

# **Supplemental Vegetation Information and Biological Evaluation for the White Pass Ski Area Expansion Proposal**

## **Prepared For:**

U.S. Forest Service  
Okanogan-Wenatchee National Forest  
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## **Executive Summary**

This Vegetation Technical Report and Biological Evaluation (VTR&BE) has been prepared to supplement the analysis of vegetation and wildlife resources for the White Pass Ski Area Proposed Expansion Final Environmental Impact Statement (FEIS). It is intended to provide a bridge between the information presented in the FEIS and the complete record of information contained within the administrative project file maintained by the U.S. Forest Service. As such, this VTR&BE presents an analysis of the forest structure present within the White Pass Study Area and an evaluation of the effects of the Action Alternatives on proposed, endangered, threatened, and sensitive (PETS) botanical species that are suspected of occurring within the White Pass Study Area.

The first part of this report documents the forest structure of the White Pass Study Area. The forest structure refers to the tree size, canopy components, and canopy closure of the forested communities. The structure of the forest plays an important role in the types of habitat present that would be suitable for different wildlife species. Additional information on wildlife species and their usage of habitat within the White Pass Study Area can be found in Section 3.6 – Wildlife of the FEIS and the Wildlife Technical Report and Biological Evaluation in Appendix H.

The second part of this report contains the biological evaluation of PETS botanical species suspected of occurring within the White Pass Study Area. This BE concludes that there will be **No Impact** to PETS botanical species under any of the Action Alternatives because no species have been documented within the White Pass Study Area during any of the surveys/analyses conducted between 1987 and 2004.

## **1.0 Introduction**

### **1.1 Project Location and Alternative Description**

The White Pass Study Area lies within the Cascade Mountains and is located on Highway 12 approximately 55 miles west of Yakima, Washington. The White Pass ski area is within the boundaries of the Gifford Pinchot (GPNF) and Okanogan-Wenatchee National Forests (OWNF). Both the Upper Tieton and Clear Fork Cowlitz River watersheds occur in the White Pass Study Area.

Land use activities within the White Pass Study Area have contributed to the existing land cover, as represented by the mosaic of vegetation communities and developed areas that comprise the existing vegetation conditions. Vegetation within the White Pass Study Area is characterized by descriptions of the existing vegetation communities that occur in the entire White Pass Study Area and the forest structure of these communities. Existing data for the vegetation communities was compiled from the available GIS datasets, the watershed condition assessments (USDA, 1998a and USDA, 1998b) and the administrative record.

## 1.2 Methods

### *Existing Forest Structure*

The forest structure was inventoried by characterizing forest stands on the ground and assimilating the data into GIS layers maintained by the GPNF and OWNF. For the White Pass FEIS analysis, vegetation information contained in separate GPNF and OWNF GIS datasets were merged into a single layer for the White Pass Study Area. The merged GIS data was supplemented with ski trail talus slope mapping from rectified aerial photographs and field data collection. Finally, the vegetation communities and forest structure were characterized following the procedures outlined in “Wildlife Habitat Relationships in Washington and Oregon” (Johnson and O’Neil, 2001) to address wildlife habitat occurrence.

## 1.3 Results

The existing forest structure within the White Pass Study Area has been classified based on the average size of trees, average canopy closure and the number of layers present in the canopy. Tree size is defined in terms of the diameter at breast height (DBH) of the dominant and co-dominant tree species. Tree size categories are shown in Table 3.5 – FEIS1.

**Table 3.5 – FEIS1  
Tree Size Categories**

| <b>Tree Size</b> | <b>Diameter at Breast Height (inches)</b> |
|------------------|---|
| Small            | <21                                       |
| Medium           | 21-32                                     |
| Large            | >32                                       |

Canopy coverage is expressed as a qualitative name given to represent a range of the percent closure. Canopy coverage categories are shown in Table 3.5 – FEIS2.

**Table 3.5 – FEIS2  
Canopy Coverage Categories**

| <b>Canopy Closure</b> | <b>Canopy Coverage Percent</b> |
|-----------------------|--------------------------------|
| Open                  | <10%                           |
| Low                   | 11-39%                         |
| Moderate              | 40-69%                         |
| Closed                | >70%                           |

The number of canopy layers is classified as single or multi. Overall, eight different forest structures have been classified within the Analysis Area (see Figure 3-35 Existing Forest Canopy Structure). Table 3.5-2 summarizes the forest canopy structure currently present in the White Pass Study Area. No large tree canopy classifications present<sup>1</sup> within the White Pass Study Area, although the northeastern portion of the existing SUP area contains mature forest that contains a majority of medium-sized trees, but large trees are also present.

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<sup>1</sup> For purposes of incorporating the GIS data provided by the OWNF and the GPNF, tree size data was grouped according to follow categories: small tree = less than 21 inches DBH, medium tree = 21 to 32 inches DBH, large tree = greater than 32 inches DBH.

**Table 1**  
**Forest Canopy Structure Present within the White Pass Study Area**

| Category                                    | Total Acres   | Percent of Total White Pass Study Area |
|---|---------------|--|
| Open Areas                                  | 328.2         | 21%                                    |
| Small tree - Multi-Story - Open             | 5.9           | 0%                                     |
| Small tree – Single Story – Moderate Canopy | 654.4         | 42%                                    |
| Small tree – Multi-Story – Moderate Canopy  | 59.0          | 4%                                     |
| Small tree – Multi-Story – Closed Canopy    | 195.5         | 12%                                    |
| Medium tree – Multi-Story – Open Canopy     | 11.8          | 1%                                     |
| Medium tree – Multi-Story – Moderate Canopy | 62.6          | 4%                                     |
| Medium tree – Multi-Story – Closed Canopy   | 252.7         | 16%                                    |
| <b>Total</b>                                | <b>1570.0</b> | <b>100%</b>                            |

*Open Areas*

The Open Areas forest structure includes all existing ski trails, parking lots, and roads where previous tree removal has resulted in the removal of the forested community. Naturally occurring Open Areas include talus slopes, lakes, and other naturally non-vegetated areas (i.e. meadows). This structure is categorized as having no forested layer and very little canopy closure from shrub and herbaceous layers (one to 10 percent). Open Areas cover approximately 328.2 acres (21 percent) of the White Pass Study Area.

