

CHAPTER 9. SPECIES AND HABITAT: WILDLIFE

Characterization

The Gordon Creek Watershed is located in the Western Oregon Cascades Physiographic Province and is home to a variety of wildlife species typical of the Western Oregon Cascades. The particular conditions that constitute suitable habitat for each organism are influenced by factors such as soils, climate, elevation, and vegetation, which may be altered by natural or human disturbance. Species may be highly specialized, requiring specific habitat conditions, or may be able to utilize a broad array of conditions across the landscape. Some species may live for generations within several acres of land, while others may utilize the watershed only for a short period, as one stop on a migratory route. As a result, local management decisions may affect wildlife at a range of spatial scales, from the local to the inter-continental.

Current Conditions

The decisions made by forest managers regarding tree harvest cycles, regeneration systems, and vegetation management have significant effects on the availability and quality of habitat for wildlife. Any forest management action affecting vegetation or site conditions is likely to benefit some wildlife populations while impairing habitat suitability for other populations. Therefore, the discussion of current conditions is structured according to the major forest management regimes on federal and private lands.

Federal Lands

General Forest Management Areas

All BLM lands in Gordon Creek Watershed are designated as General Forest Management Areas (GFMAs) with their associated Riparian Reserves. GFMAs are those lands administered by the BLM that are not included in Congressionally Withdrawn, Late-Successional Reserves, or Designated District Reserves. GFMAs and Connectivity/Diversity Blocks (a designated land use of which there is none in Gordon Creek Watershed) comprise the federal Matrix lands on which most scheduled timber harvests on federal lands are planned.

A number of wildlife habitat conservation measures on Matrix lands were established under the Northwest Forest Plan (NWFP) Record of Decision (ROD) (BLM 1994) and the BLM Salem District ROD (BLM 1995). These measures include:

- Retention of existing late-successional forest patches in watersheds where little late-successional forest remains in reserves (less than 15 percent of the watershed area).
- Retention of 6 to 8 green trees per acre in harvest units as wildlife trees.

- Retention of snags in timber harvest units at levels that are sufficient to support cavity-nesting birds at 40 percent of their potential population levels. Additional green trees are to be retained for snag recruitment.
- Retention of at least 240 linear feet of downed logs per acre (diameter greater than 20 inches).

Currently, federal lands in the Gordon Creek Watershed are dominated by mid-seral (stand age 40 to 80 years) stands. Stands of this age-class tend to have lower structural complexity than late-successional forests and less rich assemblages of plant species than recently regenerated stands (Spies and Franklin 1991, Franklin and Spies 1991). Consequently, wildlife diversity tends to be relatively low in mid-seral stands compared to both younger and older forests.

Riparian Reserves

Riparian Reserves constitute a component of the aquatic conservation strategy established under the NWFPP ROD (ROD 1994) to promote good habitat conditions for fish and other aquatic and riparian dependent organisms. Only limited timber harvest for restoration purposes is permitted in Riparian Reserves and road crossings are to be minimized. The widths of Riparian Reserves are as follows:

- Fish-bearing streams—The Reserve consists of the stream and the area on either side of the stream extending to the top of the inner gorge, or to the outer edges of the 100-year floodplain, or to the outer edges of riparian vegetation, or to a distance equal to the height of two site-potential trees, or 300-foot slope distance, whichever is greatest.
- Permanently flowing non-fish-bearing streams—The Reserve consists of the stream and the area on either side of the stream extending to the top of the inner gorge, or to the outer edges of the 100-year floodplain, or to the outer edges of riparian vegetation, or to a distance equal to the height of one site-potential tree, or 150-foot slope distance, whichever is greatest.
- Seasonally flowing or intermittent streams and wetlands less than one acre—At a minimum, the Reserve will include the extent of unstable areas; the stream channel and the area extending to the top of the inner gorge; the stream or wetland area extending to the edge of riparian vegetation; or, to a distance equal to the height of one site-potential tree, or 100-foot slope distance, whichever is greatest.

Limiting timber harvest and most road-building in riparian areas is expected to restore the “natural” disturbance regime within streams and their floodplains (FEMAT 1993). This regime is characterized by several ecosystem functions, including recruitment of large woody debris in streamside forests and its delivery into the stream, input of organic matter into streams, maintenance of stream bank integrity, maintenance of microclimate stability, and providing wildlife habitat (FEMAT 1993).

