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# Environmental Assessment

## Meissner Sno-Park and Nordic Trails

Bend/Ft. Rock Ranger District, Deschutes National Forest  
Deschutes County, Oregon

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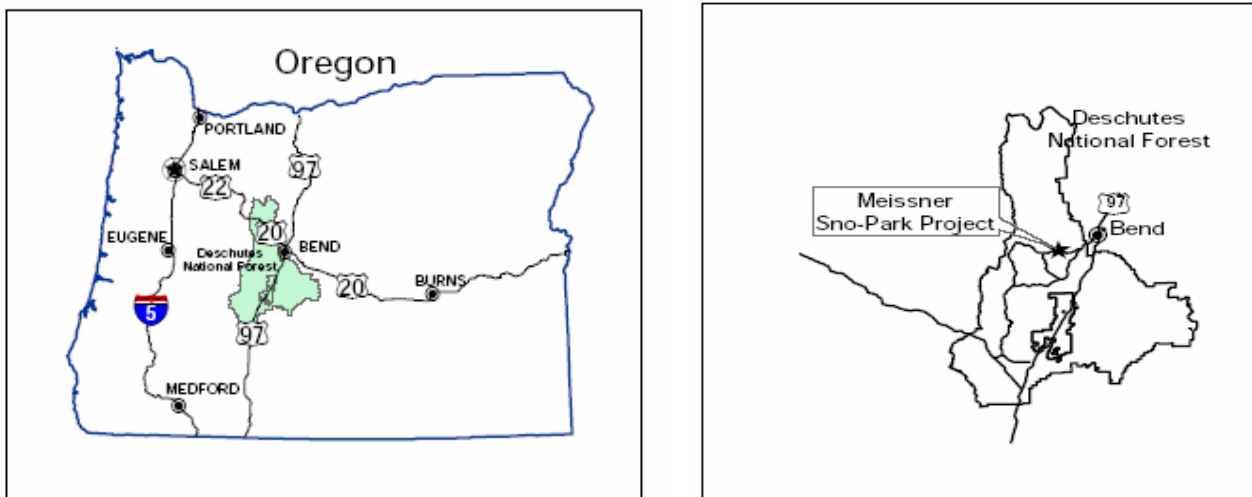
## CHAPTER 1 – PURPOSE AND NEED

### Introduction

The proposed Meissner Sno-park project was presented to the Forest Service by the Tumalo Langlauf Club (TLC). The TLC is a non-profit 501(c)(3) organization with approximately 210 members and a chapter of the Oregon Nordic Club.<sup>1</sup> The proposal is based on a vision statement and strategic plan developed by the TLC to provide expanded winter Nordic recreational opportunities for the public.

The Meissner Sno-park area is located approximately 10 miles southwest of Bend, Oregon, bordered on the south by Cascade Lakes Highway (Highway 46) with entry to the parking area by way of Forest Road 4615. Refer to the general vicinity map and project locator maps (Figure 1).

**Figure 1: General Vicinity Map of the Deschutes National Forest and Locator Map of the Meissner Sno-Park adjacent to State Highway 46**



### Background and Existing Condition

For approximately eight years, TLC has been granted a permit to groom about 14.3 miles of ski trails at the Meissner Sno-Park area, three days per week from December 1 through March 31. In addition to the groomed trails, there are approximately 12.3 miles of un-groomed ski trails and approximately 7.6 miles of snowshoe trails.

Located approximately 15 minutes from the city limits, this sno-park is very popular with the skiing public. Many times throughout the winter, particularly on weekends, the 60 space parking area is filled to capacity, with overflow parking occurring along Forest Road 4615, the entry road from Highway 46.

<sup>1</sup> The focus of the TLC club is to provide groomed trails for community use, facilitate access to the sport of cross-country skiing, and conduct social and skiing activities for club members. In addition, TLC collaborates with the Central Oregon Nordic Club and other organizations sharing the TLC mission. Current partners and stakeholders include Central Oregon Community College (COCC) and Bend Metro Parks and Recreation District (BMPRD), local Central Oregon High School ski teams and XC Oregon. Current user groups include the Mt. Bachelor Sports Education Foundation and Central Oregon Nordic Club.

Increases in Central Oregon population and tourism have increased recreation demands in Central Oregon, known for year-round recreational opportunities. Present projections indicate a continued increase in population, visitation, and recreation use. The popularity of cross country skiing is one of the winter opportunities that continues to grow and the project area is accessible and close to the Bend urban area.

