



THE SUMMIT AT SNOQUALMIE MASTER DEVELOPMENT PLAN PROPOSAL

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Mt. Baker-Snoqualmie / Okanogan-Wenatchee
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View from Mt. Snoqualmie looking West at Anacostis. Aerial Photo draped over 3D terrain data.

Clearing of mature forest for ski trails, lift alignments, parking lots, and roads would affect not only the area cleared but also a parallel band of remaining forest edge. As part of operational and maintenance activities, hazard trees would likely be felled in the adjoining forest surrounding the facilities. This would increase the long-term impacts on snag recruitment by removing hazard trees that could potentially develop into snags. The impact would be roughly proportional to the acreage of mature forest cleared under this Alternative. Where feasible, hazard trees would be felled into the adjacent stand and left on the ground, contributing to CWD. Clearing of mature forest would also result in increased edge habitat and may lead to indirect impacts of increased wind-throw.

Impacts to forest habitat would result in impacts to the species associated with the different forest types listed in Table 4.6.3-2.

**Table 4.6.3-2
 Habitat by Alternative for Species Having a Primary Association
 with Forested Habitat in the Study Area**

| Forested Habitat Type | Species | Alt 1 Existing | Alt 2 | Alt 3 | Alt 4 | Alt 5 |
|---|---|----------------|----------|----------|----------|----------|
| | | (acres) | (acres) | (acres) | (acres) | (acres) |
| Mature western hemlock and pacific silver fir | Northern spotted owl ^a Marbled murrelet ^b Fisher ^d | 828.50 | 788.98 | 801.73 | 815.14 | 799.21 |
| Mature western hemlock, Pacific silver fir, and mountain hemlock | Great gray owl ^b Pileated woodpecker ^d Primary cavity excavators ^{b,c} Olive-sided flycatcher ^d Northern goshawk ^e Silver haired bat ^e Hoary bat ^e Long-eared myotis ^e Long-legged myotis ^c Yuma myotis ^c Pacific western big-eared bat ^e Marten ^e Neotropical migratory birds (30 species – see Table 3.6.1-5) | 1,053.11 | 1,007.83 | 1,025.46 | 1,037.45 | 1,020.38 |
| Immature mixed conifer- Pacific silver fir; Pacific silver fir-sapling; western hemlock | Neotropical migratory birds (11 species – see Table 3.6.1-5) | 616.07 | 611.54 | 624.10 | 621.84 | 615.79 |

a - Documented
 b - Surveyed and not found
 c - Not documented



Under Alternative 2, habitat for northern spotted owl, marbled murrelet, and fisher would be reduced from 828.50 acres to 788.98 acres for a net loss of approximately 39 acres, the most of all the Action Alternatives.

Of the 39 acres of impact, 3 acres would occur on public land and less than 1 acre on private land in the S.F. Snoqualmie Watershed, and 28 acres would occur on public land and 8 acres would occur on private land in the U. Yakima Watershed. In addition, approximately 8 acres of mature pacific silver fir would be gladed on Public land in the U. Yakima Watershed.


Loss of habitat for these species would occur primarily as a result of the permanent loss of mature forest in Section 16 (Summit East) from construction of the *Creek Run* and *Rampart* chairlifts and associated ski trails. Mature forest habitat would also be removed in the *Silver Fir* pod of Summit Central, and for the new *Internationale* chairlift and the realignment of the existing *Sessel* chairlift at Alpental. Construction treatments for these ski trails would include glading, clearing without grading, and clearing with grading as shown on Figures 2.3.3-1 and 2.3.3-2 (Alt 2) and described in Section 2.3.1.3. In addition, see Figures 4.5.1-1 and 4.5.1-2, which depict impacts by vegetation cover for the Proposed Action.

Potential impacts to northern spotted owls would include a reduction in the amount of foraging and dispersal habitat available as a result of full clearing, and potential disturbance to foraging or dispersing individuals from construction, operations, and maintenance activities. Mature forest in Section 16 between Summit East and Summit Central, particularly the area north of the proposed *Creek Run* chairlift and south of the cleared *Silver Fir* ski trails, is a large patch of relatively contiguous forest and has been identified as important to habitat connectivity for spotted owls (USFS, USFWS 1997). Potential impacts to habitat connectivity are described in Section 4.6.3.2. As described in Section 3.6.1, this area represents foraging and dispersal habitat, and historically had been considered nesting habitat (MBSNF 1995). No spotted owls were found in Section 16 (Summit East) or the rest of the Study Area during surveys conducted during 1994, 1995, 2001, and 2002. The nearest known nesting pair was found south of Mt Catherine, approximately 1 mile from the Study Area boundary (WDFW 2002, Sovern, Pers. Comm., 2004). Full clearing of ski trails would reduce the amount of foraging and dispersal habitat available in the area and would fragment existing habitat, creating increased edge habitat. This would occur in the U. Yakima Watershed in Section 16 (Summit East).