Of the more than 450 species inhabiting westside conifer forests (Brown 1985), 119 species are riparian associates (Bunnell et al. 1997), and most will benefit from the protection and restoration of Riparian Reserves. Bunnell et al. (1997) note the importance of hardwoods and riparian headwater streams for wildlife habitats in riparian areas. Red alder (*Alnus rubra*), black cottonwood (*Populus trichocarpa*), big-leaf maple (*Acer macrophyllum*), and other hardwoods tend to be concentrated along floodplains and riparian areas to a greater degree than in uplands. These trees and their associated understory plants differ in forest structure from the surrounding conifer forest and support different arthropod communities (prey for insectivorous vertebrates). Many species of birds and mammals that are not necessarily riparian-dependent, utilize the special foraging and nesting habitats available in hardwood-dominated plant communities. Hardwoods are intensively controlled in GFMA's and on private industrial forestlands to prevent them from competing with commercial conifer species, so Riparian Reserves are likely to contain the most extensive stands of hardwoods in the Gordon Creek Watershed.

Prior to the establishment of Riparian Reserves under the Northwest Forest Plan, headwater streams were relatively unprotected under BLM resource management plans and Oregon forest protection rules. However, there is a growing understanding of the important ecological processes that occur in headwater riparian areas (e.g. collection and storage of downed wood, delivery of organic material into the stream) and their unique wildlife communities. For example, stream-breeding amphibians such as torrent salamanders (*Rhyacotriton* spp.), Pacific giant salamanders (*Dicamptodon tenebrosus*), and tailed frogs (*Ascaphus truei*) generally inhabit the uppermost portions of a watershed, presumably to avoid predation by fish. Most species of terrestrial salamander in western Oregon also reach their greatest abundance in headwater riparian areas. Vesely (1996) found that total amphibian abundance (all species combined) was almost three times greater, and amphibian species richness twice as great, in late-successional riparian forests than in narrow buffer strips. This same study found that amphibian assemblages in buffer strips meeting federal Riparian Reserve standards differed only slightly from those in late-successional stands.

Lastly, Riparian Reserves are presumed to allow movements through harvested areas by wildlife species that avoid openings or that are associated with late-successional forests, thus improving the population connectivity of these species across managed landscapes (FEMAT 1993).

Late-Successional Forests and LSRs

The Mt. Hood National Forest lands within Gordon Creek Watershed contain a portion (85 acres) of Late-Successional Reserve #201. Late-Successional Reserves (LSRs) are managed to protect and enhance late-successional forest ecosystems, which serve as habitat for wildlife species associated with such forests, such as the northern spotted owl (BLM 1994). Desired late-successional and old-growth forest conditions include:

- Multi-layered and multi-species assemblages of trees
- Moderate-to-high accumulations of snags and logs
- Moderate-to-high canopy closure
- Moderate-to-high numbers of trees with cavities, broken tops, and deformed limbs
- Moderate-to-high accumulations of fungi, lichens, and bryophytes (ROD 1994).

Not all stands within LSRs currently have late-successional forest structure, but younger stands will be allowed to develop such structure over time. Stand management activities are limited to those that promote late-successional conditions or prevent catastrophic disturbances (e.g., wildfire, insect outbreaks) that would threaten the viability of forest plant and animal species and communities.

The structural complexity and rich diversity of plants and invertebrates that characterize late-successional forest provide a wide range of ecological niches available for amphibians, birds, and mammals. It is estimated that 191 animal species are closely associated with late-successional forests (FSEIS 1994), although it is unknown how many of these species inhabit Gordon Creek Watershed. Species viability panels that were convened for the 1993 FEMAT report found that the configuration of LSRs implemented under Option 9 of the Northwest Forest Plan, provide a relatively high degree of habitat security for all but a few wildlife species closely associated with late-successional and old-growth forests (FEMAT 1993).

There are also several small (less than 80 acre), isolated patches of older forest (stand age 80 to 170 years) scattered across BLM GFMA's (see Map 5-1 in Chapter 5: Vegetation). These forest patches are too small to provide interior, late-successional habitat preferred by some wildlife species such as the northern spotted owl. However, even fragments of older forest may increase habitat suitability in surrounding BLM lands for species that are associated with edges or fragmented late-successional forest such as the pileated woodpecker (*Dryocopus pileatus*) and olive-sided flycatcher (*Contopus cooperi*).

Private Lands

Forest management practices on private lands are regulated by the state under the Oregon Forest Practices Act (1995). Harvesting rules specify protective measures be taken when logging near bald eagle nests, blue heron rookeries, osprey nests, and a number of other species identified by ODFW. The state also requires a minimum 70-acre buffer around northern spotted owl activity centers.

