

Appendix B1 Wildlife Species and Habitat of Concern

Federally Listed Threatened and Endangered Species

Northern Bald Eagle

The northern bald eagle had been proposed for ESA *de-listing*. If it were removed from the ESA list, it would become a Regional Forester's Sensitive species. Bald eagles make substantial use of the Puget Sound area as winter habitat, with eagles foraging along the major river systems where anadromous fish are found (Watson and Pierce, 2001).

Bald eagle presence is documented near the confluence of the White Chuck and the Sauk River (Darrington Ranger District files, USDA Forest Service). No use of the White Chuck River above the confluence is reported. Bald eagle use of the White Chuck is not suspected due to the lack of abundant forage items to attract the eagles.

The narrowness of the river drainage has high gradient reaches that do not provide numerous gravel bars for fish carcasses. However, abundant fish resources are found in the adjacent Sauk River.

Gray Wolf

An endangered species, the gray wolf originally occupied much of the continental United States, but by the 1980s occupied less than 1 percent of its range (Laufer and Jenkins 1989). In Washington State, breeding populations of wolves were reported as extinct by the 1930s (Young 1944). Wolf extirpation was believed to be a result of fur trading pressure in the early 1800s followed by the establishment of bounties in 1871 on all predators in the Washington Territory. Between 1827 and 1859, over 7,700 wolf pelts were traded from or near the Cascades in Washington and British Columbia (Laufer and Jenkins 1989). The last reported wolf shot in the North Cascades was in 1975.

While wolves are reported as habitat generalist (USDA 2002), wolf density is related to available food resources (Fuller 1989). The western Washington deer population is not known. Washington State Department of Fish and Wildlife biologists agree that the decline in deer harvests from hunting is related to the decrease in deer population. (other reference Maldenoff, 1995)

Habitat quality on the Mt. Baker-Snoqualmie National Forest and in the White Chuck watershed is currently not supporting high numbers of deer. Without the prey base, wolves are not expected to reoccupy west of the cascades. The portions of this National Forest adjacent to the crest, such as the upper White Chuck watershed, may be important for wolf dispersal, and facilitate wolf establishment in territories along the crest.

Key habitats include riparian areas, small wet and dry meadows for denning and rendezvous sites, areas with concentrated prey (deer, goat, beaver, small mammals) and areas away from human disturbance. Wolves are reported as particularly sensitive to disturbance during the denning and rendezvous periods (April through August).

Throughout the 1990s, there were numerous reports of wolves in the North Cascades. In 1991, wolf activity was documented in an area along the Cascade Crest south of the White Chuck River drainage. District survey efforts included howling surveys along the Cascade Crest in the early to mid 1990s, but no detections of wolf response were recorded, however, numerous coyote responses were noted (Darrington Ranger District files, USDA 1992a). There have been no recent reports of wolf sightings in the North Cascades, and at this time, wolves are not suspected to be present in the analysis area or on the MBS.