*Small tree - Multi-Story - Open*

The Small tree – Multi-Story - Open forest structure occurs primarily within the existing ski area SUP and covers approximately 5.9 acres (< 0.1 percent). This forest structure consists of a two story tree layer with an average canopy closure of between one and 10 percent. In actuality, these areas are the small tree islands located on the lower slopes within existing ski trails. Tree clearing associated with construction of the ski area left several large trees behind. Subsequent growth has resulted in the second, smaller canopy layer that distinguishes these islands from a single story canopy structure. Tree size is classified as small, indicating that the majority of trees are less than 21 inches diameter at breast height (DBH).

*Small tree – Single Story – Moderate Canopy*

The Small tree – Single Story – Moderate Canopy forest structure occurs primarily in the high elevation proposed SUP expansion area and covers approximately 654.4 acres (42 percent). This structure covers the Mountain Hemlock Parkland community. The majority of this forest structure is located within the Clear Fork Cowlitz watershed. This forest structure consists of a single story tree layer with an average canopy closure of between 11 and 39 percent with patchy tree distribution. Tree size is classified as small, indicating that the majority of trees are less than 21 inches DBH.

*Small tree – Multi-Story – Moderate Canopy*

The Small tree – Multi-Story – Moderate Canopy forest structure occurs primarily in the existing SUP area and covers approximately 59.0 acres (4 percent). This forest structure consists of a two or more storied tree layer with an average canopy closure between 40 and 69 percent. Tree size is classified as small, indicating that the majority of trees are less than 21 inches DBH. This structure is located within the Mixed Conifer community and occurs primarily within the Clear Fork Cowlitz watershed.

*Small tree – Multi-Story – Closed Canopy*

The Small tree – Multi-story – Closed Canopy forest structure occurs primarily within the existing ski area SUP, extending slightly west into the proposed expansion area. This forest structure covers approximately 195.5 acres (12 percent of the White Pass Study Area) and consists of a two or more storied tree layer with an average canopy closure of greater than 70 percent. Tree size is classified as small, indicating that the majority of trees are less than 21 inches DBH. This structure occurs primarily in the Clear Fork Cowlitz watershed, in the western portion of the White Pass Study Area and entirely within the mixed conifer vegetation community.

*Medium tree – Multi-Story – Open Canopy*

The Medium tree – Multi-story – Open Canopy forest structure occurs within a small area in the northern portion of the White Pass Study Area and covers approximately 11.8 acres (1 percent). This forest structure consists of a two or more storied tree layer with an average canopy closure between 11 and 39 percent. Tree size is classified as medium, indicating that the majority of trees are between 21 and 32 inches DBH. This structure occurs north of Highway 12, adjacent to Leech Lake in the Mixed Conifer vegetation community. Past tree removal in this area has resulted in a more open canopy, compared to the denser canopy observed on the south side of Highway 12.

*Medium tree – Multi-Story – Moderate Canopy*

The Medium tree – Multi-story – Moderate Canopy forest structure occurs primarily in the western portion of the White Pass Study Area and covers approximately 62.6 acres (4 percent). This forest structure consists of a two or more storied tree layer with an average canopy closure between 40 and 69 percent. Tree size is classified as medium, indicating that the majority of trees are between 21 and 32 inches DBH. A majority of the Mountain Hemlock community and a small portion of the mixed conifer community occur within this forest structure. This forest structure is located primarily within the Clear Fork Cowlitz watershed.

*Medium tree – Multi-Story – Closed Canopy*

The Medium tree – Multi-story – Closed Canopy forest structure occurs primarily in the eastern portion of the White Pass Study Area and covers approximately 252.7 acres (16 percent). This forest structure consists of a two or more storied tree layer with an average canopy closure of greater than 70 percent. Tree size is classified as medium, indicating that the majority of trees are between 21 and 32 inches DBH. The majority of this structure is located within the Upper Tieton River watershed and includes portions of the Mixed Conifer community.

1.4 Effects of the Action Alternatives

1.4.1 Forest Structure

*Alternative 1*

Under Alternative 1, there would be no impacts to the existing forest structure within the White Pass Study Area. White Pass would continue to operate under their existing permit and no new development would occur.

Ongoing ski area operations and maintenance would continue to occur at White Pass. Impacts to the forest structure would occur during maintenance of ski trails from mowing and/or brushing. These activities would maintain a modified shrub and herbaceous community and prevent future regeneration of forest for as long as ski area operations persist. Impacts to vegetation from ski operations could occur from incidental contact from skiers, grooming equipment and vegetation, however these impacts are not expected to be measurable.

White Pass would continue to operate Nordic skiing on the Zigzag Trail under an annual SUP. Operations would not cause disturbance to vegetation (except for occasional hazard tree removal), as clearing for the trail corridor was completed several years ago, prior to this FEIS. The snowshoe trail network would continue to operate at White Pass under an annual SUP. Operations would not result in any disturbance to vegetation as trails are marked annually and located to avoid disturbance.

*Alternative 2*

Under Alternative 2, there would be approximately 19.7 acres of clearing and grading within the existing forest structure for lifts, trails, and facilities within the White Pass Study Area (see FEIS Figure 3-36 – Potential Impacts to Forest Canopy Structure, Alternative 2 and 6). All disturbance would occur within the Small tree – Single story – Open Canopy forest structure within the Clear Fork Cowlitz watershed (see Table 2).

