

**The Potential Economic
Consequences of Designating
Critical Habitat for the
Marbled Murrelet
Final Report**

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Executive Summary

This is a report to the Director of the US Fish and Wildlife Service (Service) describing the economic consequences of the Service's final rule to designate critical habitat for the marbled murrelet in western Washington, western Oregon, and northwestern California. Consistent with the provisions of the Endangered Species Act (ESA), this report addresses the economic consequences of *only* the designation of critical habitat. It does not address the consequences of other actions that have been proposed or taken to protect marbled murrelets. The habitat covered by the designation plays a complex role in the regional economy by producing multiple, valuable goods and services, including: the marbled murrelet itself; other species, including salmon; fresh water; recreational opportunities; and timber. The data regarding the designation's impacts on these goods and services are not sufficient to support a detailed quantification of all the designation's potential economic consequences. Extensive evidence indicates, however, that the designation's economic benefits largely offset, and may even outweigh, its economic costs. The overall net effect will be close to zero.

A. THE DESIGNATION WILL HAVE A FEW DIRECT AND IMMEDIATE IMPACTS ON THE ECONOMY, BUT THE NET EFFECT WILL BE SMALL

The designation will have few immediate and direct impacts on the economy. In general, the designation of critical habitat for a threatened or endangered species interacts with the economy via a single mechanism: with the designation, federal agencies may not engage in activities or support the activities of others that would destroy or adversely modify the designated habitat. In this instance, however, the Service and cooperating federal agencies have determined that the designation of critical habitat for the marbled murrelet is not likely to restrict the activities of any federal agency. In particular, although the designation will reinforce the efforts of the Forest Service and Bureau of Land Management to protect and enhance the terrestrial habitat of the marbled murrelet, it will not cause these agencies to manage federal lands in a manner that will have immediate, direct impacts on the flow of goods and services from these lands.

The designation may, however, lead to changes in the actions of the Washington Department of Natural Resources (WDNR), which is required by state regulations to take federal critical-habitat designations into account when assessing applications for permits to conduct logging and other activities. These regulations require WDNR to scrutinize more thoroughly the potential impacts on all aspects of the environment—natural, recreational, cultural, and infrastructural—when a proposed activity will occur inside an area designated as critical habitat.

The designation embraces about 2,500 acres of private land in Washington, but 1,300 of these contain occupied sites and, hence, restrictions on their use are governed by state laws and the ESA's prohibition against the "taking" of a listed species. Thus, the designation will cause WDNR to give extra environmental-impact scrutiny to, at most, 1,200 acres. These lands are typically covered by young-growth stands up to 60 years old, though most are younger. As one worst-case scenario, landowners would incur costs of about \$100-250,000 to prepare an environmental-impact statement (EIS) in response to WDNR's requirements before initiating logging at each timber-harvest site. Under this scenario, the total average annual cost to landowners over a 50-year rotation cycle would be about \$50-150,000.

