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CONSERVATION OF THE NORTHERN SPOTTED OWL AND MARBLED MURRELET UNDER THE NORTHWEST FOREST PLAN

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Conservation of biological diversity is a major objective of the Northwest Forest Plan (the Plan), and provisions that contribute to recovery of listed species are key elements of the Plan. The Northern Spotted Owl (*Strix caurina occidentalis*) and Marbled Murrelet (*Brachyramphus marmoratus*) are each listed as Threatened under the Endangered Species Act, primarily because of declining populations associated with loss of their old-forest nesting habitat. The Plan called for retention and restoration of older forest within a system of large reserves, and retention of occupied sites in the matrix outside of reserves. Effectiveness monitoring conducted over the first 10 years of Plan implementation shows that spotted owl populations have been declining by about 3.7 percent per year, with faster rates of decline in the more northern part of the species' range. Lingering effects of past habitat loss, interactions with the closely-related Barred Owl (*Strix varia*), inclement weather, and loss of habitat on non-federal lands are all implicated as contributing to this continuing decline. Such a decline was anticipated as the Plan was developed; experts expect that several more decades of habitat restoration will be needed for owl populations to stabilize. The Plan has been effective in conserving current habitat. Moreover, we see indications that amounts of suitable habitat may increase, over and above ongoing losses to fire and logging on federal lands, as less suitable stands mature. There are emerging threats from the Barred Owl, West Nile Virus, global climate change, and other factors that are out of the control of land managers, and these threats may prolong the decline despite favorable changes in the amount and distribution of habitat.

Marbled Murrelet populations (estimated from at-sea counts from 2000 to 2003) appear to be stable, despite demographic models that would project a 5% annual rate of decline. Power analysis indicates that 7 years of population data will be needed to detect a 5% annual rate of decline with confidence. Based on records of murrelet locations, a habitat suitability model has been developed that portrays the distribution of potential murrelet nesting habitat throughout the murrelet's range in the Plan area. Model results indicate there were about 1.6 million ha of higher-suitability habitat on all lands at the start of the Plan, about half of which occurred on federal lands. Almost 90% of higher-suitability habitat on federal lands occurred within reserves. Over the past 10 years, losses of habitat due primarily to fire have totaled about 2% on federal lands; losses have been much greater (12%) on non-federal lands, due primarily to timber harvest. Habitat is expected to accrue within reserves as younger forest matures and attains sufficient size to support nesting sites. Population estimates are strongly and positively correlated with amounts of adjacent nesting habitat at a broad scale, supporting the idea that amounts of nesting habitat are a primary driver in population regulation. However, conditions at sea, such as temperature regimes, oil spill, and gill-netting continue to affect murrelet populations.

For both the owl and the murrelet, it is apparent that observed population trends result from the cumulative effects of multiple interacting factors, only some of which are under land manager's control. Despite these uncertainties, conservation of suitable habitat in reserves, and provisions to stimulate recovery of unsuitable habitat in reserves, remain essential to achieve stable or increasing populations of these species. Decades will be needed to more fully judge our success or failure to in efforts to conserve these threatened birds.

SYNTHESIS REPORT- Conservation Approaches

1 Conservation of the Northern Spotted Owl and Marbled Murrelet under the Northwest Forest Plan- 3625 93rd Ave. SW, Olympia, WA