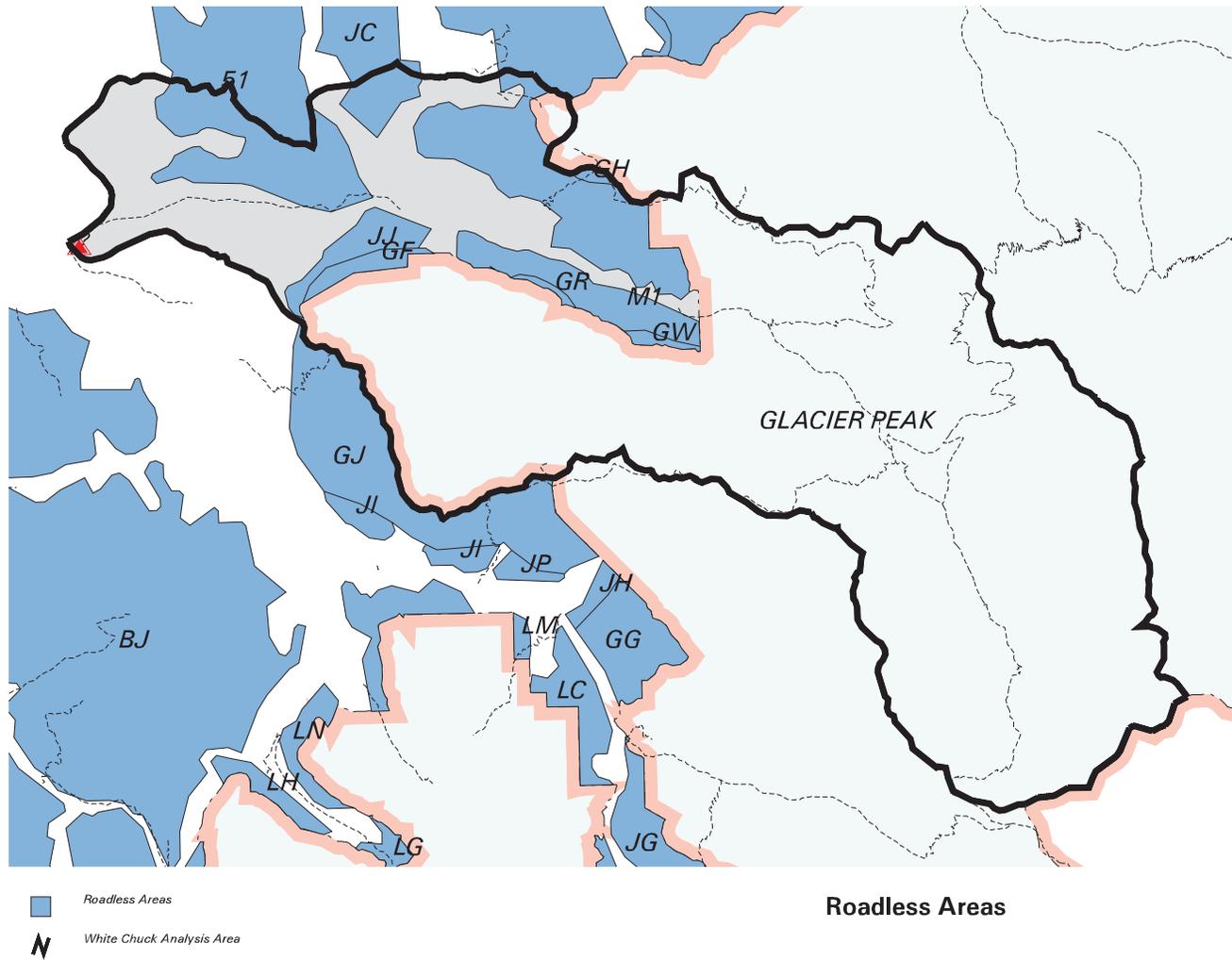
Canada Lynx

Lynx were federally listed as a threatened species in 1999 across their range in the northern United States. The lynx is not considered historically abundant in Westside habitats (USDI 2000). Habitat modeling for the lynx includes the sub-alpine forest zone, but this forest association exists in such small acreage on the Forest that no lynx management areas have been designated on this National Forest.

Limited hair-snagging surveys were conducted in the Cascades from 1998 to 2001. In 1998, one year of hair-snagging surveys included the White Chuck River drainage, with no detections reported from the DNA testing of hair gathered. Surveys from 1999 to 2001 in the North Fork Nooksack River and Canyon Creek drainages (north on the Mt. Baker Ranger District) did not result in any positive testing for lynx.

Since the White Chuck River drainage extends to the crest of the North Cascades, there is potential for dispersing animals to move through the area from eastside habitat. Areas with the most potential for use by dispersing animals would include the upper reaches of the White Chuck River drainage in the Glacier Peak Wilderness. Habitat in western Washington is not believed to support the snowshoe hare prey base for resident lynx, so transient animals are not expected to compete well with resident populations of bobcat and cougar.

Figure 1 Riparian Reserve Structure



Pacific Northwest Regionally Listed Sensitive Species

Peregrine Falcon

The peregrine falcon, “de-listed” in 1999 as an endangered species, is listed as a Pacific Northwest Regional Forester’s Sensitive species. Peregrines use cliffs for nesting and often forage on larger lakes, rivers, streams, and riparian areas for smaller birds and waterfowl. While there are no known or historic aeries within the basin, there is suitable cliff habitat for nesting on the face of White Chuck and Pugh Mountain. Although these areas are adjacent to riverine systems, they may not have sufficient avian prey items to support breeding pairs in the watershed.

Wolverine

The wolverine is a Regional Forester’s Sensitive species and has been petitioned for listing under ESA. The Wolverine is a rare species in Washington State with limited sightings and records (Johnson, D. H. and T. A. O’Neil (Manag. Dirs.) 2001 and Ruggiero, L.F., K.B. Aubrey, S.W. Buskirk, J.L. Lyon, W.J. Wielinski, tech eds. 1994). Trapping pressure in the United States and Canada is suspected of reducing the population to very low numbers during the early part of the 1900s. Wolverine requires relatively large areas of undisturbed habitat in upper elevations, with reported home range size in south central Alaska of 25,940 acres (Ruggiero et al. 1994).

The Glacier Peak Wilderness in the White Chuck drainage contains older forests, rock talus, and sparsely vegetated areas that are expected to provide suitable wolverine habitat. Wolverine use of these sites could be influenced by a limited prey base and by human disturbance such as along high recreational use such as the Pacific Crest Trail.