There are five other snoparks plus Mt. Bachelor in the general vicinity of Meissner (Figure 2). These snoparks were constructed from the late 1970s through the early 1980s. These snoparks pre-date the current Forest Plan. None of the snoparks have been expanded since their construction; however, the Wanoga snow play was recently added. The use of the area for summer and winter recreation has grown in popularity as the population of Central Oregon has grown.

In April of 2004, a group of approximately 60 winter recreationists gathered for a 2 day “summit” which, through a well-facilitated process, provided a format for thorough input and discussion, resulting in a series of recommendations regarding winter recreation on the Bend/Ft. Rock District. Among these was the agreement that there is a need for a new snopark focusing on snowmobile parking and eliminating motorized parking issues at Dutchman Snopark. In addition, the need for continued communication and snopark regulations were noted as well as the opportunity to segregate use in the Dutchman Flat area. Subsequently, the closure of approximately 1,375 acres to snowmobile use and the segregation of motorized and non-motorized use on Dutchman Flat and the winter trails in the area was implemented the following winter. Signing and enforcement has been a priority in the area by Forest Service and local law enforcement officials and compliance has been reasonably good for the past four years.

During 2007, it became apparent that there was a need to further capture the parameters within which winter recreation should take place for the future. The USFS proceeded to work with a Forest Service Enterprise Team to develop a process which will when completed, provide some guidelines for future growth on the Forest in the winter recreation area. That process, although not completed, is showing support for increased provision for parking in “front country” areas, such as Meissner, that are closer to populated areas and urban centers. Overall support for additional opportunities for non-motorized recreation, such as skiing and snow shoeing, has been evident throughout the Meissner EA scoping as well as through the ongoing winter recreation sustainability analysis.

## **Desired Condition and Management Direction**

In 2003, TLC created a vision statement and strategic plan for the development of a community ski area sno-park that would be expanded and dedicated to providing a non-commercial, community ski area for winter non-motorized recreational opportunities. The strategic plan included proposed improvements that would provide a wide array of opportunities for beginning skiers as well as world-class competitive racers. Snowshoe use would continue as a current use, with snowshoe trails paralleling cross country ski trails.

The Deschutes National Forest Land and Resource Management Plan (LRMP), 1990, as amended by the Northwest Forest Plan (NWFP), 1994, provides management direction for the Forest. The project area is included within the following LRMP Management Areas (see Figure 3). Relevant S&Gs for each management area follow management area descriptions. Unless directly superseded by standards and guidelines in the NWFP, the LRMP standards and guidelines remain in effect.

- General Forest (MA-8): Timber production is to be emphasized while providing forage production, visual quality, wildlife habitat, and recreational opportunities for public use and enjoyment (LRMP, page 4-117).

*M8-2: “Traditional ... or areas where concentrated recreation use occurs will be recognized as being significant in producing and utilizing dispersed recreation opportunities. ...”*

- Scenic Views (MA-9): Provide high quality scenery representing the natural character of central Oregon. Landscapes seen from selected travel routes and use areas are to be managed to maintain or enhance their appearance. To the casual observer, results of activities either will not be evident, or will be visually subordinate to the natural landscape (LRMP, page 4-121). Foreground and midground scenic views are present.

M9-1: *“New recreational developments and changes to existing developments are permitted as long as they are consistent with the desired visual condition. When viewed from significant viewer locations, recreational facilities will meet the established visual quality standards. For viewer locations within the recreational development being viewed, established visual quality standards may not always be met.”*

M9-2: *“Parking facilities, structures and other recreational facilities will normally be placed where they are not visible from significant viewer locations. Where it is not possible to screen recreational facilities, they will be designed to blend with the elements found in the natural landscape and will remain subordinate to the overall visual strength of the surrounding landscape.”*

- Winter Recreation (MA-13): Provide quality winter recreation opportunities within a forest environment that can be modified for visitor use and satisfaction (LRMP, page 4-143).