Several types of important habitat features are protected under Oregon Forest Practice Act rules. Tree retention rules specify a certain number of snags and live wildlife trees to be left on harvest units under certain

conditions. The Act also requires buffers to be maintained along many streams; buffer width and retention requirements depend upon the size of the stream, presence of fish, and whether it is used as a domestic water supply. However, state buffer widths are unlikely to effectively protect amphibian communities associated with headwater riparian areas (Vesely and McComb 2002).

Most industrial forestlands are intensively managed. Stands in western Oregon are usually managed using an even-aged silvicultural system and harvested when 40 to 50 years old. Stand-tending practices such as vegetation management, pre-commercial thinning, and fertilizing are all designed to accelerate the development of crop trees and minimize the competition from all other vegetation. Therefore, industrial forest lands tend to be much less suitable for wildlife species that require large trees, complex canopy structure, or abundant woody debris than forests primarily shaped by natural disturbance.

Endangered, Threatened, and Special Status Wildlife Species

Several federally-listed endangered or threatened animals are known to occur in the BLM Salem District and could potentially occur in Gordon Creek Watershed, based on their geographic ranges. The goal of the BLM is to “protect, manage, and conserve federally listed and proposed species and their habitats to achieve their recovery in compliance with the Endangered Species Act, approved recovery plans, and BLM special status species policies” (BLM 1995).

Besides endangered and threatened species, the BLM has identified a number of plant and animal species occurring on lands under their jurisdiction as having special status because of their rarity or vulnerability to management activities (BLM 2003). In Oregon, BLM special status animal species are further classified into one of the following categories based on their listing by the Oregon Natural Heritage Information Center and their Sensitive Species classification determined by ODFW:

- Bureau Sensitive Species
- Assessment Species
- Bureau Tracking Species

The BLM objectives and management direction for each of the three categories are described by BLM special status species policies for Oregon and Washington (BLM 2003).

This section of the watershed analysis addresses federally listed and special status species known to occur in the Gordon Creek Watershed or adjacent drainages. Special status species tend to be rare and are often difficult to observe. Furthermore, only very limited areas in the Gordon Creek Watershed have been surveyed for special status species. Therefore, the

absence of documented locations for other special status species does not indicate these species are not present in the analysis area.

Threatened or Endangered Species

Northern Spotted Owl (*Strix occidentalis caurina*)

The northern spotted owl is listed as threatened in Oregon by the USFWS and is protected by the Endangered Species Act of 1973. Information provided by the BLM Salem District indicates that no northern spotted owls have been known to use BLM lands in the Gordon Creek Watershed; however, surveys are lacking. The Gordon Creek Watershed does contain critical habitat designated by the USFWS for the spotted owl. Portions of Critical Habitat Unit OR-09 are located on Forest Service lands to the east of BLM lands in the watershed. It appears that all of the USFS lands are in Critical Habitat with the exception of T.1S., R.5E., sections 23 and 24. GIS databases acquired from BLM Salem District, Mt. Hood National Forest, and the Regional Ecosystem Office (REO) for this analysis have records for only one pair of northern spotted owls from the Gordon Creek Watershed in the past. The 1997 record indicates an activity center for the pair on the Mt. Hood National Forest in T1N R6E Sec. 31. The recent status of this pair is unknown.

A 1993 REO northern spotted owl habitat map that covers the entire geographic range of the species shows approximately 2,400 acres in Gordon Creek Watershed classified as suitable habitat at that time. Most BLM stands that were classified as habitat were less than 80 years old and were unlikely to have the attributes of late-successional forests preferred by the species for nesting. Several stands classified as spotted owl habitat in 1993 are less than 20 years old at present. These stands were presumably harvested after the habitat map was prepared and no longer provide suitable habitat. Currently, there are approximately 200 acres of mature (more than 80 years old) conifer stands on BLM lands in the watershed (Figure 5-1). This is perhaps the best estimate of the current extent of suitable nesting, roosting, and foraging habitat for northern spotted owl on BLM lands in the watershed. However, some of these stands occur as small, isolated fragments.

Bald Eagle (*Haliaeetus leucocephalus*)

The bald eagle is listed as threatened in Oregon by the USFWS and is protected by the Endangered Species Act of 1973, the Bald Eagle and Golden Eagle Protection Act, and the Migratory Bird Treaty Act. In 1999, USFWS proposed to de-list the bald eagle and the public comment period for this action has recently been re-opened.