There are no verified records of wolverine in the White Chuck River drainage. In 2002, there were reports of a small bear-like animal in the Lake Byrne area, that fit descriptions of a wolverine, but no verification of this sighting was made. In 2003, there were additional reports near Lake Byrne of an aggressive animal that fits the description of wolverine. The habitat in the Lake Byrne area is consistent with descriptions of suitable habitat for wolverines. Reliable sightings have been reported from the Sauk River basin and Cascade Pass (Payne and Taber, 1974) so wolverine is likely to be present in the watershed.

Grizzly bear core habitat is expected to provide benefits to not only bears, but also to species such as the gray wolf and the wolverine. The security areas described in the grizzly bear section may also serve wolverine. Glacier Peak Wilderness provides habitat values for wolverine that are relatively high. Connecting habitat for wolverine dispersal is also high with adjacent drainages included as part of Glacier Peak Wilderness. Connectivity of habitat is strongest in the adjacent river drainages to the north, south, and to the east. A range wide conservation strategy developed for forest carnivores by Ruggerio et al. (1994) identified the analysis area and adjacent portions of the White Chuck River basin as primary habitat for the conservation of the species.

Townsend's Big-Eared Bat

Townsend's big-eared bat is a species of concern in the NWFP ROD, a candidate for federal listing, and a Forest Service sensitive species. Little information is known about current populations of this species, and there are currently no detections of Townsend's Big-eared bats in the white Chuck drainage. The species is associated with caves for breeding and secondarily for foraging. Riparian habitats are also used for foraging. Habitat inventories are currently insufficient to accurately identify and locate available habitat. Bridges and old buildings may also be used as hibernacula. In 1999, the barn at the Darrington compound had confirmed use by Townsend's big-eared bats during the summer months. Big-eared bats were also confirmed to be roosting underneath a bridge on Road #26 on the Suiattle River. Given these detections, it is likely that big-eared bats could be within the White Chuck area for roosting and foraging.

Regional Survey and Manage Species

Mollusk Specie of Concern

Of the mollusks identified in the 1994 ROD as being of heightened concern (survey and manage species), eight initially had the potential to occur in the northern sub-Province (from Burke 1994). These species were associated with diversified late seral stands, most often in riparian zones, and within the lower elevations (western hemlock and silver fir zones). A revised Record of Decision for Survey & Manage was signed in January 2001 and became effective on February 11, 2001. The species requiring pre-disturbance surveys are reviewed and the list updated annually. The current list of species and category assignments was distributed February 21, 2003. This update of Survey and Manage species has excluded all but one species from the list of terrestrial wildlife concern species for the northern part of the Mt. Baker-Snoqualmie National Forest (USDI and USDA 2003). Limited project surveys have been conducted to date in the White Chuck area, with no detections of the target specie in the watershed.

Table 1 Mollusk Specie of Concern

Common Name	Scientific Name	Habitat at Collection
Puget Oregonian (snail)	<i>Cryptomastix devia</i>	Low to mid elevations, old growth/riparian associate, leaf litter along streams, under logs, among brush, and in talus.

Mt. Baker-Snoqualmie Forest Management Indicator Species

Black-tailed Deer

Black-tailed deer occur throughout the area, although in low numbers. The quality of forage in large unbroken expanses of forest seldom supports large numbers of deer (Crouch, 1981). Historically, deer are not reported as abundant in the forest areas, with hunting success sought in the meadow areas of the upper elevation ridges.

Meadow Mountain in the White Chuck drainage was a traditional hunting area in the early 1900s. (A. Ryals personal communication 2002). Deer populations in the Sauk River were reported to have responded to 1930-1940's timber harvest that created large foraging areas. In the Sauk River drainage, a large railroad logged area of the 1930s was posted as a game preserve for many years due to the increased number of deer in the valley (A. Ryals personnel communication 2002). Near the Bedal campground (confluence of the N.F. Sauk River with the Sauk River), an old metal sign was found with faint letters that proclaimed the area to be a game preserve. The sign was located at what was described by Art Ryals as the south end of the "preserve". (P. Reed 2002).

Following fire or timber harvest, there is a period of abundant forage until trees shade out shrubs, and herbaceous species. Deer populations fluctuate in response to this plant succession with increased populations during abundant forage periods, and decreasing numbers with conifer domination (Brown 1961).

Based on harvest information, black-tailed deer were consistently harvested in numbers exceeding 1,000 animals annually from the Snohomish County area during the 1950 and 1960s. While increase in harvest may reflect improved access, and equipment, deer populations were considered to have increased during the middle part of the century. (get reference)

Areas considered important deer wintering areas include the south facing slopes of White Chuck and Meadow Mountain. The valley floor of the White Chuck River is a cold-air drainage, while the mid-slope area is a thermocline with warmer temperatures. Much of the optimal cover is found on the lower slopes of White Chuck, while much of the lower slopes of Meadow Mountain has been harvest and is in stands of 20-40 years of age.