**Table 2  
Potential Disturbances<sup>a</sup> to the Forest Structure  
within the White Pass Study Area**

| Type  | Alt 2 <sup>b</sup> | Modified Alt 4 <sup>b</sup> | Alt 6 <sup>b</sup> | Alt 9 <sup>c</sup> |
|---|--------------------|-----------------------------|--------------------|--------------------|
| Open Areas (acres)                                  | 0.0                | 0.0                         | 0.0                | 0.0                |
| Small tree - Multi-story - Open (acres)             | 0.0                | 0.0                         | 0.0                | 0.0                |
| Small tree - Single story - Moderate Canopy (acres) | 19.7               | 21.5                        | 11.3               | 0.0                |
| Small tree - Multi-story - Moderate Canopy (acres)  | 0.0                | 0.0                         | 0.0                | 0.0                |
| Small tree - Multi-story - Closed Canopy (acres)    | 0.0                | 12.0                        | 0.0                | 10.1               |
| Medium tree - Multi-story - Open Canopy (acres)     | 0.0                | 0.0                         | 0.0                | 0.0                |
| Medium tree - Multi-story - Moderate Canopy (acres) | 0.0                | 0.0                         | 0.0                | 1.0                |
| Medium tree - Multi-story - Closed Canopy (acres)   | 0.0                | 11.0                        | 3.8                | 24.2               |
| <b>Totals (acres)</b>                               | <b>19.7</b>        | <b>44.5</b>                 | <b>15.1</b>        | <b>35.3</b>        |

<sup>a</sup> Disturbance to the forest does not imply that there would be an adverse impact or that the forest structure would be adversely impacted or changed as a result of the proposed activities. For example, creation of a ski trail in parkland (i.e., small tree – single story – moderate canopy) by connecting existing openings would retain a parkland forest structure.

<sup>b</sup> Under Alternatives 2, Modified Alternative 4, and 6 the existing forest structure would not change as a result of the proposed activities. There would be no change in the canopy coverage, tree size, or the number of canopy layers due to the tree island removal clearing prescription.

<sup>c</sup> Under Alternative 9, the full clearing and full clearing with grading prescriptions would result in changes to the forest structure.

Impacts to the forest structure have the potential to affect wildlife habitat within the White Pass Study Area (see FEIS Section 3.6 – Wildlife for more information on impacts to wildlife). The implementation of Other Management Practice OMP5 would reduce the amount of disturbance to the forest structure by clearly marking trail boundaries and using selective tree removal during construction. Trail clearing would occur within an open canopy structure and would not decrease the overall canopy coverage below the “Open” threshold of 11 percent. Likewise, there would be no change in the number of canopy layers or the tree size. Due to the amount (approximately 3.4 percent of the total forest structure type) and the location of disturbance within an open canopy structure that would occur under Alternative 2, the overall impact on the forest structure would not be measurable. The tree size, canopy layers, and canopy coverage designation for the area would remain within the criteria established for the existing forest structure type.



Indirect impacts to the forest structure would occur from ongoing maintenance activities associated with the ski area, i.e. trail mowing/ brushing, hazard tree removal, etc. The implementation of Other Management Practice OMP5 would minimize impacts to adjacent vegetation and the forest structure limiting the maintenance area and using low impact methods.

*Modified Alternative 4*

Under Modified Alternative 4, there would be approximately 21.5 acres of clearing and grading within the Small tree – Single story – Open Canopy forest from clearing and grading for the proposed lifts, trails, and facilities in Hogback Basin (see Table 2). An additional disturbance of approximately 12 acres would occur within the Small tree – Multi-story – Closed Canopy forest structure and approximately 11 acres within the Medium tree – Multi-story – Closed Canopy forest structure (see FEIS Figure 3-37 – Potential Impacts to Forest Canopy Structure, Modified Alternative 4). The implementation of Other Management Practice OMP5 would reduce the amount of disturbance to the forest structure by clearly marking trail boundaries and using selective tree removal methods. As described under Alternative 2, clearing within the Small tree – Single story – Open Canopy forest structure would not have any measurable impacts.

The 12 acres of disturbance to the Small tree – Multi-story – Closed Canopy forest structure results from the full clearing for construction of trail 4-16 and 4-17. While full clearing would occur within a closed canopy, the trail width would be limited to 30 feet on trail 4-16. The overall change to the canopy coverage would not drop below the 70 percent threshold for a closed structure. Therefore, the change to the forest structure would not be measurable.

Within the Medium tree – Multi-story – Closed Canopy forest structure, approximately 11 acres of disturbance would occur adjacent to existing openings in the forest structure, i.e. existing trails, and Highway 12. While full clearing represents a higher degree of impact than selective tree removal, because it would occur adjacent to existing openings, the overall impact to the forest structure would not be measurable. The tree size, canopy layers, and canopy coverage designation for the area would remain within the criteria established for the existing forest structure type.

Indirect impacts to the forest structure would occur from ongoing maintenance activities associated with the ski area, i.e. trail mowing/ brushing, hazard tree removal, etc. The implementation of Other Management Practice OMP5 would minimize impacts to adjacent vegetation and the forest structure limiting the maintenance area and using low impact methods.

*Alternative 6*

Under Alternative 6, impacts to the forest structure would be less than all other Action Alternatives due to the reduced development in Hogback Basin. Total clearing and grading impacts within the Small tree – Single story – Open Canopy forest structure would be approximately 11.3 acres and approximately 3.8 acres within the Medium tree – Multi-story – Closed Canopy forest structure (see Table 3.5-2, and Figure 3-36 – Potential Impacts to Forest Canopy Structure, Alternative 2, and 6). The implementation of Other Management Practice OMP5 would reduce the amount of impacts to the forest structure by clearly marking trail boundaries and using selective tree removal. As described under Alternative 2, impacts to the Small tree – Single story – Open Canopy would not be measurable. The 3.8 acres of impacts to the Medium tree – Multi-story – Closed Canopy occur adjacent to existing forest openings and would therefore have no measurable impact on the forest structure. The tree size, canopy layers,

and canopy coverage designation for the area would remain within the criteria established for the existing forest structure type.

Indirect impacts to the forest structure would occur from ongoing maintenance activities associated with the ski area, i.e. trail mowing/ brushing, hazard tree removal, etc. The implementation of Other Management Practice OMP5 would minimize impacts to adjacent vegetation and the forest structure limiting the maintenance area and using low impact methods.