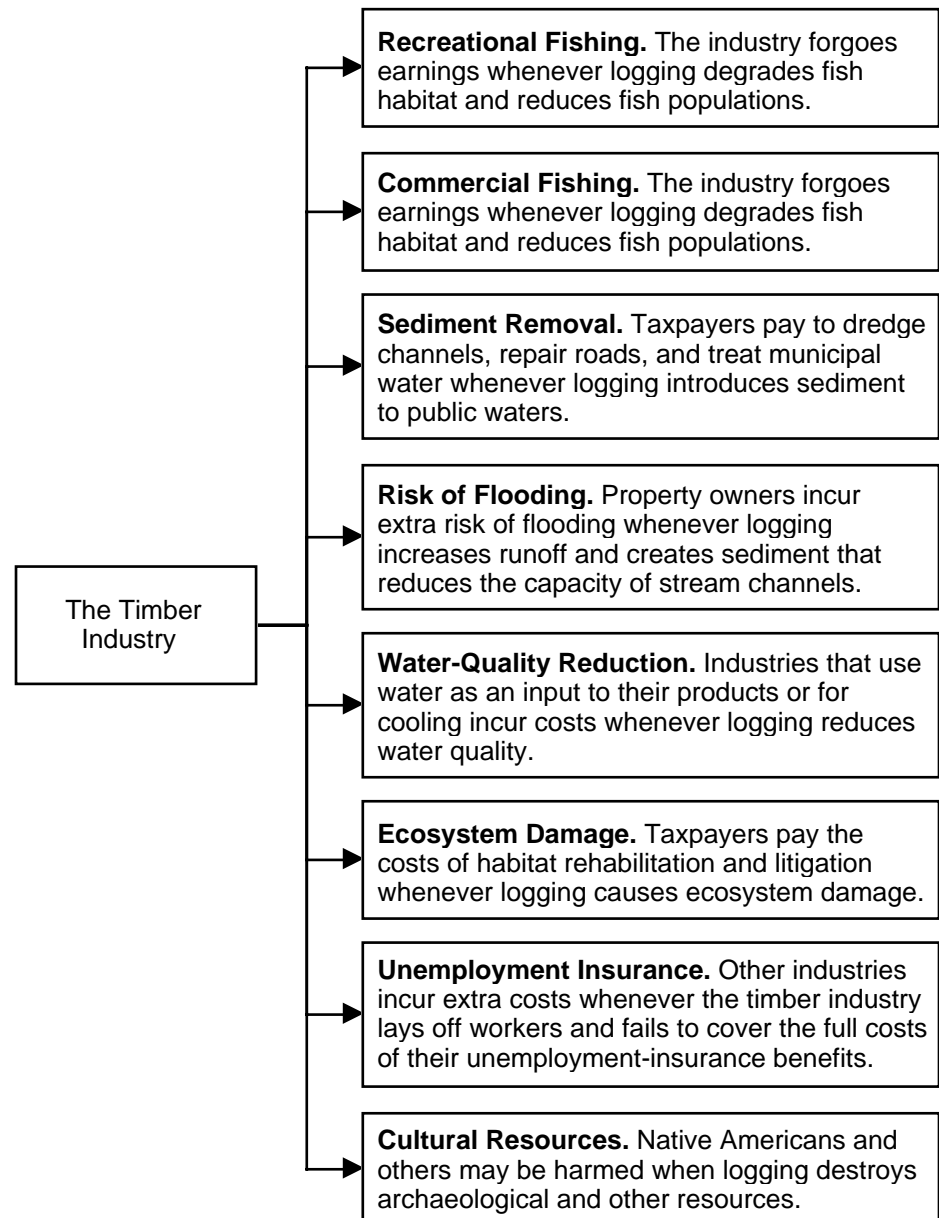
Several factors, however, indicate that landowners' actual cost of complying with WDNR's regulations will be less. Many of the 1,200 acres either have been logged previously or are near earlier logging sites, potentially reducing the need for landowners to construct new roads and other infrastructure that would have adverse environmental effects. Recent and potential tightening of the state's forest-practices rules are likely to restrict or forbid logging practices that can have the greatest adverse impact on the environment, thus limiting the scope of activities that will be addressed by WDNR's assessment, and increasing the likelihood that WDNR will find that future logging proposals will have acceptable environmental impacts. In addition, landowners may avoid some or most of the cost of complying with WDNR's requirements by designing their proposed activities to mitigate the most damaging impacts, e.g., by excluding areas most vulnerable to environmental damage from a proposed logging site and, thus, avoiding the requirement to prepare an EIS.

Under an alternative worst-case scenario, WDNR's regulations would curtail all proposed logging on the full 1,200 acres and reduce annual timber production by about 1.2 million board feet (MMBF). The gross market value of the forgone timber could be as high as \$400 per acre, or \$480,000 total, but the net values will be smaller because, if landowners do not log their timber, they also will not incur all the costs of producing the timber, delivering it to the market, and establishing the next generation of timber. The net values of forgone timber production in the short run probably would be less than \$300 per acre, or \$360,000 total, and, in the long-run, they probably would approach zero.

In addition, if landowners do not log their timber, society will not incur the spillover costs associated with logging and related practices (see Figure E.1). If these forgone spillover costs are large enough, they will outweigh the net value of the forgone timber, and the designation's overall net effect on the value of goods and services derived from the affected lands will be positive. There currently is insufficient information to quantify the potential spillover costs of logging at specific sites within the designation, but the available evidence suggests that these costs might be comparable to, or greater than, the net value of the timber that would be affected by the designation. Studies within the region show that the sediment-related costs, alone, that logging

and related activities impose on landowners downstream can exceed \$250 per acre. These activities also can increase the peak stormwater runoff from a watershed by 50-100 percent, creating additional flood risk for private property owners and public infrastructure.