Harvest of black-tailed deer is managed by the Washington Department of Fish and Wildlife (WDFW). WDFW records of harvest provide likely trends in the population. Harvest declined throughout the 1990s with the 1999 WDFW report showing the first increase in deer harvested in GMU 448 in several years. Deer forage habitat in the White Chuck drainage is expected to decrease as the forest canopies increase in timber harvested areas, and available forage is further reduced.

During the late buck hunt, and during the winter months, deer are more vulnerable to mortality from hunting or harassment off favored wintering areas. Attempts to reduce vulnerability to harvest (both legal and illegal) or harassment includes limiting open road density, and seasonal road closures during critical breeding and wintering periods.

American Marten

American or pine marten are a Forest MIS closely associated with mature and large tree conifer habitat in the Silver-fir zone. (Marshall 1993 and Buskirk and Ruggiero 1994). High canopy closure (70%) of conifers, an abundance of down logs, snags, and large diameter conifers provide optimum habitat for the species (Ruggiero et al. 1994). Studies in the southern portions of the sub-Province found that marten used old growth and large tree stands more often than their proportionate distribution (Jones 1991).

Marten have been reported in locations along the White Chuck River in Glacier Peak Wilderness (district files). Kennedy Hot Springs was used by a trapper in the 1930s. Glacier Peak Wilderness and the Inventoried Roadless areas have high habitat quality so populations of marten are expected to occur throughout much of the White Chuck drainage. Current trapping efforts often are concentrated along roaded areas so the large unroaded portions of the drainage are considered important for marten.

Habitat for potential prey species is likely to increase with additions of coarse woody debris and shrub growth in areas of looper infestations, blowdown, or other small forest openings. Coarse woody debris is thought to enhance winter foraging habitat, with down logs provide access under the snow. While the NWFP provides for management of much of the late successional forests, the association of the marten with the Pacific silver-fir zone and down wood provides another monitoring species for evaluation of ecosystems in the Pacific silver-fir zone.

Pileated Woodpecker and other Snag Dependent Species

The pileated woodpecker is a Forest MIS for the unique habitat of snags, dead and dying trees. There are over 141 vertebrate species in the region, which use snags and downed log material (CD-Rom Matrixes for Wildlife-Habitat Relationships in Oregon and Washington in Johnson and O'Neil, Manag. Dir. Wildlife-Habitat Relationships in Oregon and Washington, 2001). Of these, 53 make primary use of snags for breeding activities, such as nesting. Pileated nests are typically found in a hard snag of 25 inches DBH or larger. Since the pileated nest snags are the largest size class for the Westside woodpecker species, the pileated is used as the "umbrella" species to promote habitat for woodpeckers that can utilize smaller diameter trees. While smaller diameter trees can be used by many of the west-side woodpeckers, there is a disproportionate use of large-diameter snags as nest trees (Lundquist and Mariani 1991).

Snags are characteristic of old growth or unmanaged forest stands where stand development includes retention of standing dead trees; but snag habitat is associated with stands of various age classes. The White Chuck drainage with over 60 percent of the drainage in forests greater than 200 years of age is expected to meet desired snag and down wood habitat through out most of the area.

Manuwal (1979) found an inverse relationship between snag dependent bird species abundance and elevation on the Olympic Peninsula, as was found by Lundquist (1988) working in the Washington Cascades. In the White Chuck drainage, only 17 percent of the area is within the western hemlock zone, and 24 percent of the area is within the Pacific Silver fir zone, leaving 40 percent the area is in the lower elevations.

There are 4,900 acres of mature to old forest stands in the western hemlock zone and approximately 10,000 acres of mature to old forest stands in the Pacific silver fir zone. These areas are expected to meet 100 percent of the woodpecker and primary excavator needs.

The Forest Plan requires retention to support 40 percent of a woodpecker population levels on lands managed for timber, and 100 percent population levels within riparian areas and lands not receiving a timber emphasis (USDA 1990).

In the White Chuck drainage, there are approximately xxxx acres where snag habitat levels are projected to be below minimums established by the Forest Plan. These areas are deficient in large diameter (greater than 25 inches DBH) snag habitat from timber harvest activities where snags were not retained within harvest units. These areas are currently in early seral stages such as the sap-pole or closed immature forest stands.

As the forest stands mature, competition for space, mortality will result in the recruitment of small diameter snags. It is expected to take 75 to 80 years for stands to develop large diameter trees and subsequent snag recruitment to begin in the over 20 inches dbh (diameter at breast height) size class.