#### *Alternative 9*

Under Alternative 9, impacts to the forest structure would occur entirely within the existing SUP as no expansion is proposed (see Figure 3-38 – Potential Impacts to Forest Canopy Structure, Alternative 9). Clearing and grading impacts under Alternative 9 would result in approximately 10.1 acres to the Small tree – Multi-story – Closed Canopy structure and approximately 24.2 acres to the Medium tree – Multi-story – Closed Canopy forest structure (see Table 2). Implementation of Other Management Practice OMP5 would reduce impacts to adjacent natural vegetation communities would be minimized by establishing maximum clearing limits and felling trees away from adjacent and sensitive vegetation.

Full clearing associated with a new lift and trails within the Medium tree – Multi-story – Closed Canopy would create new openings within the forest structure. Since approximately 24.2 acres (approximately 10 percent of the total forest structure within the existing permit area) of tree removal would occur within this forest structure, the overall canopy closure would likely decrease. The decrease would likely drop the canopy closure below the 70 percent threshold and into a Moderate category. The resulting forest structure change would have the potential to affect wildlife habitat (see section 3.6 – Wildlife for more information on impacts to wildlife). Clearing for the proposed parking lot would not likely change overall forest structure because of the existing adjacent fragmented areas (existing trails and Highway 12). While the area of the proposed parking lot does occur within a larger continuous forested area, the specific location occurs on a small protrusion of the forested area into an existing opening.

Full clearing associated with a new lift and trails within the Small tree – Multi-story – Closed Canopy would create new openings within the forest structure. Since approximately 10 acres (approximately 5 percent of the total forest structure within the existing permit area) of tree removal would occur within this forest structure, the overall canopy closure would likely decrease. The decrease would likely result in an overall drop in the canopy closure below the 70 percent threshold. However, localized clearing with the *Paradise* pod for new trails would likely decrease canopy closure within the pod. The change would likely result in a Moderate canopy closure, similar to the adjacent forest structure within the *Paradise* pod. Clearing for the egress trail below the cliff band would not likely impact the forest structure due to the small amount (approximately 2 percent of the total forest structure) of clearing necessary.

Indirect impacts to the forest structure would occur from ongoing maintenance activities associated with the ski area, i.e. trail mowing/ brushing, hazard tree removal, etc. The implementation of Other Management Practice OMP5 would minimize impacts to adjacent vegetation and the forest structure limiting the maintenance area and using low impact methods.

## **2.0 Biological Evaluation**

This evaluation is the documented U.S. Forest Service review of the proposed White Pass Ski Area Expansion Proposal. The following evaluation is consistent with laws, regulations and policy pertaining to Proposed, Endangered, Threatened and Sensitive (PETS) plant species (USDA, USFS, 1995; USFS, USBLM 1999) and Survey and Manage Plant species (USDA, USDI 1994; USDA, USDI 2001; USDA, USDI 2002; USDA, USDI, 2003; USDA, USDI, 2003b). The purpose of this evaluation is to determine how the proposed project may affect current PETS plant and Survey and Manage species. It will also identify any action necessary to assure that management activities do not jeopardize the continued existence of these species or result in the destruction or adverse modification of essential habitat.

A PETS plant is any taxon listed on the Regional Forester's Sensitive Plant List (USFS, 1999; USFS, 2004), and includes all federally listed and candidate plant species (USFWS, 2007a; USFWS, 2007b)). This evaluation implements recent policy changes enacted as a result of the January 9, 2006 US District Court decision regarding Survey and Manage Species. The 2004 ROD to Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines in Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl (2004 ROD) was vacated and management direction for PETS plants/SSS species would revert back to the 2001 Record of Decision for management of these species. In this regard, the White Pass analysis area has been surveyed consistent with species identified in both the 2001 Record of Decision including any amendments or modifications to the 2001 ROD that were in effect as of March 21, 2004 (Table 1.1, December 2003), as well as the 2004 ROD to Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines in Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl (2004 ROD).

### **2.1 Methods**

A review of existing information for proposed, endangered, threatened and USFS sensitive (including former Survey and Manage species) species occurring within the White Pass Study Area was conducted. The most recent list of USFS sensitive species suspected of occurring within the White Pass Study Area was provided by the Naches Ranger District's botanist (see Table 3). This list was adapted from the Regional Forester's Sensitive Species list based on pre-field reviews of potentially suitable habitat within the White Pass Study Area. Subsequent field surveys validated the actual occurrence of suitable habitat for these species.

Numerous surveys for PETS species have been conducted by the USFS within the White Pass Study Area. Three surveys were conducted within the proposed expansion area (Barker, 1987; Parsons and Engle, 1992; Leingang, 1999). Eight surveys have been conducted within the current White Pass Special Use Permit (SUP) boundary (Engle, 1991; Parson and Engle, 1993; Parsons and Engle, 1994; Massie, 1995a; Massie, 1995b; Wheeler, 2000; Ianni, 2002; Ianni, 2003a). Survey methods followed the approved USFS protocol for sensitive plants and former Survey and Manage species. The objectives of the surveys were to (1) locate populations of special-status species within the White Pass Study Area in order to adequately protect populations, (2) conduct a floristic inventory to identify all vascular plant species in the White Pass Study Area, (3) search for special-status plant taxa within the White Pass Study Area, and (4) map the locations of the special-status plant populations in the White Pass Study Area. The species

presented in Table 3 represents the subset of species listed on the Regional Forester’s Sensitive Species List (USFS, 2004b) that are suspected to occur within the White Pass Study Area.