M13-1: *“The emphasis is to manage the area for dispersed, winter-type, recreational activities. Dispersed recreation use in the summer is compatible but not emphasized.”*

M13-2: *“Cross-country skiing and over the snow vehicle trails will be provided but will be located and designed to separate motorized and non-motorized use in order to minimize conflict and to keep hazards to a minimum. Parking lots, shelters, and visibly signed routes are necessary to support the recreational activity. This Management Area can be zoned to minimize conflicts between motorized winter activities and non-motorized activities. Individual roads or trails can be designated for separate uses. Areas closed to motorized activities will be shown in the Off-Highway Vehicle (OHV) Plan. Areas closed to motorized activity could change as use patterns change. The OHV Plan would be amended to show such changes.”*

M13-11: *“Management activities will meet Modification or a higher objective. Activities may include snoparks, shelters, signs, bulletin boards, and vegetative openings for play areas or views.”*

The project area falls within Matrix under the Northwest Forest Plan Allocation. Matrix is federal lands outside the other designated areas where most timber harvest or other silvicultural activities are conducted. It also includes non-forested areas, and forested areas that are technically unsuitable for timber production (C-39).

## **Purpose and Need for Action**

With the rapid growth of Central Oregon, and the associated growth of winter sports, more ways to accommodate non-motorized winter recreational experiences are being sought.

### ***The Desired Condition is a site that:***

- Is close to the urban area is important because it takes less time and gas to get there;
- provides opportunities for Nordic skiing, and can accommodate various abilities of the recreating public;
- Receives enough snow at lower elevations to allow winter activities to into March or April,
- Is free to the public, with winter snow park passes;
- Provides trail and other information about the Sno-park

- Provides lighting that extends daily use and provides an element of safety for those skiing in the evening during the winter;
- Provides a staging area for skiers, particularly during events;
- Offers a shelter that would also allow large groups a place to congregate before, during, and after race events.

***Current condition:***

The Meissner Sno-park is located approximately 10 miles from the Bend city limits (15 minutes during the winter). Local high schools, colleges and other groups need to drive 19 miles (a minimum of one-half hour) to Mt. Bachelor or other sno-parks to participate in Nordic events.

Presently, the Meissner Sno-park has parking for approximately 60 vehicles. It is not uncommon for weekend users to experience a full parking area with other vehicles parked on either side of Forest Road 4615 out to Highway 46. This high use causes congestion of vehicles and people, increasing the risk of accidents.

- There is a need to increase parking capacity to reduce parking congestion and improve safety and allow more people to visit the Sno-park.

There is no area of the sno-park that is designated or user friendly as a staging area to prepare for Nordic skiing. Normally, preparation occurs in or adjacent to the parking area. There is also no adequate trail or other Forest Service information for users of this sno-park.

No shelter is provided at the beginning of the Nordic trails to escape the natural elements during inclement weather, to socialize, prepare for skiing or snowshoeing, or to have a place to sit and have a meal.

- There is a need to provide a shelter/lodge that is large enough to accommodate the general public and groups.

There is also an interest in using this area for Nordic race events. There is no area that is large enough for a large group to begin or end a race, or that is adequate for spectators to observe or wait while the race is occurring.

- There is a need for a staging area for public users, including racers, that is safe, close to parking, and provides adequate and detailed information regarding the sno-park.

The one vault toilet located within the parking median will not sufficiently accommodate the future number of users.

- With an increase in the number of users there is a need to provide additional toilet facilities.

**Proposed Action**

This project proposes to meet the purpose and need with the following actions:

- 1) Change the sno-park name;
- 2) Develop new non-motorized winter ski trails and a terrain park and relocate snowshoe trails;
- 3) Where necessary, widen existing trails for grooming;
- 4) Provide additional snow grooming of trails;
- 5) Develop a staging area for cross country ski racing events, and an informational kiosk;
- 6) Provide lighting for night skiing on some trails;
- 7) Build a shelter;



- 8) Provide an additional pit toilet;
- 9) Expand the parking area; and
- 10) Improve the pole barn that houses the grooming equipment and snowmobile.

The activities would be paid for and maintained by the TLC. The proposed action is described in more detail beginning at page 10. Three alternatives are provided: Alternative 1 (No Action), Alternative 2 (Proposed Action), and Alternative 3.

Figure 2. Snoparks in the vicinity of Virginia Meissner Snopark.