Insects, fire, root rot, snow breakage, and windstorms can all result in concentrations or snags in the landscape. Within the White Chuck River drainage, there have been no noticeable outbreaks of disease, fire, or insects in recent years. A winter storm in 1999? Caused a small 10 acre blowdown with some snags left after the tops blew out, near the confluence of the Sauk and White Chuck Rivers. A 1940? Fire in the Pugh Creek drainage left a snag patch, and the south slope of White Chuck have old burns with cedar snags still visible.

The distribution of insect impacts such as the hemlock looper infestation or disease pockets across a variety of slopes and elevations can enhance the area's habitat diversity. Lundquist (1988) found a definite correlation between wet plant associations and drier PAGs as related to breeding bird abundance. Some species, such as the chestnut-backed chickadee, prefer wet plant associations, while other species were associated only with dryer types.

Many species associated with old growth and mature habitats have been observed to use open habitats more often for foraging while nesting in adjacent late seral stands. Pileated woodpeckers and northern spotted owls have been observed in younger stands where structural components such as snags, downed wood are retained (Lundquist 1988; Foresmen 1988; Irwin 1991). Pine marten have been observed in relatively young stands where high amounts of large down wood were maintained (Ruggerio et al. 1994).

Prey species such as hawks and owls, which are associated with down logs, are likely to benefit for several decades from the wind throw and insect outbreak. The persistence of an individual snag created by insect or looper infestation will vary depending on its size, the tree species, how it died, and subsequent invasion by rots and fungi. Lundquist (1988) reported hemlock species persistence of 15 years in the southern Washington Cascades, a relatively short life compared to other species. This is attributable to heart rot common in this species while still alive, whereas other species tend to decay from the outside in, a longer process. Engelhart (1957) reported on studies of hemlock deterioration resulting from a looper infestation in British Columbia. All tree species reached the cull condition by the seventh year following the outbreak.

Birds of Conservation Concern

The Mount Baker-Snoqualmie National Forest (MBS) is located at the northern end of the Southern Pacific Rainforests physiographic area (USDI, Fish and Wildlife Service. 2002, and unpublished paper –MBS files). In this area, bird populations are maintained in coniferous forest areas through forest management allocations that promote older age classes of interior forest, and through a variety of silvicultural practices that provide structural and seral age diversity. The MBS has a large portion of the Forest in Wilderness designation, Late Successional Reserve, Riparian Reserve, Wild and Scenic Rivers, and other allocations that maintain large portions of the landscape in older age classes. Habitat is provided for in higher level plans (Forest/regional), and promoted across the landscape so that population concerns for a large number of land birds at less of a concern at the project scale (unpublished paper – MBS files)

Bird habitat of lowland riparian flood plains has limited representation on the MBS. Forest plan direction to promote riparian forest habitat, restoring stream flows and riparian vegetation is expected to contribute to the conservation of land birds that find optimal habitat in riparian forests.

The only priority habitat in the Southern Pacific Rainforest physiographic area that occurs on the MBS and within the White Chuck watershed analysis area is coniferous forest. There are 22 priority land bird species identified for this habitat, all but 4 (mountain quail, Allen's hummingbird, Lewis' woodpecker, and white-headed woodpecker) occur on the Forest (Table 1). Twelve of these are neotropical migrants.

Table 1. Priority bird species of the Southern Physiographic Rainforest province occurring on the MBS, their migratory status, and representation as focal species for the Cascades Mountains (C) and Puget Sound lowlands and valleys (L) in the Oregon/Washington Bird Conservation Plan.

Table 2 Birds of Concern

Priority Species	Neotropical Migrant	Focal Species
Blue Grouse		
Band-tailed Pigeon		C
Northern Spotted Owl		
Black Swift	X	C
Vaux's Swift	X	C
Rufous Hummingbird	X	C
Willow Flycatcher	X	L
Hammond's Flycatcher	X	C
Pacific-slope Flycatcher	X	C
Cassin's Vireo	X	
Hutton's Vireo	X	C
Chestnut-backed Chickadee		
Golden-crowned Kinglet		
Swainson's Thrush	X	L
Black-throated Gray Warbler	X	C
Hermit Warbler	X	C
MacGillivray's Warbler	X	
Black-headed Grosbeak	X	

West-Side Coniferous Forest

West-side coniferous forests appear to have more stable land bird populations than more coastal forests. There are only 8 land bird species with significant declining trends in the Cascade Mountains coniferous forest, compared with 25 in coastal forests of the lowlands and valleys. This is likely due to more extensive, greater magnitude, and more permanent habitat changes in lower elevation forests.