**Table 3  
Special Status Plant Species Suspected within the White Pass Study Area**

| <b>Name of Species</b>                          | <b>Listing Type</b>               | <b>Surveyed For</b> | <b>Habitat Present</b> |
|---|-----------------------------------|---------------------|------------------------|
| <b>Vascular Plants</b>                          |                                   |                     |                        |
| <i>Agoseris elata</i>                           | USFS Sensitive                    | Yes                 | Yes                    |
| <i>Anemone nuttalliana</i>                      | USFS Sensitive                    | Yes                 | Yes                    |
| <i>Botrychium lanceolatum</i>                   | USFS Sensitive                    | Yes                 | Yes                    |
| <i>Botrychium montanum</i>                      | Survey and Manage/ USFS Sensitive | Yes                 | Yes                    |
| <i>Botrychium paradoxum</i>                     | USFS Sensitive                    | Yes                 | Yes                    |
| <i>Botrychium pinnatum</i>                      | USFS Sensitive                    | Yes                 | Yes                    |
| <i>Carex atrata</i> var. <i>erecta</i>          | USFS Sensitive                    | Yes                 | Yes                    |
| <i>Carex comosa</i>                             | USFS Sensitive                    | Yes                 | No                     |
| <i>Carex densa</i>                              | USFS Sensitive                    | Yes                 | No                     |
| <i>Carex pauciflora</i>                         | USFS Sensitive                    | Yes                 | Yes                    |
| <i>Carex proposita</i>                          | USFS Sensitive                    | Yes                 | Yes                    |
| <i>Carex saxalitis</i> var. <i>major</i>        | USFS Sensitive                    | Yes                 | Yes                    |
| <i>Carex stylosa</i>                            | USFS Sensitive                    | Yes                 | Yes                    |
| <i>Carex sychnocephala</i>                      | USFS Sensitive                    | Yes                 | Yes                    |
| <i>Castilleja cryptantha</i>                    | USFS Sensitive                    | Yes                 | Yes                    |
| <i>Coptis asplenifolia</i>                      | Survey and Manage/ USFS Sensitive | Yes                 | No                     |
| <i>Coptis trifolia</i>                          | Survey and Manage/ USFS Sensitive | Yes                 | No                     |
| <i>Cypripedium fasciculatum</i>                 | Survey and Manage/ USFS Sensitive | Yes                 | No                     |
| <i>Cypripedium montanum</i>                     | Survey and Manage/ USFS Sensitive | Yes                 | No                     |
| <i>Eleocharis atropurpurea</i>                  | USFS Sensitive                    | Yes                 | Yes                    |
| <i>Erigeron salishii</i>                        | USFS Sensitive                    | Yes                 | Yes                    |
| <i>Eritrichulum nanum</i> var. <i>elongatum</i> | USFS Sensitive                    | Yes                 | Yes                    |
| <i>Fritillaria camschatcensis</i>               | USFS Sensitive                    | Yes                 | No                     |
| <i>Galium kamtschaticum</i>                     | Survey and Manage/ USFS Sensitive | Yes                 | No                     |
| <i>Geum rosii</i> var. <i>depressum</i>         | USFS Sensitive                    | Yes                 | Yes                    |
| <i>Hackelia venusta</i>                         | USFS Sensitive                    | Yes                 | No                     |
| <i>Loiseluria procumbens</i>                    | USFS Sensitive                    | Yes                 | Yes                    |
| <i>Luzula arcuata</i>                           | USFS Sensitive                    | Yes                 | Yes                    |

**Table 3**  
**Special Status Plant Species Suspected within the White Pass Study Area**

| Name of Species                                 | Listing Type                      | Surveyed For | Habitat Present |
|---|-----------------------------------|--------------|-----------------|
| <i>Pedicularis rainierensis</i>                 | USFS Sensitive                    | Yes          | Yes             |
| <i>Pellaea breweri</i>                          | USFS Sensitive                    | Yes          | Yes             |
| <i>Phacelia minutissima</i>                     | USFS Sensitive                    | Yes          | No              |
| <i>Platanthera obtusata</i>                     | USFS Sensitive                    | Yes          | No              |
| <i>Plantanthera sparsiflora</i>                 | USFS Sensitive                    | Yes          | Yes             |
| <i>Potentilla breweri</i>                       | USFS Sensitive                    | Yes          | Yes             |
| <i>Ranunculus populago</i>                      | USFS Sensitive                    | Yes          | Yes             |
| <i>Salix vestita</i> var. <i>erecta</i>         | USFS Sensitive                    | Yes          | Yes             |
| <i>Sisyrinchium sarmentosum</i>                 | USFS Sensitive                    | Yes          | Yes             |
| <i>Spiranthes porrifolia</i>                    | USFS Sensitive                    | Yes          | Yes             |
| <b>Lichens</b>                                  |                                   |              |                 |
| <i>Dendriscoaulon intricatum</i>                | Survey and Manage/ USFS Sensitive | Yes          | Yes             |
| <i>Dermatocarpon luridum</i>                    | Survey and Manage/ USFS Sensitive | Yes          | Yes             |
| <i>Hypogymnia duplicata</i>                     | Survey and Manage/ USFS Sensitive | Yes          | Yes             |
| <i>Leptiogium burnetiae</i> var <i>hirsutum</i> | Survey and Manage/ USFS Sensitive | Yes          | Yes             |
| <i>Lobaria linita</i>                           | Survey and Manage/ USFS Sensitive | Yes          | Yes             |
| <i>Nephroma bellum</i>                          | Survey and Manage/ USFS Sensitive | Yes          | Yes             |
| <i>Nephroma occultum</i>                        | Survey and Manage/ USFS Sensitive | Yes          | Yes             |
| <i>Pilphorous nigricaulis</i>                   | USFS Sensitive                    | Yes          | Yes             |
| <i>Pseudocyphellaria rainierensis</i>           | Survey and Manage                 | Yes          | No              |
| <i>Tholurna dissimilis</i>                      | USFS Sensitive                    | Yes          | Yes             |
| <b>Fungi</b>                                    |                                   |              |                 |
| <i>Bridgeoporus nobilissimus</i>                | Survey and Manage/ USFS Sensitive | Yes          | No              |
| <b>Bryophytes</b>                               |                                   |              |                 |
| <i>Rhizomnium nudum</i>                         | Survey and Manage/ USFS Sensitive | Yes          | Yes             |
| <i>Schistostega pennata</i>                     | Survey and Manage/ USFS Sensitive | Yes          | Yes             |
| <i>Scouleria marginata</i>                      | USFS Sensitive                    | Yes          | Yes             |
| <i>Tetraphis geniculata</i>                     | Survey and Manage/ USFS Sensitive | Yes          | No              |

## 2.2 Results

No PETS or Survey and Manage species listed in Table 3 were found during any of the botanical surveys conducted within the existing SUP area and the proposed expansion area as documented by the previously identified surveys. Additional information on the survey results can be found in the Summary of White Pass Botanical Surveys (USFS, 2003) contained in this appendix.