Bald eagles are closely associated with estuaries, rivers, large lakes, and adjacent forests. Large trees are a particularly important habitat element that is used for roosting, nesting, and perching while hunting. There are no documented observations of bald eagles from the Gordon Creek Watershed. However many bald eagles use the Columbia River Gorge, and foraging activity by eagles has been documented in the Bull Run watershed.

Therefore, it seems likely that Gordon Creek Watershed may occasionally be visited by bald eagles. It is unlikely that the species could regularly nest in the analysis area without being detected during annual aerial surveys.

Special Status Species

Mollusks

Three special status species of mollusk are known to occur in or near the Gordon Creek Watershed. The Puget Oregonian (*Cryptomastix devia*) is a snail associated mature and old growth forests; typically under hardwood logs and leaf litter, rocks and talus, and under moss growing on big leaf maple trunks. The species has not been documented within Gordon Creek Watershed, but does occur in the nearby Beaver Creek drainage, approximately five miles east of the analysis area. Potential habitat for the species is likely to occur in Gordon Creek Watershed, particularly at the west end where there are hardwood forests with a significant amount of big-leaf maple. Suitable habitat for the Puget Oregonian on BLM lands is found only in 1S-5E-7. The Puget Oregonian is designated as a Bureau Sensitive Species in Oregon.

The Malone jumping-slug (*Hemphillia malonei*) is associated with moist hardwood or conifer forests, often found under decaying wood. The species has been found in GFMA's in T1S R5E Sec. 3 and 10 and in LSR 201 on lands managed by the Mt. Hood National Forest. The Malone jumping-slug is designated as a Bureau Tracking Species in Oregon.

The Oregon megomphix (*Megomphix hemphilli*) is a snail that tends to be fossorial and typically is associated with stands containing big-leaf maples. The species has been found on BLM lands within the watershed in R1S R5E Sec. 3. The Oregon megomphix is designated as a Bureau Tracking Species in Oregon.

Additional mollusks from the USFS Regional Forester's Sensitive Animal List for Mt. Hood National Forest and the Columbia River Gorge National Scenic Area that may be present in the watershed include the evening fieldslug (*Deroceras hesperium*), basalt juga (*Juga n. sp. 2*), Columbia dusky snail (*Lyogyrus n. sp. 1*), Dalles sideband (*Monadenia fidelis minor*), and the Crater Lake tightcoil (*Pristiloma arcticum crateris*).

Amphibians

Four species of amphibian have been documented to occur in or near the Gordon Creek Watershed. Cope's giant salamander (*Dicamptodon copei*) breeds in cold, fast-moving streams, but adults also use riparian forests. There has been one recorded location for the species in the analysis area from the North Fork of Gordon Creek. Cope's giant salamander has been designated as a Bureau Assessment Species in Oregon.

The Cascade torrent salamander (*Rhyacotriton cascadae*) breeds in very cold, headwater streams. Adults are occasionally observed in riparian areas during wet weather. Cascade torrent salamanders have been observed in Thompson

and Gordon creeks. The Cascade torrent salamander has been designated as a Bureau Assessment Species in Oregon.

The Oregon slender salamander (*Batrachoseps wrighti*) is a terrestrial-breeding amphibian closely associated with logs and other woody debris in an advanced state of decay. It is most often found in late-successional, Douglas-fir forests. The Oregon slender salamander has been found on BLM lands in R1S R5E Sec. 3 and 15. The Oregon slender salamander is a Bureau Sensitive Species in Oregon.

The Larch Mountain salamander (*Plethodon larselli*) is associated with moist rocky substrates, gravelly soil, and talus slopes. Its geographic distribution includes the Columbia River Gorge region and southern Washington Cascades. The species has been observed in Gordon Creek Watershed in the Larch Mountain area. The known sites on Larch Mountain are distinctive habitats with rocky substrates on very steep slopes, usually in canyons and ravines that flow north into the Columbia River. Other than Larch Mountain and the immediate vicinity, there are no other known habitats suitable for Larch Mountain Salamander in the Gordon Creek Watershed. The Larch Mountain salamander is a Bureau Assessment species and NWFP Survey and Manage species.

Reptiles, Birds, and Mammals

No other special status species of vertebrate is documented in Gordon Creek Watershed; however BLM biologists suspect that the following species occur in the analysis area:

The northern goshawk (*Accipiter gentilis*) is a large forest raptor that prefers to forage and nest in mature forests having a high degree of canopy closure, numerous large trees, and a relatively open understory. Home ranges of goshawks can be as large as 6,000 acres. The northern goshawk is a Bureau Sensitive Species in Oregon.