The Oregon/Washington Bird Conservation Plan identifies 5 forest seral stages (early, pole, young, mature, and old-growth). It further identifies attributes (snags, shrubs, canopy closure, etc.) that often vary within a seral stage. Combinations of seral stage and stand attributes were used to identify focal species. The 20 focal species represent combinations of forest seral stages and structural characteristics. Nine of the twenty are priority species identified for the physiographic province. One focal species, western bluebird, does not occur in our area.

Because more than 80% of the MBS is in land allocations that will provide large amounts of old-growth and mature seral stages, 5 focal species will be adequately provided for without additional management considerations. Vaux’s swift, brown creeper, red crossbill, varied thrush, and pileated woodpecker are focal species limited to old-growth and mature seral stages and are expected to occur well distributed throughout the MBS under existing land management direction.

The remaining 14 focal species (Table 3) are identified for early – young forest seral stages or unique habitats. Five of these (hermit warbler, pacific-slope flycatcher, Hammond’s flycatcher, Wilson’s warbler, and winter wren) are also focal species for

Table 3 Focal species, associated forest seral stages younger than mature and associated habitat attributes for west-side coniferous forests.

Focal Species	Forest Seral Stage(s)	Habitat Attribute
Hermit Warbler	Mature/Young	Closed Canopy Forest
Pacific-slope Flycatcher	Mature/Young	Deciduous Canopy Trees
Hammond’s Flycatcher	Mature/Young	Open Mid-Story Layer
Black-throated Gray Warbler	Young/Pole	Deciduous Canopy Trees
Wilson’s Warbler	Mature/Young	Deciduous Understory
Winter Wren	Mature/Young	Forest Floor Complexity
Hutton’s Vireo	Pole	Deciduous Subcanopy/Understory
Olive-sided Flycatcher	Early	Residual Canopy Trees
Orange-crowned Warbler	Early	Deciduous Vegetation
Rufous Hummingbird	Early	Nectar-producing Plants
Band-tailed Pigeon		Mineral Springs
American Pipit		Alpine
Black Swift		Waterfalls
Lincoln’s Sparrow		High-elevation wet meadows

mature seral stages and therefore may be largely accommodated in LSRs, wilderness, and other land management allocations where mature forests are expected to represent > 15% of the landscape. Management attention and planning for the habitat needs of land bird species is limited to early – young seral stages or unique habitats within the White Chuck watershed. Where there are inclusions of floodplain riparian habitats that contain > 30% deciduous trees, focal species of the lowlands and valleys may be present.

Summary: There are 20 focal species identified by the Partners in Flight State Plan for Oregon and Washington for west-side coniferous forests. Western bluebird does not occur on the MBS. Vaux's swift, brown creeper, red crossbill, varied thrush, and pileated woodpecker are focal species limited to old-growth and mature seral stages and are expected to occur well distributed throughout the MBS and the white Chuck watershed under existing land management direction without additional management considerations. Hermit warbler, pacific-slope flycatcher, Hammond's flycatcher, Wilson's warbler, and winter wren are also focal species for mature seral stages and therefore may be largely accommodated in watershed's wilderness, and other land management allocations (mature forests are expected to represent > 15% of the landscape). Habitat management in younger seral stages would provide additional habitat for this latter group and may be important in landscapes limited in older seral forests.

Management attention and planning for the habitat needs of west-side coniferous forest land birds on the MBS is most important for focal species limited to early – young seral stages or unique habitats. Black-throated Gray warbler, Hutton's vireo, orange-crowned warbler, and rufous hummingbird are focal species limited to early and pole seral forests and are associated with deciduous woody vegetation. Pre-commercial thinning prescriptions can also be modified, where necessary, to meet habitat objectives.

There are also some implications for decisions on wildfire suppression in the mountain hemlock zone. This area serves as migration habitat for rufous hummingbird and habitat for this species could be improved if wildfires were allowed to burn within prescription to provide additional meadows as late summer and fall foraging habitat.

Other Priority Bird Species

Chestnut-backed chickadee, Cassin's vireo, black-headed grosbeak, MacGillivray's warbler, and golden-crowned kinglet are priority bird species that are not focal species for the lowlands and valleys or Cascades Mountains. The black-headed grosbeak has increasing long and short-term trends in the Cascades Mountains. Cassin's vireo trends have been increasing in the short-term in the lowlands and valleys and the Cascade Mountains. All others show decreasing trends in the lowlands and valleys, and the golden-crowned kinglet also shows a decreasing trend in the Cascades Mountains.

Black-headed grosbeaks are common at low elevations in deciduous forests, mixed conifer-deciduous forests at low to moderate elevations. They are neotropical migrants that winter in Mexico. Highest quality breeding habitat is found at elevations below the silver fir forest zone. Good habitats are believed to be agriculture, wetlands, forest openings, deciduous forest, and mixed conifer-deciduous forest. Where conifers dominate stands, black-backed grosbeaks become scarce or absent.