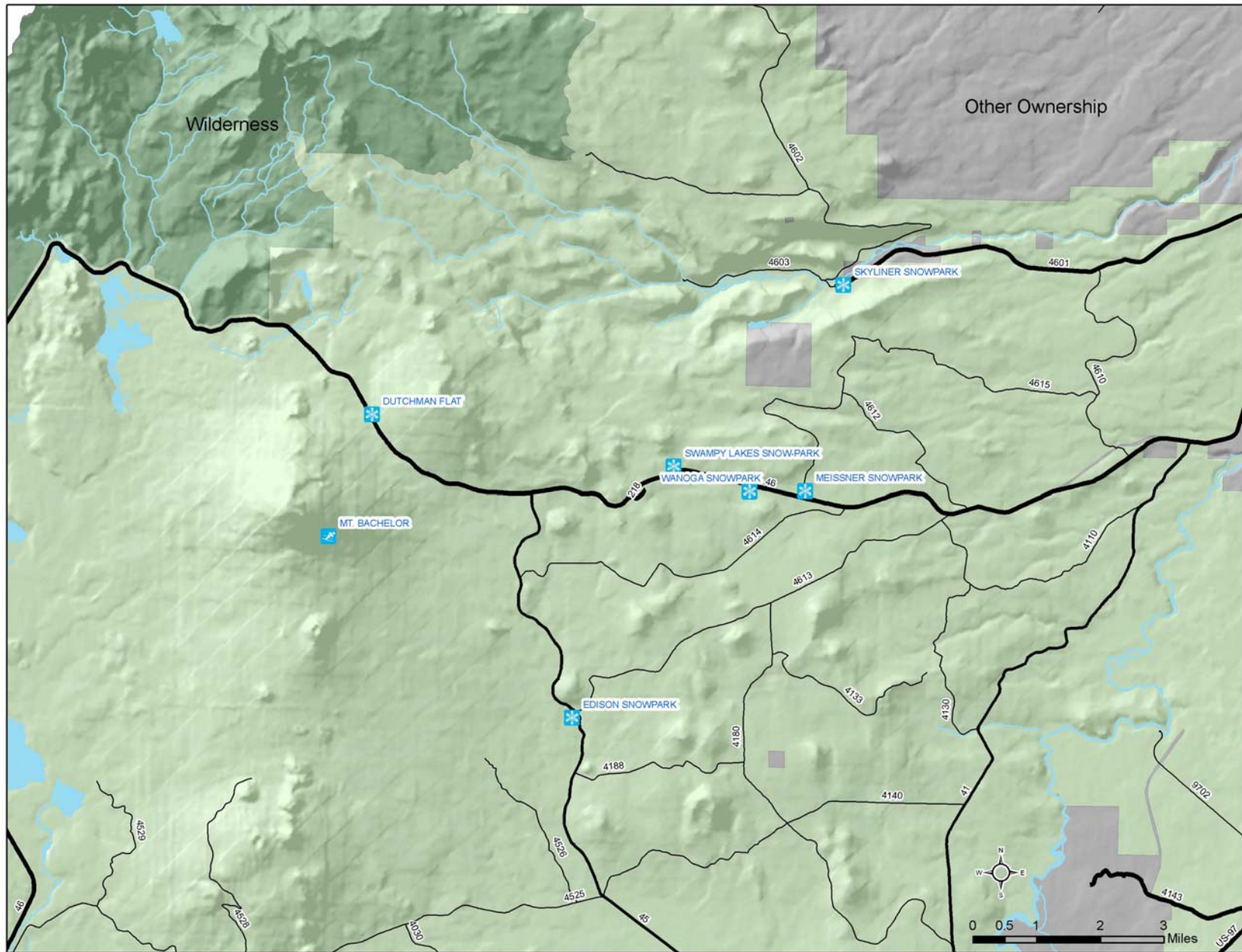