Clearing of mature forest at Summit Central and Alpental would remove portions of small islands of forest in areas that are currently highly fragmented. This clearing would reduce the overall amount of mature forest available, but not interior forest. While these islands of mature trees are not within the area of primary focus for habitat connectivity in the Study Area they do provide potential stepping stones for forest-dependent species to move through the Study Area. Reducing the size and increasing the distance between these islands may increase the risk of predation for species moving between the islands.

mountain hemlock forest would be gladed under this Alternative. These forest types combined provide potential habitat for 46 special status species known or potentially occurring within the Study Area, as shown in Table 4.6.3-2.

Surveys for great gray owls were conducted within suitable habitat in the Study Area in 1999 and 2000 with none found. For this reason, great gray owls are not expected to occur in the Study Area and there would be no impacts to this species.



Under Alternative 2, long-term impacts to pileated woodpecker and other primary cavity excavators would include the permanent removal of mature forest, which would reduce the amount of current habitat available for these species. This would result in a long-term reduction in the availability of snags both through the reduction in the amount of recruitment habitat for snags and from increasing the amount of area subject to hazard tree management. Habitat would be permanently lost within areas of full clearing with or without grading. Gladed areas would retain some habitat characteristics, particularly connective habitat between ungladed areas, however since these areas would be managed as gladed ski trails, hazard tree management would be required with snags removed on a regular basis. Snags that are felled and left in place would lose value as nesting habitat for primary cavity excavators and for secondary cavity nesters, but they would retain value as foraging habitat for pileated woodpeckers and contribute to CWD in the area. Implementation of Other Management Provision OMP 40 (see Table 2.4-2) would reduce impacts to snags and CWD.


Direct impacts to nesting woodpeckers may occur if clearing were to occur during the nesting season. To avoid these impacts, clearing of potential nesting habitat for primary cavity excavators would occur in the late summer or fall, after the nesting season for these species, as described in Other Management Provision OMP 43 (see Table 2.4-2).

Under Alternative 2, removal of mature forest habitat would also reduce the amount of nesting habitat available for olive-sided flycatchers in the Study Area. Potential direct impacts to olive-sided flycatchers include loss of nesting habitat and a localized reduction in the population. Loss of individual birds could occur during construction if vegetation was removed in suitable nesting habitat during the nesting season. Potential indirect impacts to olive-sided flycatchers may occur as a result of forest fragmentation, particularly in Section 16 (Summit East). Increased fragmentation may contribute to increased nest predation by jays attracted to the edge habitat. Olive-sided flycatchers generally produce eggs by mid-June; incubate eggs for 16 to 17 days, with the young fledging within 15 to 19 days of hatching (Baicich and Harrison, 1997). Other Management Provision OMP 43 (see Table 2.4-2) requires clearing of forested habitat after August 1, to minimize potential impacts to nesting olive-sided flycatchers.

Although no northern goshawks were detected during surveys in 1995, it is possible that goshawks may have moved into the area since that time or may occupy habitat in the Study Area in the future. As a result, there is potential for nesting and foraging habitat to be removed, particularly in Section 16

(Summit East), from chairlift, ski trail and parking lot construction. Ski trail glading may result in a further reduction in nesting habitat since goshawks typically nest in the densest areas of a forest (Johnsgard, 1990). Ski trail glading may provide an advantage for foraging goshawks, however, by removing under-story trees and shrubs used as cover by potential prey species. Goshawks have a relatively long nesting season, incubating eggs for up to 41 days and requiring 45 days for young to fledge. To avoid direct impacts to nesting goshawks, clearing or glading in mature forest habitat would occur after August 1, after the end of the nesting season, as described in Other Management Provision OMP 43 (see Table 2.4-2).