## 2.3 Effects of the Action

### *Alternative 2*

Under Alternative 2, approximately 19.7 acres of clearing and grading would occur as a result of the Proposed Action (see Table 4). This action has the potential to directly impact sensitive botanical species through removal or indirectly through the alteration and loss of habitat. However, no sensitive botanical species have been found within the White Pass Study Area. Therefore, there would be **No Impact** to any of the listed vascular, lichen, fungi, or bryophyte species presented in Table 3 under Alternative 2.

Under Alternative 2, operation and maintenance of the existing ski area and the proposed expansion area would continue to prevent the re-establishment of the existing vegetation. These activities include, but are not limited to, brushing and mowing of ski trails, and the removal of danger trees. Operation and maintenance activities would continue to occur for as long as the area remains an active ski area. Since no PETS or Survey and Manage species have been found within the White Pass Study Area, operation and maintenance activities would have **No Impact** on PETS or Survey and Manage species under Alternative 2.

**Table 4**  
**Potential Disturbance to Vegetation within the White Pass Study Area**

| Type                              | Alt 2       | Modified Alt 4 | Alt 6       | Alt 9       |
|-----------------------------------|-------------|----------------|-------------|-------------|
| Mixed Conifer (acres)             | 0.0         | 21.6           | 3.8         | 35.3        |
| Mountain Hemlock (acres)          | 0.0         | 0.0            | 0.0         | 0.0         |
| Mountain Hemlock Parkland (acres) | 19.7        | 21.5           | 11.3        | 0.0         |
| Modified Herbaceous (acres)       | 0.0         | 1.3            | 0.2         | 3.6         |
| Talus (acres)                     | 0.0         | 0.0            | 0.0         | 0.0         |
| <b>Total (acres) <sup>a</sup></b> | <b>19.7</b> | <b>44.7</b>    | <b>15.3</b> | <b>38.9</b> |

<sup>a</sup> Note: Totals may vary due to rounding. Table 4 numbers refer to Table 3.5-5: Potential Impacts to Vegetation Communities within the White Pass Study Area.

### *Modified Alternative 4*

Under Modified Alternative 4, approximately 44.7 acres of clearing and grading would occur as a result of the Proposed Action (see Table 4). Similar to Alternative 2, this action has the

potential to directly and indirectly impact sensitive botanical species. However, since no sensitive botanical species have been found within the White Pass Study Area, there would be **No Impact** to any of the listed vascular, lichen, fungi, or bryophyte species presented in Table 3 under Modified Alternative 4.

As described under Alternative 2, there would be **No Impact** to PETS or Survey and Manage species from operation and maintenance activities.

*Alternative 6*

Under Alternative 6, approximately 15.3 acres of clearing and grading would occur as a result of the Proposed Action (see Table 4). Similar to Alternative 2, this action has the potential to directly and indirectly impact sensitive botanical species. However, since no sensitive botanical species have been found within the White Pass Study Area, there would be **No Impact** to any of the listed vascular, lichen, fungi, or bryophyte species presented in Table 3 under Alternative 6.

As described under Alternative 2, there would be **No Impact** to PETS or Survey and Manage species from operation and maintenance activities.

*Alternative 9*

Under Alternative 9, approximately 38.9 acres of clearing and grading would occur as a result of the Proposed Action (see Table 4). Similar to Alternative 2, this action has the potential to directly and indirectly impact sensitive botanical species. However, since no sensitive botanical species have been found within the White Pass Study Area, there would be **No Impact** to any of the listed vascular, lichen, fungi, or bryophyte species presented in Table 3 under Alternative 9.

As described under Alternative 2, there would be **No Impact** to PETS or Survey and Manage species from operation and maintenance activities.

2.4 Effect Determination

Since no species have been documented within the White Pass Study Area, the proposed White Pass Expansion would have **No Impact** on any of the listed vascular plants, lichens, fungi, and bryophytes listed in Table 3 (see Table 5).

**Table 5  
Determination of Effect for USFS Sensitive Plant Species**

| Species         | Alternative 2    | Modified<br>Alternative 4 | Alternative 6 | Alternative 9 |
|-----------------|------------------|---------------------------|---------------|---------------|
| Vascular Plants | <b>No Impact</b> |                           |               |               |
| Lichens         | <b>No Impact</b> |                           |               |               |
| Fungi           | <b>No Impact</b> |                           |               |               |
| Bryophytes      | <b>No Impact</b> |                           |               |               |

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## **Addendum to Botanical Report for the Proposed 2003 White Pass Ski Area Expansion Project Naches Ranger District, Wenatchee National Forest**

### **Introduction**

This addendum is the documented U.S. Forest Service updated review of the proposed 2003 White Pass Ski Area Expansion project. The following report is consistent with laws, regulations, and policy pertaining to Proposed, Endangered, Threatened and Sensitive (PETS) plant species (USDA, USFS, 1995c). The purpose of this report is to document lichen and bryophyte surveys required as a result of recent policy changes within the U.S. Forest Service (USDA, USDI 2004b, USFS, 2004b). This report will also determine how the proposed project may affect newly listed PETS lichen and bryophyte species, and identify any action necessary to ensure that management activities do not jeopardize the continued existence of these species or result in the destruction or adverse modification of essential habitat.