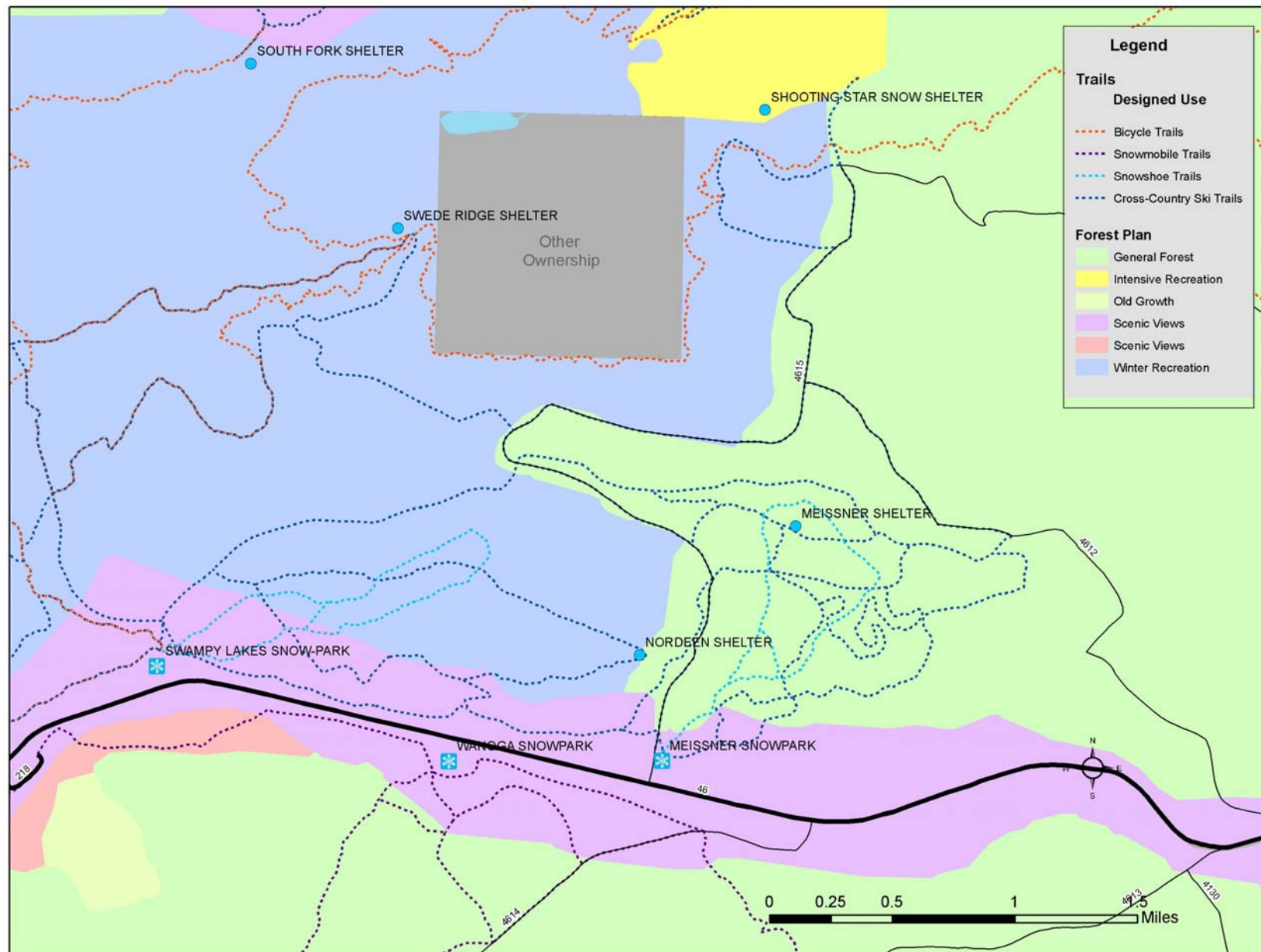


