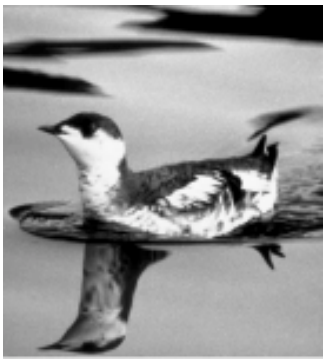
Multi-species HCPs: Experiments with the Ecosystem Approach

by William Vogel and Lorin Hicks

Image Omitted

***The red-legged frog* (Rana aurora), considered a species of concern in Washington State, will benefit from wetland protection and riparian buffers left along streams.**
Photo by Bill Leonard



Habitat management for the marbled murrelet, an elusive bird listed in the Pacific Northwest as threatened, is complicated by the incomplete knowledge of its ecological needs and the threats it faces.
Photo by Gus van Vliet/USFWS

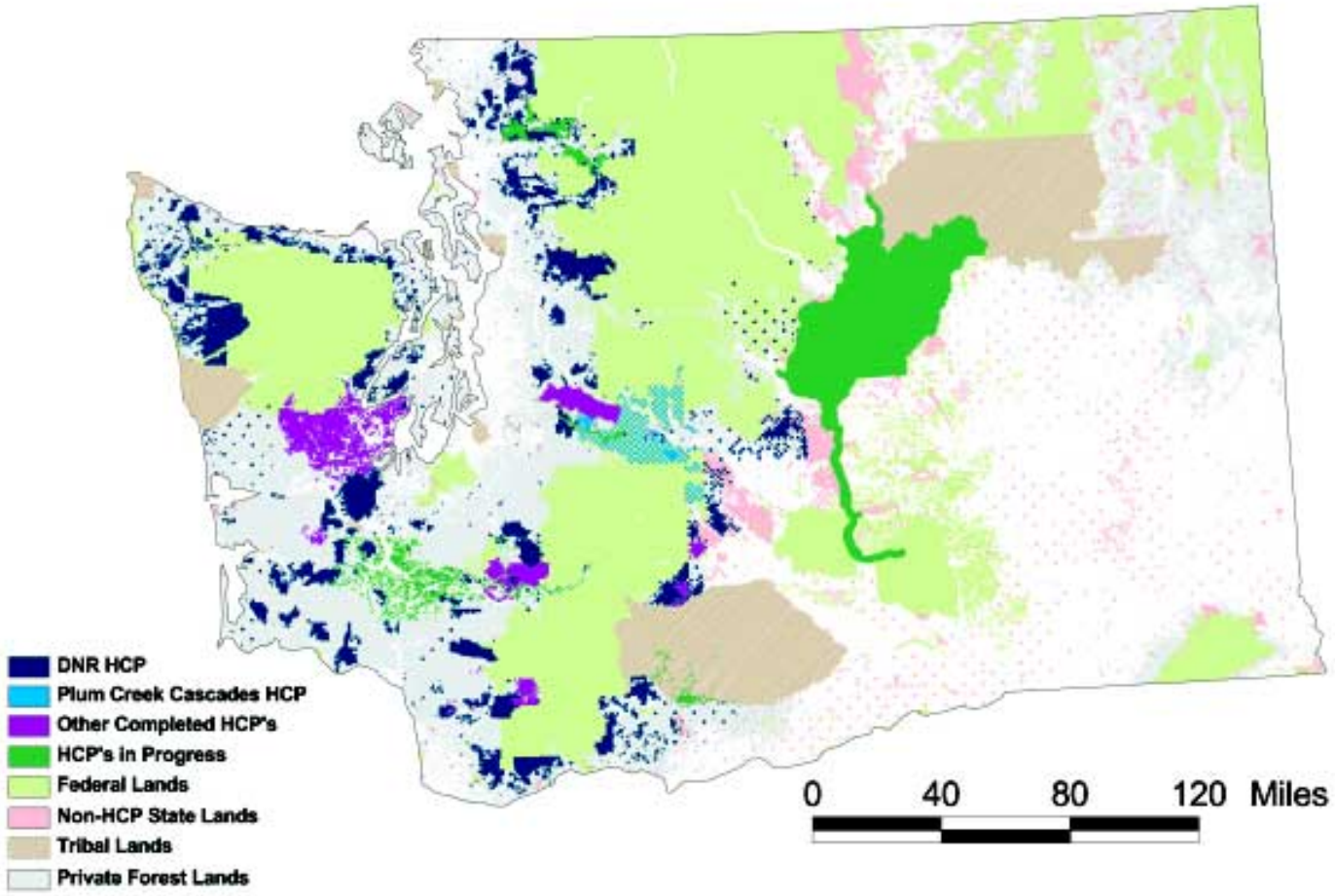
Habitat Conservation Plans (HCPs) can be a tool for the transition from reactive species-by-species management to the generally more effective ecosystem approach. In Washington State, for example, the Fish and Wildlife Service (FWS) is working with private landowners on HCPs covering several million acres. These HCPs vary in size, configuration, and location, but they share three components: (1) mature forest with structure; (2) healthy riparian/aquatic systems; and (3) protection of sensitive habitats. The strategies to address these three components form the foundation of many multi-species, habitat-based HCPs.

