Land Plan Final Environmental Impact Statement* (DNR 2010).

- *Olympic Experimental State Forest HCP Planning Unit Forest Land Plan Final Environmental Impact Statement* (DNR 2016a).

In addition, an action cannot contribute to a cumulative effect on any particular element of the environment if the action does not have any direct or indirect impacts on that element of the environment. Therefore, the first criterion for identifying significant cumulative effects is whether the proposed action would result in any adverse impacts for the specific elements of the environment included in the scope of this DEIS.

As described in Chapter 4, no potentially adverse direct or indirect impacts to the elements of the environment were found. Since this finding applies to all alternatives, the alternatives are discussed collectively. However, in a few cases, the differences between the alternatives are indicated.

Individually minor but collectively significant actions

As described under the evaluation criteria section, one of the two questions considered in this cumulative impact assessment is whether the proposed sustainable harvest level would involve individually minor but collectively significant actions taking place over a period of time.

Based on data projected by the sustainable harvest calculation forest estate model, all alternatives would result in a cumulative timber harvest and thinning within forested state trust lands in Western Washington in the range of 119,000 to 193,000 acres per year during the 2015–2024 planning decade. This equates to a harvest of between approximately 8 to 13 percent of forested state trust lands in Western Washington each decade. Each harvest or thinning activity will be implemented following the 1997 HCP, forest practices rules, and the *Policy for Sustainable Forests*, all of which include provisions designed to mitigate impacts and all of which were analyzed for cumulative effects. More details for each element of the environment are provided in Chapter 4 of this DEIS.

None of the alternatives would result in significant adverse impacts on the elements of the environment evaluated in Chapters 3 and 4. Under all alternatives, environmental indicators for vegetation, wildlife, and aquatic resources are expected to improve as DNR continues to implement the 1997 HCP, the 2006 *Policy for Sustainable Forests*, and related policies and procedures stemming from this policy framework. Soils and potentially unstable slopes will be unaffected by the alternatives.

Incremental impacts of alternatives

The question considered in this section of the cumulative impact assessment is whether the incremental impacts of the alternatives—when added to other past, present, and reasonably foreseeable future actions—result in significant adverse effects.

Forest management in the analysis area: past, present, and future trends

An important aspect of cumulative effects is the mix of land ownership within the landscapes upon which cumulative effects may occur. Within the approximately 19.5-million-acre analysis area (terrestrial lands in Western Washington), 29 percent are federal lands (primarily National Forest and National Park), 8 percent are managed by DNR, and approximately 63 percent of the lands are in other non-federal ownership.

Based on acreages presented by Daniels 2004, private lands make up more than half of forestlands within Lewis, San Juan, Pacific, Cowlitz, Island, Grays Harbor, Kitsap, Wahkiakum, Mason, and Pierce counties, and federal lands make up more than half of the forestlands within Whatcom, Jefferson, and Snohomish counties.

PAST, PRESENT, AND FUTURE FOREST MANAGEMENT ON STATE TRUST LANDS

Throughout much of the 20th century, timber management on state trust lands was primarily focused on clearcut harvesting of structurally and biologically diverse stands and converting them into even-aged young stands dominated by Douglas fir. For some time, DNR policy was to harvest the oldest stands first (DNR 1979). In many cases, harvested stands were broadcast burned and planted to Douglas fir, which rapidly became densely stocked with little understory vegetation or structural complexity

The 1997 HCP established landscape-level strategies to support endangered species conservation on state trust lands through a combination of active and passive habitat management. These 1997 HCP strategies also increased protection of riparian areas, northern spotted owl habitat, marbled murrelet habitat, and unique habitats (such as caves, cliffs, and balds).Since signing the HCP, DNR has increased the acres of protected natural areas (Natural Area Preserves and Natural Resource Conservation Areas) and increased protection of old growth. In addition, management on state lands follows forest practices rules for road construction which are included in the Forest Practices HCP (DNR 2005b), which protects aquatic and riparian-dependent species and provides Endangered Species Act compliance for these species.

This existing underlying policy and regulatory framework currently governs forest management on state trust lands and will continue to govern forest management into the foreseeable future.

PAST, PRESENT, AND FUTURE MANAGEMENT OF FEDERAL LANDS

Federal forestlands within Western Washington are located in National Parks, National Forests, National Wildlife Refuges, and Department of Defense military reservations. As with state-managed lands, timber harvests have occurred extensively on federal lands outside of the National Parks and designated Wilderness Areas. As a result, large areas of National Forest lands now contain densely stocked tree plantations rather than structurally and biologically diverse stands.

The 1994 *Northwest Forest Plan* (USFS 1994) included a set of standards and guidelines for the management of federal forestland in the Pacific Northwest, including all federal forestlands in Western Washington. These guidelines were designed to maintain to support native species—particularly those

associated with late-successional and old-growth forests—protect riparian areas and waters, and maintain a supply of timber. Under the Northwest Forest Plan, the focus of forest management on National Forests has shifted from regeneration of timber harvest to ecological restoration. Examples of recently planned projects within the analysis area are the Queets Vegetation Management Project on the Olympic National Forest (USFS 2015a) and the Hansen Creek Vegetation Project on the Mount Baker Snoqualmie National Forest (USFS 2015b). These management practices are likely to continue into the foreseeable future.