Figure 3. Meissner Snopark Area and Forest Plan Management Areas



## Public Involvement/Scoping Process Used

This project was made available for initial public comment on June 1, 2006. A letter requesting public involvement was mailed to approximately 77 individuals, businesses, and organizations. Included in this mailing were the Confederated Tribes of Warm Springs, Burns Paiute Tribe, and The Klamath Tribe. Also included in the mailing was The Bulletin, the local newspaper that reported on the proposed project area. Announcement of the proposed action was included in the Schedule of Projects (Located on the Deschutes National Forest website) starting in the winter of 2006 issue.

Written comments, letters, electronic mail responses or phone calls were received from 82 individuals, agencies, businesses, and organizations in response to this scoping effort. Comments received during scoping are a part of the Project Record. All comments received during the scoping period were considered during the analysis process. No written or verbal communication regarding the project was received from any of the three mentioned tribes.

Information on the comments received on the environmental assessment during the 30-day Public Comment Period can be found in Chapter 4.

## Identification of Issues

Issues are points of discussion, debate, or dispute about environmental or social effects that may occur as a result of the proposed action. Issues provide focus and influence alternative development, including development of mitigation measures to address potential adverse effects. Issues are also used to compare the effects between the proposed action and the alternatives regarding a specific resource element.

Comments received were placed into the following categories:

- **Key issues:** Issues used to develop alternatives or specific activities of the action alternatives. These are issues that respond to the Purpose and Need that cannot be resolved without some consideration of the trade-offs involved. Trade-offs can be more clearly understood by developing alternatives and displaying the relative impacts of these alternatives.
- **Analysis issues:** In addition to the key issues, other environmental components are considered in the analysis in Chapter 3. Though they did not result in differing design elements between alternatives, these issues are important for providing the Responsible Official with complete information about the effects of the project.

## Key Issues

The action alternatives respond to the key issue identified during initial project scoping, both public and internal. Attributes and measures for each issue will help to provide a comparison between alternatives. A summary comparison is provided at the end of Chapter 2. Scoping revealed one key issue:

### *Key Issue: Recreation Experience*

**Issue statement:** Some members of the public feel that the proposed warming shelter is too large, that lighting on 5 km of trail is not necessary, and that the parking area would not need to be expanded to 180 spaces. They feel that the proposed action is too grandiose, and would change the atmosphere of this small sno-park. This issue will be assessed by the following measures: 1) size of warming shelter, 2) presence or absence of lighting, 3) number of parking spaces available.

## Analysis Issues

Other issues that did not result in different alternatives or design elements were considered during the analysis process and are discussed in Chapter 3. These issues are generally less focused on the elements of Purpose and Need than is the Key Issues, and reflect the discussions of the effects of the proposed

activities. These issues are important for providing the Responsible Official with complete information about the effects of the project.

**Wildlife:** Potential effects to Proposed, Endangered, Threatened, and Sensitive (PETS) wildlife species and their habitat were considered. Proposed management activities have the potential to impact the habitat of some species that may utilize the area. Management Indicator Species and landbirds are also addressed.

**Botany and Invasive Plants:** Potential effects to Proposed, Endangered, Threatened, and Sensitive (PETS) plant species were considered and no PETS plants were found in the project area. Proposed management activities have the potential to introduce or spread existing populations of invasive plants and invader species. Potential spread of invasive plants is a concern across the project area.

**Water Resources and Fisheries:** There is very little surface water in the project area, and no fish are present. The analysis disclose effects to riparian reserves as well.

**Soils:** The discussion of soil effects is focused on the proposed locations of new facilities and upgrades to existing facilities. The analysis was conducted to ensure acceptable soil productivity is maintained for the growth of desired vegetation in the area. Project design features are incorporated into the proposal to minimize or reduce potentially adverse impacts to soils.

**Scenery:** Foreground views from Highway 46 looking toward the sno-park. Proposed parking and building activities have the potential to allow more distant views into the sno-park. The proposed action could also reduce the visual impact from parking along the 4615 access road.

**Cultural Resources:** Proposed activities were assessed for potential effect to cultural resources. Proposed ground-disturbing activities have the potential to disturb unknown sites. Known sites would be avoided.

## Current Laws & Regulations

Development of this Environmental Assessment follows implementing regulations of the National Forest Management Act (NFMA); Title 36, Code of Federal Regulations, Part 219 (36 CFR 219); Council of Environmental Quality, Title 40; CFR, Parts 1500-1508, National Environmental Policy Act (NEPA). Many federal and state laws, including the Forest and Rangeland Renewable Resources Act (RPA), Endangered Species Act, Clean Air Act, and Clean Water Act also guide this analysis. The following is a brief explanation of each of these laws and their relation to the current project planning effort.

**The American Antiquities Act of 1906:** The American Antiquities makes it illegal to appropriate, excavate, injure, or destroy any historic, prehistoric ruin or monument, or any object of antiquity, situated on lands owned by the Government of the United States, without permission of the Secretary of the Department of the Government having jurisdiction over the lands on which said antiquities are situated.

**The National Historic Preservation Act of 1966, as amended:** The National Historic Preservation Act requires Federal agencies to consult with American Indian Tribes, State and local groups before nonrenewable cultural resources, such as archaeological and historic structures, are damaged or destroyed. Section 106 of this Act requires Federal agencies to review the effects project proposals may have on the cultural resources in the Analysis Area.