Cassin's Vireo are uncommon in the lowlands and valleys and along river valleys in the Cascade Mountains. Primary habitat occurs in the western hemlock forest zone. This is a bird of drier forest conditions, which explains its low abundance on the MBS. It is more common in habitats with conifers than other vireos. It is likely more abundant in stands that do not have complete canopy closure.

MacGillivray's warblers are common in shrubby areas imbedded in a conifer forest matrix. Breeding habitat includes all forest zones on the MBS. Optimal habitats include shrubby wetlands and forest openings. Mid to late-successional forests in wet forests are not considered to be breeding habitat.

Chestnut-backed chickadee are common in all conifer forest zones. They are less common in deciduous forest and parklands.

Golden-crowned kinglet are common in closed canopy forest at all elevation zones. Low quality habitat includes hardwood forests, wetlands, and parkland habitats.

Band-Tailed Pigeons

Band-tailed pigeons experienced statewide population trend declines in Oregon and Washington during the late 1980's and Washington's band-tailed season was closed in portions of the State from 1991-2002. Hunting of band-tailed pigeons was closed statewide in 1995. In 2002, the three-year average index for pigeon numbers was above the reopening level in the State's management plan. The band-tail season runs from September 15-23 with a bag/possession limit of 2/4. Hunters are required to obtain a permit and submit a mandatory harvest report to participate (Washington Hunting News, Krager, 2003). In 2002, there was a total reported harvest of 273 band-tails. A similar season was approved for 2003.

These pigeons are attracted to mineral springs and are susceptible to habitat loss adjacent to mineral springs. They will use a variety of lower elevation riparian habitats and make primary use of hardwood and conifer wetlands for breeding. They can be observed in clearcuts and younger forests that serve as foraging habitat, feeding on mountain ash, and elderberry. Band-tailed pigeons have been observed in the Mt. Pugh area, Circle Peak, Meadow Mountain, and the White Chuck River valley. Band-tailed pigeons use the mineral spring area at Kennedy Hot Springs, and frequently roost in the forest stand above the springs.

Vaux's Swift

Vaux's swift are a State species of concern. They are neotropical migrants occurring in all elevations. They breed primarily in old growth forest but use early and small tree habitats for foraging. This species is dependent on large, old growth trees, broken top snags, and trees with larger cavities, which are used for roosting sites. Use of these sites for roost play a major role in thermal regulation and energy budget of the species.

Old-aged forests or late seral stands are abundant in the White Chuck drainage with much of the drainage having forests that have a stand year of origin of 1668 and 1701. Between Stujack Creek and Pugh Creek, there is a pocket of forest stands with a stand year of origin of 1300. These stands likely contain the large mature and decadent trees used as roost sites by this species

Other Species of Interest

Fisher – update with Regional information

The fisher was a candidate species for federal listing and is a candidate for threatened status in Washington State. Current populations in Washington and Oregon are extremely low, and may be on the verge of extirpation in Washington (Powell and Zielinski 1994). Species susceptibility to trapping either for the species directly or when trapping other species (incidental take), is the likely cause of early population declines or possible extirpation from 1800 to 1940. Timber harvest and settlement progressed through the early 1900s resulting in elimination or fragmentation of habitat available to the species. Despite formal protection by the State in 1950, cumulative effects of habitat loss and continued susceptibility to incidental take, has resulted in low population. Trapping for pine marten still occurs in the province, which may influence fisher populations. FEMAT (USDA et al. 1993) recommended closure of marten trapping in areas of range overlap in Washington, California, and Oregon to reduce incidental take of these species.

In the western states, fisher appears to be closely associated with large tree successional habitat. The structure of available habitat is more important than species composition. Habitat characteristics include a diversity of tree sizes and shapes, light gaps, and associated understory vegetation, snags, fallen trees and limbs, and tree limbs close to the ground. Riparian areas are used disproportionately to their availability and are likely used for movement and dispersal corridors. Areas used disproportionate to their availability had high canopy closure.

Fisher prey on small to medium sized mammals and birds including snowshoe hare, porcupine, mice and voles, and will take carrion and some fruits. Fisher will forage in small tree or early seral stands provided sufficient overhead cover exists and it is in proximity to large tree forest. The species may be susceptible to fragmentation of these habitats. Large tree structural habitat classes and snags are used for denning and resting.

Most recent fisher observations have been below 3,000 feet in elevation, which may in part be due to snow accumulation. Deep snows can inhibit fisher movements, dispersal, distribution, and re-colonization of unoccupied habitats. The fisher's primary prey also tends to move downwards in winter congregating in lowland conifer types. Available habitat is considered roughly synonymous with the distribution of the western hemlock and lower elevation silver fir vegetation zones.