Clearing of mature forest would impact habitat for six species of bats: silver-haired bat, hoary bat, long-eared myotis, long-legged myotis, Yuma myotis, and Pacific western (Townsend's) big-eared bat. Of these species, the silver-haired, long-eared myotis, and long-legged myotis are known to roost under loose tree bark, a characteristic of mature forest. These three species and the hoary bat also utilize snags as roosting sites. Areas of full clearing within mature forest habitat would result in a reduction in the amount of roosting habitat available for these species. Snags would also be removed from gladed areas and from mature forest stands along the edges of ski trails as a part of hazard tree management. Roosting habitat would therefore be reduced in these management areas. Construction of chairlifts and ski trails would increase the amount of edge habitat in the Study Area, thereby increasing the amount of potential foraging habitat for the Pacific western (Townsend's) big-eared bat. Clearing of mature forest may also reduce roosting but increase foraging habitat for Yuma myotis. Loss of snags within the Study Area would be minimized through implementation of Other Management Provision OMP 39 (see Table 2.4-2).




American marten are known to use mature forest in the Study Area as described in Section 3.6.1. Clearing of mature forest would result in a decrease in the amount of denning, foraging, and travel habitat available for this species. Removal of snags in cleared areas, gladed areas, and in forested areas adjacent to new ski trails, roads, and parking lots would also reduce the amount of denning habitat. Impacts to travel habitat are discussed under "Habitat Connectivity". Loss of snags within the Study Area would be minimized through implementation of Other Management Provision OMP 39 (see Table 2.4-2).

Thirty species of neotropical migratory birds may occur in the mature forest habitat in the Study Area (see Table 3.6.1-5). Removal of forested habitat in the Study Area would result in a decrease in the amount of nesting habitat available for these species. Forest fragmentation may also result in an increase in nest predation since nest predators such as jays are attracted to edge habitat. Five of these species (golden-crowned kinglet, Cassin's vireo, chipping sparrow, rufous hummingbird, and Wilson's warbler) have been identified as having declining populations (Andelman and Stock, 1994) (see Table 3.6.1-5). Decreases in nesting habitat availability and increases in nest predation in the Study Area may incrementally contribute to these trends. Potential direct impacts to these species may occur as a result of clearing and construction activities during the nesting season, potentially resulting in nestling mortality. To minimize the potential

for this to occur, clearing or glading in mature forest habitat would occur after August 1, after the end of the nesting season, as described in Other Management Provision OMP 43 (see Table 2.4-2).

Eleven species of neotropical migratory birds potentially occur in the Study Area that are associated with immature forest. Clearing of this forest type would occur in the U. Yakima Watershed at Summit West, Summit Central, Summit East, and in the Mill Creek pod, as shown on Figures 2.3.3-1. Reforestation, a component of the restoration plan, is also proposed throughout the Study Area, as shown in Figures 2.3.3-1 and 2.3.3-2 (Alt 2) and described in Section 2.3.3.11. Clearing of immature forest for construction of MDP components and the eventual maturation over time of immature forest in revegetated areas would result in a reduction in the total amount of immature forest in the Study Area under Alternative 2 of 4.53 acres compared to current conditions.



The orange-crowned warbler has been identified as having a declining population trend (Andelman and Stock, 1994) (see Table 3.6.1-5). Short-term decreases in nesting habitat availability for this species in the Study Area may incrementally contribute to this trend. Potential direct impacts to individuals of these species may occur as a result of clearing and construction activities during the nesting season, potentially resulting in nestling mortality. To minimize the potential for this to occur, clearing of immature forest habitat would occur after August 1 after the end of the nesting season, as described in Other Management Provision OMP 43 (see Table 2.4-2). Conversion of 4.53 acres of immature forest habitat to modified herbaceous or developed would also result in a long-term reduction in the amount of habitat available for this species in the Study Area.

Riparian Habitat and Associated Species

For the purposes of this analysis, riparian habitat was mapped as occurring within Riparian Buffers on public land, as required under the Forest Plan (USDA AND USDI, 1994) and within stream buffers required by local ordinance on private land (Kittitas County Code 17A.07, King County Code 21A.24). Impacts to Riparian Buffers are depicted in Figures 4.3.1-3 and 4.3.1-4.

The condition of Riparian Buffers varies within the Study Area, and they have been classified as being in a natural, modified, or developed condition. These conditions and the occurrence within the Study Area are described in detail in Section 3.3 and are summarized below.

Impacts to Riparian Buffers in a natural vegetation condition include all reserves covered in natural forest (including mature and second and third growth forests) and natural nonforest vegetation types. There are 435 acres of Riparian Buffers which accounts for approximately 54 percent of the total Riparian Buffer acreage within the Study Area.

Riparian Buffers in modified vegetation condition include all Riparian Buffers cleared by historic timber harvest and for ski area operations (*i.e.*, areas maintained in early-successional conditions of grassland or shrub cover). Some areas retain their original soils, but grading has occurred in other areas. Riparian