**The Endangered Species Act of 1973, as amended:** The Endangered Species Act is to “provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species, and to take such tests as may be appropriate to achieve the purpose of the treaties and conventions set forth in subsection (a) of this section.” The Act also states “It is further declared to be the policy of Congress that all Federal departments and agencies shall seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of the purposes of this Act.”

**The National Environmental Policy Act (NEPA) of 1969, as amended:** The National Environmental Policy Act is “To declare a national policy which will encourage productive and enjoyable harmony between man and his environment, to promote efforts which will prevent or eliminate damaged to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nations; and to establish a Council on Environmental Quality” (42 U.S.C. Sec. 4321). The law further states “it is the continuing policy of the Federal Government, in cooperation, to use all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of the present and future generations of Americans. This law essentially pertains to public participation, environmental analysis, and documentation.

The Council on Environmental Quality (CEQ) promulgated the regulations for implementing NEPA (40 CFR parts 1500-1508). The CEQ has recently provided guidance on considering past actions in cumulative effects analysis (Memo to Heads of Federal Agencies, June 24, 2005).

**The National Forest Management Act (NFMA) of 1976:** The National Forest Management Act guides development and revision of National Forest Land Management Plans and has several sections to it ranging from required reporting that the Secretary must submit annually to Congress to preparation requirements for timber sale contracts. There are several important sections within the act, including Section 1 (purpose and principles), Section 19 (fish and wildlife resources), Section 23 (water and soil resources), and Section 27 (management requirements).

**Multiple-Use Sustained-Yield Act of 1960:** The Multiple Use – Sustained Yield Act of 1960 requires the Forest Service to manage National Forest System lands for multiple uses (including timber, recreation, fish and wildlife, range, and watershed). All renewable resources are to be managed in such a way that they are available for future generations. The harvesting and use of standing timber can be considered a short-term use of a renewable resource. As a renewable resource, trees can be re-established and grown in again if the productivity of the land is not impaired.

**Migratory Bird E.O. 13186:** On January 10, 2001, President Clinton signed an Executive Order (E.O. 13186) titled “Responsibilities of Federal Agencies to Protect Migratory Birds.” This E.O. requires the “*environmental analysis of Federal actions, required by NEPA or other established environmental review processes, evaluates the effects of actions and agency plans on migratory birds, with emphasis on species of concern.*”

**Executive Order 13112 (invasive species):** This 1999 order requires Federal agencies whose actions may affect the status of invasive species to identify those actions and within budgetary limits, “(i) prevent the introduction of invasive species; (ii) detect and respond rapidly to and control populations of such species... (iii) monitor invasive species populations... (iv) provide for restoration of native species and habitat conditions in ecosystems that have been invaded;... (vi) promote public education on invasive species... and (3) not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species... unless, pursuant to guidelines that it has prescribed, the agency had determined and made public... that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions.”

## Project Record

This EA hereby incorporates by reference the Project Record (40 CFR 1502.21). The Project Record contains Specialist Reports and other technical documentation used to support the analysis and conclusions in this EA. Chapter 3 provides a summary of the Specialist Reports in adequate detail to support the decision rationale.

Incorporating these Specialist Reports and the Project Record help implement the Council on Environmental Quality (CEQ) Regulations provision that agencies should reduce NEPA paperwork (40 CFR 1500.4), that the document shall be “analytic rather than encyclopedic,” and that the document “shall be kept concise and no longer than absolutely necessary” (40 CFR 1502.0). The objective is to furnish adequate site-specific information to demonstrate a reasoned consideration of the environment impacts of the alternative and how these impacts can be mitigated, without repeating detailed analysis and background information available elsewhere. The Project Record is available for review at the Bend-Fort Rock District Office, 1230 NE Third Street, Suite A-242, Bend, Oregon, Monday through Friday 7:45 a.m. to 4:30 p.m.

## **Scope of Project and Decision Framework**

The scope of the project and the decision to make are limited to: new Nordic trail construction, additional grooming of trails, lighting of a trail for night skiing, development of a staging area for Nordic events, construction of an informational kiosk, construction of a day use shelter, construction of a vault toilet, and expansion of the parking area. Chapter 2 details the designs of these actions. The project is limited to National Forest System lands within the project area.