### **Field Reconnaissance Results**

Surveys for recently listed PETS lichen and bryophyte species were conducted on July 29 and 30, and August 2, 2004. Surveys were focused to evaluate habitat suitability and locate potential sites for 18 lichen and four bryophyte taxa recently added to the Regional Forester's Sensitive Species List (USFS, 2004b). Potentially suitable habitats include shaded rock outcrop crevices, krummholz form trees on ridges, and closed canopy mesic forest. Suitable habitats are a minor component of the proposed project area (approximately 50%). The majority of the project area is open parkland forest composed of stringers and islands of mountain hemlock, subalpine fir, and pacific silver fir in a matrix of mountain heather and delicious huckleberry meadows. This habitat type is effectively dry shortly after snowmelt has run off and is considered low probability habitat for PETS species. Although potentially suitable habitat was identified for five lichens and one bryophyte, no occurrences were located in the proposed project area.

### **Effects Analysis**

Field survey was conducted for the lichen and bryophyte taxa groups, and no occurrences were located. Although these organisms are cryptic and can be overlooked, suitable habitats were carefully searched. The probability of occurrence for PETS lichens and bryophytes is very low in the proposed project area. It is determined that implementation of the project is unlikely to affect PETS lichens and bryophytes.

### **Evaluation of Fungi Habitat**

Nineteen fungi were placed on the Regional Forester's Sensitive Species List as a result of recent Agency policy changes (USDA,USDI 2004b, USFS, 2004b).

Policy direction states, "if project surveys for a, species were not practical under t4 Survey and Manage standards and guidelines (most Category B and D species), or a species' status is undetermined (Category E and F species), then surveys will not be practical or expected to occur under the Special Status/ Sensitive Species policies either. Instead, other options for pre-project clearances would be used, such as evaluation of a species' habitat associations and the presence of suitable or potential habitat; review of existing occurrence records, surveys and inventories; use of research information, literature, or habitat models; or use of documentation or rationale provided by internal or external professional expertise" (USDA, USDI, 2004c).

Following this direction, surveys for eighteen of the nineteen fungi are considered impractical. They have been evaluated for known occurrences and potential habitat in the proposed project area (See Table I below). *Bridgeoporus nobilissimus*, a previous Survey and Manage Category A taxon, has been addressed under earlier survey protocols (Ianni, 2003b).

**Table 1**  
**Sensitive Fungal Taxa Habitat Presence and Known Occurrence Evaluation**

| <b>Taxon</b>                         | <b>Habitat Presence</b>               | <b>Known Occurrences In or Near Proposed Project Area</b> |
|--------------------------------------|---------------------------------------|---|
| <i>Albatrellus ellisii</i>           | Yes- on ground in forests             | None  |
| <i>Clavariadelphus occidentalis</i>  | No                                    | None  |
| <i>Clavariadelphus sachalinensis</i> | Yes- under mixed conifers             | None  |
| <i>Cordyceps capitata</i>            | No                                    | None  |
| <i>Cudonia monticola</i>             | No                                    | None  |
| <i>Gomphus bonarii</i>               | Yes- under <i>Abies</i> spp.          | None  |
| <i>Gomphus kauffmanii</i>            | Yes- under <i>Abies</i> spp.          | None  |
| <i>Gyromitra californica</i>         | Yes- coniferous forest                | Near- closest about 8 miles away                          |
| <i>Leucogaster citrinus</i>          | Yes- <i>Abies lasiocarpa</i> symbiont | None  |
| <i>Mycena monticola</i>              | Yes- conifer forests above 1000m      | None  |
| <i>Otidea smithii</i>                | No                                    | None  |
| <i>Ramaria amyloidea</i>             | Yes- <i>Abies</i> spp. associate      | None  |
| <i>Ramaria largentii</i>             | Yes- <i>Abies</i> spp. associate      | None  |
| <i>Ramaria rubrievanescens</i>       | Yes- Pinaceae spp. associate          | None  |
| <i>Ramaria rubripermanens</i>        | Yes- Pinaceae spp. associate          | None  |
| <i>Sarcodon fuscoindicum</i>         | Yes- on soil                          | Near-reported ≈ 7-10 miles away                           |
| <i>Sowerbyella rhenana</i>           | No                                    | None  |
| <i>Spathularia flavida</i>           | Yes- conifer litter and debris        | None  |

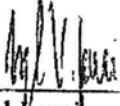
Two of the eighteen species have known occurrences within 7 to 10 miles of the proposed project area. No species are known to occur within the proposed project area. Thirteen species have potential habitat in the proposed project area (Castellano et. al. 1999; Castellano et. al. 2003). The habitat descriptions given by Castellano et. al. are necessarily broad and general. The

Proposed White Pass Ski Area Expansion project area does not exhibit much mycological diversity when compared to moister environments in the general area. Few fungi were observed during survey work carried out in the summer and fall of 2002 and summer of 2004. Habitat is present for several species, but it is considered to have low to moderate occupation potential.

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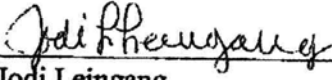
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## **Summary of Botanical Surveys Conducted in the White Pass Ski Area and Proposed Expansion Areas 1987-2003**

Prepared by: Darryl Ianni, Biological Science Technician, Naches Ranger District, Okanogan-Wenatchee National Forest. December, 2003

Twelve documented botanical surveys have occurred within the White Pass Ski Area and associated proposed expansion areas between 1987 and 2003. These surveys occurred to document the potential effects of proposed projects on US Forest Service administered lands upon special interest plant species. Surveys prior to 1999 were for listed Proposed, Endangered, Threatened, and Sensitive (PETS) plant species (USDA, USFS, 1995c). Surveys from 1999 and later include Survey and Manage (S&M) vascular plant, lichen, bryophyte, and fungi species (USDA, USDI, 1994b). This summary will chronologically recount the area(s), method(s), and results of each individually documented survey.