Figure E.1: Spillover Costs from the Timber Industry that Might Be Avoided Because of Reductions in Timber Harvest Attributable to the Designation



Source: ECONorthwest

The actual levels of the timber values and spillover costs forgone because of the designation will depend on the future decisions of landowners and WDNR, as well as the specific characteristics of individual logging sites. The overall net effect may be positive or negative. But, because the designation probably will induce landowners or WDNR to curtail logging only on sites with the greatest potential for generating adverse environmental impacts, i.e., the sites with the greatest spillover costs, the overall net effect—whether positive or negative—probably will be small.

Conventional analytical tools, which assume the economy is static, indicate that a worst-case drop in timber production of 1.2 MMBF will lead to the elimination of about 24 jobs in the timber industry and related industries. The economies of the Pacific Northwest and northern California are robust and dynamic, however, and will compensate for these losses quickly with replacement job opportunities. These losses also will be offset to the extent that reductions in logging also reduce the spillover costs that logging imposes on other sectors of the economy and, hence, allow these sectors to grow more rapidly.

The impacts on timber-related employment and earnings will not necessarily occur in the vicinity of the restricted harvests. Because the timber industry competes over an area encompassing at least western Washington, western Oregon, and northern California, any reductions in employment and earnings will occur in the least competitive firm(s) within the entire area. These may be hundreds of miles from the location of a particular stand of timber affected by the designation. If the designation affects timber-related employment, most of the impact probably will occur in metropolitan areas, reflecting the concentration in these areas of the timber industry itself, as well as the other sectors related to the timber industry.

Although some have expressed the belief that the designation will aggravate severe, widespread economic distress attributed to restrictions imposed on timber production in the region since the year preceding the listing of the northern spotted owl as a threatened species, numerous facts argue otherwise. The economy most directly affected by the designation—western Washington, western Oregon, and northwestern California—is highly diversified and growing more rapidly than the rest of the nation. The economies of Oregon and Washington have been sufficiently robust that they essentially escaped the national recession early this decade and, although northwestern California shared the economic slowdown in the statewide economy that was triggered by the end of the Cold War and other factors, it now is recovering and expected to enjoy steady growth into the foreseeable future.

This area, once commonly considered to be heavily dependent on the timber industry, now has a diverse, modern economy of which timber is only a small part. Although timber harvest fell by about one-half between 1989 and 1995, employment in Oregon grew by 213,000, or 18 percent, employment in Washington grew by 326,000, or 14 percent, and per capita

incomes in both states grew faster than the national average. In the seven coastal counties of Oregon that might accommodate habitat for the marbled murrelet, total non-farm employment increased by an average of 11 percent during this period, while employment in the lumber-and-wood-products industries decreased by 29 percent. All but two of the counties in western Washington have experienced employment growth between 1989 and 1995, and the two exceptions—Grays Harbor and Clallam—saw declines of 980 jobs, or 2 percent of the 1989 level and a small fraction of the increases in neighboring counties. Similarly, employment has grown in all but two counties of northern California, Siskiyou and Trinity, which together lost 1,130 nonfarm jobs (7 percent of the 1989 level) in the context of strong job growth in neighboring counties. Nonfarm employment in the two coastal counties containing most of the designated acreage in California, Humboldt and Del Norte, increased by 4,500, or more than 9 percent.

B. THE DESIGNATION WILL HAVE MULTIPLE, LONG-RUN IMPACTS ON THE ECONOMY, BUT THE NET EFFECT WILL BE SMALL

There are strong competing demands for the timber, water, and other forest resources that are associated with the marbled murrelet's habitat, and any decision that allocates resources to one group inevitably deprives another. The designation reinforces resource-management decisions that decrease the allocation of old-growth forest resources to logging and other industrial timber-management activities. These activities are declining in their ability to generate jobs and incomes, and impose substantial spillover costs on other sectors and elements of the economy.

The designation also reinforces state and local efforts to strengthen the economy by enhancing the region's natural-resource amenities and quality of life. Numerous studies nationally conclude that quality-of-life exerts an influence on the locational decisions of many workers and households, which, in turn, influence the location of firms and the economic structure of communities and regions. Evidence from studies in Oregon indicates that at least one-third of the population is sensitive to those aspects of quality of life associated with the region's natural-resource amenities, and enhancing the state's quality of life is a central component of the state's strategic plan. The designation will increase these aspects of area's quality of life insofar as it leads to a prohibition of logging and other activities that would diminish the value of natural-resource amenities, including these:

- The visual aesthetics of riparian areas. In general, the more natural the appearance of these areas, the higher their aesthetic value. Insofar as the designation will maintain the natural appearance, it will maintain their amenity value.
- The visual aesthetics of some upland areas that otherwise would experience timber harvests. The designation would maintain the amenity values of these areas by maintaining their natural appearance.