Throughout the species' range, fisher apparently avoids large non-forested areas (Heinenmeyer and Jones 1994). Clearcuts, non-forest sites (grasslands, large meadows) and areas above timberline are rarely used, if at all. Large expanses of non-forest sites can inhibit dispersal and re-colonization of unoccupied habitats.

Breeding occurs from January through April, with kits born in late March to early April following a 10-month delayed implantation. Females breed at age 1, but do not have their first litter until age 2. Juveniles usually disperse from early to late winter. While fisher appear to be tolerant of moderate levels of human disturbance, high road densities that provide access for trapping, timber harvest, or settlement which fragments habitat may indirectly degrade habitat quality. Combined with high trapping efforts, it is reasonable to assume this species may have been extirpated.

Throughout the basin and the northern Province, connectivity of low elevation habitat is an issue. Without the availability of low elevation dispersal areas, existing populations are at an increasing risk of isolation. Figure XX displays various aged habitat with older forests fisher habitat for dispersal through in the river basin.

In the lower White Chuck River watershed, mature and old growth habitat within low elevation riparian reserves is limited and occurs in small to medium size stands. There is limited information for fisher home range size in the North Cascades. From studies across the country (California to Maine), territories of male fisher range from 20 to 80 sq. kilometers (GTRM-254, 1994), and territories of females range from 4 to 30 square kilometers. Without local survey data, modeling population viability for the North Cascades would be premature, but if a viable population had an effective size of 50 animals (half of which were male) then fisher populations would need a range of 600 to 2,000 square kilometers.

The occurrence of large contiguous mature and old growth stands in the upper White Chuck River is expected to provide potential fisher habitat. Based on a home range size of 600 to 2,000 kilometers and habitat quality requirements, the analysis area would contribute to fisher habitat especially in conjunction with adjoined wilderness areas. The conversion of the lower White Chuck drainage to earlier aged forest stands currently limits the amounts of suitable habitat found at the lower elevations. The mix of younger aged stands and suitable habitat in the valley floor is expected to provide for dispersal of this species, but may still be a limiting factor for adequate winter habitat.

Northern Goshawks

Northern goshawk was a candidate for federal listing, but has been reviewed and found to not warrant listing. This species relies on small conifer to large conifer habitat availability. It prefers north facing slopes in wetter sites. In the 1990s, the WDFW conducted goshawk surveys in the White Chuck drainage.

There were no additional sites located in this review than the historic Upper White Chuck site, where a goshawk defended its territory from climbers and backpackers along the Pacific Crest Trail (1980s). Surveys by the DNR have resulted in detections of goshawks in second growth stands containing a mix of alder and conifers (Egtvedt, L. Personal communication 1998).

Harlequin Ducks

Harlequin ducks are a riparian using species that occur throughout the basin. Important habitat for breeding populations includes mature and large conifer forest or mixed forest stands within riparian zones of Class 1 through 3 streams. Harlequins arrive on their breeding grounds in March or April, typically selecting low gradient reaches of rushing streams. Breeding occurs over a four-week period, with incubation of eggs for approximately 30 days (Genter 1993). Because nests are built along the stream edge, nesting success can also be influenced by spring runoff rates, with higher rates reducing reproductive success. Nesting success is suspected to be impacted by feral cats and dogs, other predators, and recreational users.

Harlequins are suspected to use most of the White Chuck River drainage, they have been observed along the White Chuck River near river mile x (below the ERFO repair site), and in the upper drainage near Kennedy Hot Springs. Maintenance of water quality and down wood is important for caddis flies, a major food source of harlequins (Oregon studies). Down wood also provides potential nesting and hiding sites within the riparian areas.

Bat Species of Concern

The following bat species are also dependent on mature and large tree forests, but forage over riparian zones and water. Protection of roosting sites and surveys of potential habitat are required for these species.

Hoary bats roost in large, live trees with foliage 5-12 meters off the ground, and are strongly associated with mature forests. They mainly forage on large moths in riparian areas or forest ridges.

The long eared myotis occurs at all elevations. It forages on moths at the edges of mature forests. Roosts are in crevices in caves, mines, snags, and trees. Small water sources such as ponds in forest clearings appear to be important for this species.

The silver haired bat is strongly associated with old growth forests for roosting and foraging. Day roosts are primarily within large snags and decadent trees; it rarely enters caves. They are closely associated with riparian areas, and are known to use riparian corridors for travel.

Fringed myotis bats roost and hibernation sites include crevices in caves mines, and old wooden buildings. Snags and trees also appear to be used. They are generally found in proximity to mature forests. The availability of snags for roosting has declined considerably from historic conditions.

The long legged myotis bat occurs in conifer habitat. It pursues insects high over the forest canopy feeding almost exclusively on moths, primarily within riparian zones. It uses caves, mines, bridges, trees for roosting and hibernating.