The Barker survey of 1987 was conducted for PETS plant species (Barker, 1987). Surveys were conducted on seven days between June 20 and July 26, 1987. Protocols for determining survey intensity level had not been developed when this survey took place and were not mentioned. The description of the survey method performed most resembles the intuitive-controlled level. This survey covered an early proposed expansion area that was bounded by Hwy. 12 on the north and Hogback Ridge on the west between Knuppenberg Lake and Hogback Mountain. The Pigtail-Hogback ridge forms the southeast boundary between Hogback Mountain and the current ski area boundary. The survey area boundary then goes northwest and then north following the current western boundary of the ski area back to Hwy. 12. This survey covered all of the area included in the proposed 2003 White Pass Ski Area Expansion (USDA, USFS, 2003). The survey did not locate any occurrences of the 20 target PETS taxa.

Engle performed a complete area survey on June 6, 1990 for PETS plants taxa at a proposed 4000 sq. ft. site for wastewater disposal/treatment site behind the hotel units at White Pass Ski Area (Engle 1991). No PETS species were documented as part of this survey, nor was it located in the proposed 2003 White Pass Ski Area Expansion (USDA, USFS, 2003).

Parsons and Engle (1992) reported a survey occurring on August 26 and 27, 1992 that searched for PETS plant species at two proposed ski area developments. Both areas were surveyed at the complete level, and no occurrences of the twelve suspected PETS taxa were located. Proposed chairlift 8 was located east of chairlift 3, and the area surveyed was the forested draw east of chairlift 3 between the ski area and the William O. Douglas Wilderness boundary, down to Hwy. 12. This area is outside of the proposed 2003 White Pass Ski Area Expansion (USDA, USFS, 2003). The "glade -run," an area north of chairlift 4 joining proposed chairlift 5 and existing trails near chairlift 4, was surveyed because it was the location of a proposed ski trail not surveyed by Barker in 1987. This area is within the proposed 2003 White Pass Ski Area Expansion (USDA, USFS, 2003).

Parsons performed a complete level survey for PETS on August 12, 1993 at four proposed project areas (Parsons & Engle, 1993). The first area was for danger tree removal along Execution and Lower Roller ski trails. The next three areas were for bridge replacements in the cross-country ski area. No PETS plants were located, and none of the areas are within the proposed 2003 White Pass Ski Area Expansion (USDA, USFS, 2003).

Parsons performed another complete level survey for PETS on August 12, 1993 for the proposed new route of chairlift 1 (Parsons & Engle, 1994). The survey followed the route of the current quad chairlift 1 at White Pass Ski Area. No PETS plants were located, and the area is not within the proposed 2003 White Pass Ski Area Expansion (USDA, USFS, 2003). The report also analyzed the potential effects upon PETS plant species (no effects) for placing three weather stations at White Pass in ecologically disturbed locations (bottom of chairlift 1 and tops of chairs 1 and 4).

Massie performed a complete level survey on August 30 and September 1, 1994 for PETS species at the Cat Track, Old Holiday, and Mainstreet ski trail modifications/ additions (Massie, 1995a). No PETS plants were located, and the area is not within the proposed 2003 White Pass Ski Area Expansion (USDA, USFS, 2003).

One year later, Massie performed another complete survey on July 18, August 3 and 7, 1995, for PETS plant species at the proposed cross-country ski area trail expansion (Massie, 1995b). The three proposed trails were on the north side of Hwy. 12. No PETS plants were located, and the area is not within the proposed 2003 White Pass Ski Area Expansion (USDA, USFS, 2003).

A two day survey completed in October 1999 by Yurky and Wheeler searched for potential occurrences of S&M lichen, fungi, bryophyte, and vascular plant species (Leingang, 1999). The area surveyed corresponds to the currently proposed chairlift 5 corridor in Township 13N, Range 11E, Section 14 between the Pigtail-Hogback ridge on the east and the boundary of Section 15 on the west. Complete survey level protocol was used at structure development locations and during parallel transects performed across the slope from top to bottom. Two S&M listed bryophyte species, *Ptilidium californicum* and *Rhizomnium nudum*, were located as a result of this survey. These species have been removed from the S&M list over the last four years (USDA, USDI, 2003 and USDA, USDI, 2000).

Wheeler made a field check on June 5, 2000 to analyze the habitat suitability for PETS and S&M plant species at proposed tower and landing locations of chairlift 3, a propane storage site, a generator shed site, and the day lodge expansion (Wheeler, 2000). These locations had unsuitable habitat for PETS and S&M plant species, and were not further surveyed. A ski trail adjacent to chairlift 3 was not "adequately" surveyed at the time. There is no further documentation supporting Wheeler's statement that "Forest Service specialists intend to complete surveys immediately following snowmelt. The area is not within the proposed 2003 White Pass Ski Area Expansion (USDA, USFS, 2003).

Ianni performed a complete level survey for PETS and S&M at the proposed yurt site near the bottom of chairlift 4 on July 15, 2002 (Ianni, 2002). No PETS or S&M plant species were

located, and the area is not within the proposed 2003 White Pass Ski Area Expansion (USDA, USFS, 2003).

Ianni performed surveys for PETS and S&M plant species in the proposed 2003 White Pass Ski Area expansion on July 15 and October 16, 2002 (Ianni, 2003b). Surveys were performed at the complete level at structure development locations, and a general survey was performed along the approximate route location of chairlift 6. One S&M listed bryophyte species, *Rhizomnium nudum*, was located as a result of this survey. This species has since been removed from the S&M list (USDA, USDI, 2003).

Ianni made a field check visit to analyze the habitat suitability for PETS and S&M plant species at a proposed halfpipe construction site east of chairlift 3 (Ianni, 2003a). The site was deemed low probability habitat for PETS and S&M plant species, and no listed species were observed during a cursory examination of the area. The area is not within the proposed 2003 White Pass Ski Area Expansion (USDA, USFS, 2003).

Surveys at the White Pass Ski Area and associated proposed expansion areas have covered a majority (60-70%) of the terrain. New projects, revisions of proposed expansion areas, and changes to PETS and S&M plant species lists have driven the need for botanical surveys at White Pass. No currently listed PETS or S&M plant species are known to occur in the White Pass Ski Area and associated proposed expansion areas as a result of the surveys conducted in the area.

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