

Recent population decline of the Marbled Murrelet in the Pacific Northwest



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Description

We document here a decline of nearly 30% in the Marbled Murrelet (*Brachyramphus marmoratus*) population of Washington, Oregon, and northern California between 2000 and 2010. The Northwest Forest Plan is an ecosystem-management plan for federal forest lands in the Pacific Northwest of the United States that incorporates monitoring to determine if species' conservation objectives are met. To evaluate the plan's effectiveness in conserving populations of the murrelet, a species associated with older, late-successional forests, we estimated the murrelet's density in near-shore marine waters of Washington, Oregon, and northern California south to San Francisco Bay. We sampled annually, using line transects and distance estimation. We divided the study area of about 8800 km² into five geographic subareas corresponding to existing murrelet-conservation zones. Annual population estimates for the plan ranged from an estimated 23 700 (95% CI: 18 300 to 29 000) birds in 2002 to a low of 16 700 (95% CI: 13 100 to 20 300) in 2010, representing an average

rate of decline of 3.7% annually (95% CI: -4.8 to -2.7%) from 2001 to 2010. This annual rate suggests a total decline of about 29% during this period. We documented downward trends for Washington (conservation zone 1) and for the outer coast of Washington (conservation zone 2). These declines coincide with reductions in the amount of nesting habitat. Further research to evaluate the potential marine and terrestrial factors responsible for the declines is planned.

Publication Notes

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