- The aesthetics and water-related recreation associated with streams that experience improvements in water quality, including reductions in sediment.
- The aesthetics and recreational opportunities, e.g., whitewater rafting, associated with changes in the quantity and timing of water runoff so that less runoff occurs as peak flow in the spring and more occurs as base flow during the summer.
- The visual aesthetics and recreational opportunities associated with increased populations of wildlife related to riparian areas.

In the past, it was easy to conclude that logging and other industrial timber-management activities that degraded the marbled murrelet's habitat were beneficial to the economy, but times have changed. There is growing recognition that these activities impose substantial spillover costs on other sectors of the economy--for example, by increasing the level of sediment and the risk of flooding in streams below clearcuts and forest roads. These spillover costs can reduce the profitability of firms, the incomes of households, and the productivity of communities. Large numbers of Americans now demand recreational and other services from the region's forests, and activities that degrade the water quality of streams and other aspects of the region's natural-resource amenities can curtail the output of the related recreation industry and reduce the region's attractiveness to some workers, households, and firms. The designation may reinforce past decisions that curb the supply of habitat available to the timber industry, curtail that industry's spillover costs, and protect those aspects of the region's quality of life associated with this habitat.

Markets will respond quickly, whatever the designation's impacts on the timber industry. The designation is unlikely to cause any change in the prices of timber and derivative products. If the designation causes the displacement of workers in the timber industry, most of these workers probably will find replacement jobs quickly, just as tens of thousands have done during the past 15 years when they have lost their jobs for reasons unrelated to the marbled murrelet. After one year, the unemployment rate among workers who lose their jobs because of the designation probably would equal the rate among other workers with similar education and training. To the extent that the designation curtails logging practices, road building, and other activities that impose spillover costs on other industries and on households, it will have positive impacts on the levels of employment and earnings in the region. The magnitude of these effects cannot be quantified at this time.

The Service anticipates that the designation will increase the likelihood of conserving marbled murrelets. Values ascribed to the marbled murrelet and its habitat commonly are separated into two groups: use values, e.g., consumptive use of the resource as a source of food or medicine, or passive use of the resource as a source of scenic beauty, and non-use values, e.g., benefits a person derives from knowing that a species or some other natural resource exists. Marbled murrelets currently have little apparent use value. They have essentially no value as a source of food to humans, but some

recreational value to bird watchers, although the magnitude of this value is unknown. Marbled murrelets and their habitat have some non-use value but, again, the magnitude of this value is not currently quantifiable.

If WDNR's enforcement of state laws, in response to the designation, reduce the flow of timber from any or all of 1,200 acres of private lands in Washington, landowners will experience a reduction in property values equal to the present value of the forgone stream of net revenues from the lands. WDNR's actions in response to the designation would increase the values of other lands insofar as they eliminate spillover costs that logging would impose on others. The State Forest Practices Board can set the regulations aside if it concludes that their impact will be too onerous.

The mechanism that will generate these impacts is a complex one. The Service is designating the 2,500 acres of private land because owners of land elsewhere directly destroyed the murrelet's habitat or allowed it to be destroyed by others. The Act and the designation, themselves, will have no effect on the use of the private land included in the designation. The designation merely identifies the fact that critical habitat exists on these lands, and the Act prohibits federal agencies from taking actions that would result in the destruction or adverse modification of the habitat. Any restriction on the use of private lands that contain critical habitat will be governed by laws, regulations, and decisions at the state level, reflecting the importance Washingtonians place on conserving the habitat of at-risk species.

The complexity of this mechanism makes it difficult to determine who bears the responsibility for the potential reductions in property values that might follow the designation. Those who destroyed habitat in the past contributed to the murrelet's declining numbers that prompted the concern about the species' continued existence. Given the destruction of habitat elsewhere and the decline in the marbled murrelet's population, the owners of lands that contain the remaining habitat may have a responsibility to protect it as well as a right to destroy it. The Service has responsibility for identifying the existence of critical habitat on private lands. The state of Washington bears responsibility to prevent actions by a few that will increase the risk of extinction for a species that belongs to all Washingtonians.

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