

by Craig Hansen and
William Vogel

Forest Land HCPs: A Case Study

The Washington Department of Natural Resources (DNR) manages nearly 1.6 million acres (650,000 hectares) of forest land in Washington within the range of the northern spotted owl (*Strix occidentalis caurina*). It is responsible for ensuring that healthy, productive forests remain and that its designated trust beneficiaries receives a continuous income. When the spotted owl and marbled murrelet (*Brachyramphus marmoratus*) were proposed for listing and several salmon species were listed as threatened, this created an uncertain future that would make it difficult for the DNR to fulfill its trust responsibilities. Faced with halting logging in many areas and spending money on wildlife surveys, the DNR chose instead to develop a Habitat Conservation Plan (HCP). Now it can comply with the Endangered Species Act while producing income for its trust beneficiaries.

The DNR began by establishing a science team of state, federal, and independent scientists to address owl, murrelet, and salmon conservation needs. Aided by recommendations from the owl and murrelet draft recovery plans, the President's Northwest Forest Plan, and the latest scientific reports, the science team provided the foundation for the HCP strategies.

The science team advised that the approach to conserve owls hinged on the proximity of DNR-managed lands to federal lands that are managed under the Forest Plan. The lands that the DNR designated to contribute demographic support for owls were generally within 2 miles (3.2 km) of federal late succession reserves. Lands designated to provide dispersal habitat for juvenile owls were



Northern spotted owl

Photo by William Vogel/USFWS

located between federal land tracts or between DNR demographic land tracts. They complemented the adjacent federal reserves to ensure that large blocks of mature forest were available across the landscape for owls and other species. These actions formed the basis of the Washington Department of Natural Resources Habitat Conservation Plan (the DNR HCP), which was signed in 1997.

Because we know so little about murrelet ecology and the attributes of murrelet-occupied forest stands, the DNR developed a short-term conservation strategy. This consists of research that examines the relationship between habitat quality and the level of murrelet occupancy as well as interim protection measures for all occupied sites. After the habitat-relationship study is concluded and the habitat likely to be inhabited by murrelets has been surveyed, the Fish and Wildlife Service and DNR will

jointly develop a long-term plan for the remainder of the HCP term.

To address the needs of salmon and other aquatic and riparian species, the DNR is committed to providing riparian buffers on all fish-bearing and perennial streams without fish. These buffers will provide a riparian habitat that stabilizes banks, filters sediment, maintains shade, and allows large trees to fall into the stream system. Large wood in streams stores sediment, adds habitat complexity, and provides habitat for fish and amphibians. Riparian buffers on fish-bearing streams will average about 150 feet (46 meters) wide on each side, while buffers on the fishless streams will be about 100 feet (31 m) wide. Some management will be allowed within these buffers only if it does not prevent the buffer from providing fully functional aquatic and riparian habitat.

In addition, the DNR HCP also attempts to reduce impacts on nonlisted

species by implementing seasonal protection measures that minimize disturbance at nest and den sites. For instance, in areas managed for owl demographic support, timber harvest activities are prohibited within 0.55 mile (0.88 kilometer) of active northern goshawk (*Accipiter gentilis*) nests, and within 0.5 mile (0.8 km) of active fisher (*Martes pennanti*) dens.

Minimizing the impact of roads is also important to incorporate into forest land HCPs. We accomplish this by developing a road management plan to reduce sediment delivery to streams and facilitate fish passage to streams that formerly carried fish. The DNR has committed to reducing access to roads, abandoning or reconstructing problem roads, improving road construction, and installing culverts that are capable of withstanding a 100-year flood.

The multi-species strategy provisions in this HCP ensure that a range of forest age classes, including deciduous trees, and migratory corridors, is provided across the landscape. Many uncommon habitat types also require protection if an applicant desires coverage for listed species and unlisted species such as bats and cavity nesting birds. A green tree and snag retention strategy focuses on protecting large snags that may be

used by species such as Vaux's swift (*Chaetura vauxi*), pileated woodpeckers (*Dryocopus pileatus*), and myotis bats. Other unique habitats protected with forested buffers include talus slopes used by the uncommon Larch Mountain salamander (*Plethodon larselli*), caves inhabited by bats and small mammals, seeps and springs inhabited by salamanders, and cliffs that may function as peregrine falcon (*Falco peregrinus*) aeries (nest sites). Most wetlands will have buffers at least 150 feet wide to protect habitat for such species as the northwestern pond turtle (*Clemmys marmorata*) and the Cascades frog (*Rana cascadae*).

The combination of owl, murrelet, and riparian protection will eventually provide at least 520,000 acres (210,000 ha) of mature forest habitat. While some biological uncertainty exists, adaptive-management strategies were developed that allow for changes in certain management strategies as new information is obtained. For instance, the DNR may have to increase the percentage of down wood required for prey-base support of the owl, from the level currently agreed upon to some higher level, based on additional scientific information.

Monitoring of HCPs is necessary to ensure that all elements are being implemented. The type of monitoring and the amount of effort involved reflects the level of certainty of the conservation strategy and the level of adaptive management. The DNR conducts annual reporting meetings to document progress toward its commitments, the results of surveys, and findings of research efforts. The Fish and Wildlife Service and National Marine Fisheries Service participate in periodic meetings, conduct compliance monitoring, and participate on implementation and adaptive-management teams. Forest land HCPs are dynamic conservation plans. We expect ongoing adjustments in this process to incorporate the latest science and to respond to new developments in the large experiment in ecosystem management of which this HCP is a major component.

Craig Hansen is supervisor of the HCP Program in the Service's Western Washington Field Office, Lacey, Washington. William Vogel is a wildlife biologist with the newly formed Branch of Monitoring and Evaluation in the Western Washington Office. The authors were co-leads on this HCP project.



Trees along this salmon and steelhead-bearing stream will be conserved to protect water quality by reducing erosion.

Photo by Ted Thomas/USFWS