The fringed myotis (*Myotis thysanodes*) is primarily associated with buildings, mines, cliff crevices and cave habitat; and is likely found at lower elevations closer to the Willamette Valley. Like many bat species, the fringed myotis forages over water and riparian areas. The fringed myotis is a Bureau Assessment Species in Oregon.

Townsend's big-eared bat (*Corynorhinus townsendii*) is associated with conifer forests in western Oregon. Caves and mines are used as maternity roosts and hibernacula. Townsend's big-eared bats are highly sensitive to human disturbance and have been known to abandon sites after only one or two visits by humans. Townsend's big-eared bat is a Bureau Sensitive Species in Oregon.

The red tree vole (*Phenacomys longicaudus*) is associated with late-successional conifer forests, but is commonly found in younger mid seral forests. As the name suggests, the red tree vole is highly arboreal, but has been captured in

pitfall traps. The species is found throughout the western Cascades in Oregon. Douglas-fir needles are the primary diet component. The red tree vole is a Bureau Tracking Species in Oregon and a NWFPS Survey and Manage species.

Reference Conditions

Although there are no direct wildlife observations from the Gordon Creek Watershed recorded prior to forest management activities, it is possible to make some general inferences about pre-settlement habitat conditions for wildlife based on retrospective studies of forest vegetation in the western Cascades.

An analysis by the Forest Ecosystem Management Assessment Team (FEMAT) indicated that, on average, approximately 65 percent of pre-settlement Douglas-fir forests were greater than 80 years old at any given time within the current climate regime (FEMAT 1993). Other researchers report that Pacific Northwest forests in late-successional and old-growth stages may have been more extensive prior to logging by five-fold compared to current conditions (Lehmkuhl and Ruggiero 1991). This estimate suggests that mature and late-successional forest habitats were relatively well connected, which would facilitate dispersal and other movement by wildlife. Forest fire patterns in the western Cascade resulted in relatively large blocks (area greater than 1,000 acres) of contiguous forest characterized high interior-to-edge ratios (FEMAT 1993). Forest interiors have more stable microclimates than edges (Chen et al. 1993) and are more suitable to terrestrial dwelling amphibians and a number of other wildlife species. The complex structure that characterizes late-successional forests provides several important habitat elements that are less available to wildlife in younger stands. Two obvious examples: large diameter snags reported used by 54 wildlife species in western Oregon, and downed logs used by at least 69 species (Bunnell et al. 1997).

Unmanaged, early seral plant communities may have supported a greater biological diversity than any other stage of succession in Douglas-fir forests (Franklin and Spies 1991). The development of shrub-dominated stands that followed fire and other natural disturbances provided crucial nesting habitat for neo-tropical migrant birds and foraging areas for large herbivores (Bunnell et al. 1997). Hardwoods were also a prominent feature in recently disturbed areas and an important understory element in some conifer dominated forests.

A number of wildlife species that were known to occur in the western Cascades or along the Columbia River at the time of Euro-American settlement, and probably once inhabited the analysis area, have been extirpated from the region. These include the American marten (*Martes americana*), Pacific fisher (*Martes pennanti*), gray wolf (*Canis lupus*), and grizzly bear (*Ursus arctos*).

Discussion

The primary causes of change between the historic and current distribution of wildlife in the Gordon Creek Watershed included the exclusion of fire and forest management practices that have modified within-stand vegetation characteristics and landscape-scale forest patterns.

Industrial forests, and to a lesser extent, GFMA's, have less canopy complexity, fewer large trees and snags, and less diverse plant communities than do unmanaged forests shaped by natural disturbance. Forest management practices, such as manual maintenance and pre-commercial thinning, can temporally alter successional pathways. Such practices accelerate tree growth and prolong the length of time a stand may support early-seral stage characteristics like shrubs and herbaceous vegetation. The result of these management practices is likely to result in less diverse animal assemblages and lower abundance of specialist species that prefer late-successional forest conditions.

The effects of changes in landscape pattern may not be as pronounced in western forests as reported from studies in eastern North America and Europe, where forest patches are increasingly isolated in a matrix of agricultural lands and developed areas. In the western Cascades, the critical issue is really the shift from pre-logging landscapes dominated by late-successional forests to current landscapes dominated by mid-successional stands. Species with large territories and a strong affinity for older forests (e.g., northern spotted owl, Pacific fisher) and those that disperse slowly (e.g. terrestrial salamanders) may indeed already have been affected by changes in landscape-scale forest patterns. However, there is little research to indicate that other species have been similarly affected (Bunnell et. al. 1997).