PAST, PRESENT, AND FUTURE MANAGEMENT OF PRIVATE FORESTLANDS

Private forestlands (industrial and non-industrial private lands) in Western Washington encompass over 7 million acres. Private industrial forestlands are intensively managed. Very few late-stage forests are present on such lands, and most stands are less than 50 years old. Private industrial forestlands are focused on timber production, with many areas harvested on relatively short rotations (in the range of 40 to 50 years) (Davies and others 2011). Private forestlands within the analysis area are also being converted to other uses, including industrial and residential developments.[43]

Private timber harvest in Washington must comply with the Washington Forest Practices Act (RCW 76.09) as well as the Washington forest practices rules (WAC 222), although the requirements could vary if the landowner has a federally approved HCP. Washington has an approved HCP with and associated incidental take permits for the forest practices rules and the Forest Practices Program to conserve fish and amphibian species (DNR 2005b). The Forest Practices HCP covers all non-federal and non-tribal forestland owners. This regulatory framework is expected to continue to govern these lands into the foreseeable future.

FOREST CONVERSION

Permanent clearing of forest and conversion of forest to agriculture and real estate development reduces the forestland area in Washington. Forest conversion was occurring at a rate of about 1 percent per year as of 2007 (University of Washington 2007). The population of Washington state grew 1.34 percent in 2015 to 7,061,400 (Office of Financial Management 2015). This population growth contributes to forestland conversion for homes and businesses. The population of Washington is expected to continue to grow, and with it, the conversion of forestlands to other uses is likely.

Incremental impacts of the alternatives—when added to other past, present, and reasonably foreseeable future actions

Forested lands within the project area—including state, federal, and private forestlands—have been and will continue to be subject to a variety of human-caused disturbances; however, none of the alternatives, when added to other past, present, and reasonably foreseeable actions occurring across state, federal, and private lands within Western Washington are likely to significantly add to adverse impacts from these activates. The existing underlying policy and regulatory framework remain unchanged under the action

[43] Refer to http://file.dnr.wa.gov/publications/em_fwflanduse.pdf.

alternatives, and impacts of these existing policies and regulations, including harvest impacts, have been previously analyzed.[44] Table 5.1.1 summarizes the incremental impacts of the alternatives considered collectively with impacts from other past

Cumulative impacts

Cumulative impacts by element of environment

Under all alternatives, environmental indicators for soils, aquatic resources, vegetation, and wildlife are expected to continue to improve on state trust lands as DNR continues to implement the 1997 HCP, the *Policy for Sustainable Forests*, and related policies and procedures. None of the alternatives, when added to other past, present, and reasonably foreseeable actions occurring across state, federal, and private lands within Western Washington, are expected to result in significant adverse cumulative impacts on these elements of the environment.

[44] Refer to *Final Environmental Impact Statement for the Alternatives for Sustainable Forest Management of State Trust Lands in Western Washington* (DNR 2004, 2007); *Final (Merged) Environmental Impact Statement for the Habitat Conservation Plan* (DNR 1998); *Forest Practices Habitat Conservation Plan Final Environmental Impact Statement* (DNR 2005b); and *Final Environmental Impact Statement of the Policy for Sustainable Forests* (DNR 2006b).

Table 5.1.1. Incremental Effects of Alternatives: Impacts Added to Past Effects and Future Trends in Western Washington Forestland Under State, Federal, and Private Management

	Past	Present	Future actions and trends	Incremental additions of the alternatives
Forest management	Historic timber harvest, clearing for agriculture and development, and reforestation over the past 100 years have created densely stocked stands with reduced timber productivity and wildlife habitat values. Wildlife habitat has been significantly reduced due to the loss and fragmentation of structurally complex forest stands.	Ongoing timber harvest has the potential for local adverse effects on soils, water, wildlife habitat, and other elements of the environment. Significant effects are typically avoided or mitigated through the existing policy and regulatory framework. Active thinning improves timber production and wildlife habitat values. Thinning is conducted as part of commercial forest management.	DNR-managed lands will be managed consistent with the 1997 HCP, including future changes due to the marbled murrelet long-term conservation strategy, *Policy for Sustainable Forests*, and forest practices rules. On federally managed forestlands in Western Washington, most management will be designed to improve wildlife habitat. Timber harvest will continue on private forestlands in Western Washington following forest practices rules, including the Forest Practices HCP and other HCPs.	All action alternatives result in lower harvest levels than the no action alternative. Thinning would decrease under the action alternatives compared to the no action alternative. Alternative 2 results in fewer acres managed for forest cover than the no action alternative. Alternatives 3, 4, and 5 result in more acres managed for forest cover.
Conversion of forestland to other uses	Lands on suburban/wildland interface converted to residential and agricultural uses.	Continued decline in private forestlands due to land use conversions (University of Washington 2007). Some large blocks have been secured by conservation groups.	Private forestlands near urban and suburban areas likely to continue to be converted to other land uses, reducing the overall footprint of forestlands, particularly in productive lands in river valleys near urban centers.	No change.