Considerable information is available about northern spotted owl *(Strix occidentalis caurina)* biology and habitat requirements. The threats to the owl are primarily from habitat modification, but its status does not prevent opportunities for management or experimental silviculture to maintain or accelerate habitat development. The owl conservation measures in many HCPs have focused on mitigation, including the provision of dispersal habitat across the landscape to make up for removal of isolated patches of nesting habitat.

Far fewer management options are available for marbled murrelets *(Brachyramphus marmoratus)*, partly because we have little knowledge about the quality or quantity of habitat they need, the effects of a changing marine environment, and direct losses at sea from drift nets, oil spills, and other factors. Identification of potentially suitable habitat, surveys for presence, and direct protection measures are generally combined in some fashion to avoid taking murrelets.

Conservation measures for aquatic species in the Pacific Northwest are designed to restore properly functioning riparian and aquatic habitats. Fish, especially salmon, are often limited by many factors, and strategies for fish recovery are necessarily complex. Therefore, rather than numbers of fish, most HCPs use quality of habitat as a measure of success. The National Marine Fisheries Service (NMFS) and Native American Tribes in the region have worked with several HCPs sponsors to develop plans for improving spawning habitats on forest lands. Fishing (commercial, recreational, and subsistence) and clean water issues have a direct effect on the health and livelihood of many people, so these HCPs provide benefits beyond protecting endangered species, and public and tribal involvement are expected to continue. Riparian conservation strategies, road management, identification of risks (such as landslides and erosion), and site-specific prescriptions are generally used to minimize impacts to native fish.

Once the key species and issues for an HCP have been identified, the next step is to decide how best to provide for the conservation of those species. Recovery plans or similar conservation documents are reviewed for guidance on the appropriate role a particular



Habitat Conservation Plans in Washington

landscape should play in the species' conservation. For example, a number of state and federal documents addressing spotted owls, such as the Final Draft Recovery Plan and the President's Forest Plan provided guidance for the Plum Creek HCP and outlined the need for mature forest habitat.

Most riparian conservation strategies incorporate aspects of biology, hydrology, and geomorphology. Vulnerabilities and opportunities are assessed locally, prescriptions are developed, results are monitored, and, if needed, the ability to adjust to new information is incorporated. For example, unstable slopes are identified and methods are developed to minimize the chance of slope failure. Forests with a certain density and tree size are retained along streams to provide for natural functions of shade, bank stability from roots, recruitment of large woody debris, and the needs of other terrestrial and riparian wildlife.

In addition to addressing two of the three most common landscape concerns (mature forest with structure and healthy riparian/aquatic systems), special habitats such as caves or talus slopes need to be identified and protected. Prescriptions developed to maintain the value of these habitats incorporate the exclusion of roads or other surface disturbances, the protection of forested buffers around these habitats, or management treatments to restore and maintain their value.

Because many species have similar needs, it can be useful to group them into "guilds" by habitat requirements. This can facilitate the evaluation of habitat availability and management impacts. Once this guilding is completed, information regarding existing habitats and their potential productivity, the effects of planned management on habitat conditions, and the projected growth, availability, and juxtaposition of these habitat types can be used to evaluate the different HCP alternatives.

Results of completed HCPs suggest that some tradeoffs may be necessary between groups of wildlife in a multi-species HCP (e.g., some species need habitats in early successional stages, while others need late successional habitat). Species-by-species management is difficult because of the large number of animals and plants involved, the complex array of life-history needs,

the lack of knowledge about many species, and the sometimes conflicting needs of species. It is much easier to manage for the maintenance and diversity of habitat (structures, functions, and vegetative communities) by emulating natural processes as much as possible within management constraints.

Ecosystem management and multi-species HCPs are in a phase of rapid evolution. They provide the opportunity to evaluate alternative approaches to landscape management, and as such resemble a conservative experiment on a grand scale. The experience we gain should be valuable in refining future HCP and landscape efforts, especially where adaptive management is factored in by design rather than by default.

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(right, top) This road was closed to protect grizzly bear habitat as part of the Plum Creek HCP.
Photo by William Vogel/USFWS

(right) Loggers have left trees along a fish-bearing stream in the foreground and perennial non-fish streams in the background. The buffers provide a source of woody debris to enhance aquatic habitat, stabilize the banks, filter sediment, and maintain appropriate water temperatures.
Photo by Craig Hansen/USFWS