The Responsible Official for this proposal is the District Ranger of the Bend-Fort rock Ranger District of the Deschutes National Forest. Based on response from the 30-day comment period, any changes made for the Final EA, and the disclosed analysis with mitigation, the Responsible Official will make a decision and document it in a Decision Notice. The Responsible Official can decide to:

- Select Alternative 2 (Proposed Action) or Alternative 3, the action alternatives that have been considered in detail, or
- Modify an action alternative, or
- Select the no-action alternative, and
- Identify what mitigation measures would apply.

The decision regarding which actions to implement will be determined by comparing how each factor of the project purpose and need is met by each of the alternatives and the manner in which each alternative responds to the key issues. The alternative that provides the best mix of prospective results in regard to the purpose and need and the key issues will be selected for implementation.

## **CHAPTER 2 – ALTERNATIVES INCLUDING THE PROPOSED ACTION**

### **Introduction**

This chapter describes and compares the alternatives that were considered for the Meissner Sno-park Project. A description of each of the actions, or design elements of those actions, that are proposed in varying degrees in the fully developed action alternatives is provided. This relationship is further discussed under each resource in Chapter 3, “Environmental Consequences.”

Alternatives are presented in comparative form, defining the differences between each alternative and providing a clear basis for choice among options to the decision maker and the public. The information used to compare the alternatives is based upon the design of the alternatives

### **Description of Activities**

The descriptions of proposed activities and mitigation activities are described for both Alternative 2 (Proposed Action) and Alternative 3. They were prepared to provide the reader with a reference regarding the activities that would occur for each action alternative. Following this discussion, a comparison table for the existing developments and the proposed activities is provided. The activities and their effects to the environment are described in Chapter 3, Environmental Consequences.

### **Alternative Descriptions**

Alternatives were developed by the Interdisciplinary Team to address the Purpose and Need and key issues that were brought forward through public and internal comment. Three alternatives are analyzed in detail. Action alternatives meet the purpose and need for action in varying degrees.

#### **Alternative 1 (No Action)**

Alternative 1 is the No Action alternative. This alternative is required by law and serves as a baseline for comparison of the effects of all of the alternatives. Under Alternative 1, there would be no change in current management direction or in the level of ongoing management activities within the project area, such as sno-park maintenance or hazard tree removal.

No change to the existing sno-park would occur. Vehicle parking would continue to overflow from the designated parking area to Forest Road 4615 and along Highway 46, particularly during weekends and holidays. The current trail system would remain the same, both groomed and ungroomed trails. Night skiing would continue without the use of artificial lighting along approximately five kilometers of trail. The terrain park that would provide skiers an area to improve their skiing skills would not be developed. The staging area for racing events and the general public would not be developed. A warming shelter, additional toilet facilities for the increased public use of the area, and informational kiosk would not be constructed.



## Alternative 2 (Proposed Action)

Alternative 2 is the proposed action. This alternative was developed to address the desire and need for improvements at the Meissner Sno-park. Table 1 displays the need for action and how that need would be addressed.

<b>Table 1: Alternative 2 – Proposed Actions for the Meissner Sno-park</b>	
<b>Need for Action</b>	<b>Proposal for Action</b>
To offer new opportunities for various skill levels of Nordic skiers, there is a need to provide a variety of new trails.	Create 9.7 miles of trail, 18 feet wide (Figures 6 & 7). These would be trails of varying levels of difficulty.
To accommodate additional trail grooming, there is a need to remove vegetation along the sides of existing roads and trails, widening trails to grooming width.	Remove vegetation along 9.1 miles, from existing 13 feet wide out to 18 feet wide.
To expand the opportunities for all Nordic skiers, there is a need to expand the grooming area to include the proposed numbers 1 and 9 trails.	Trail number 1 is between Highway 46 and the Tangent Loop Trail; Trail number 9 is north of Forest Road 4615080.
To provide longer, safer use of the sno-park trails for both beginning skiers and children there is a need to install low impact lighting.	Initially, 3 km (1.9 miles) with an additional 7 km (4.3 miles). This lighting would be powered by photo voltaic cell.
To develop and improve ski skills for adult beginning skiers and children there is a need to provide an area for a terrain park.	Approximately 2.7 acres, west side of Forest Road 4615. A track excavator would be used to shape terrain.
To provide warmth, shelter, and a location for groups to gather, particularly during race events, there is a need to provide a warming shelter that is easily accessible to the parking area. This shelter would provide a warming area, changing rooms, and a small kitchen.	2,748 square feet Immediately northeast of the parking area (Figure 4). The shelter would be lodge style.
To accommodate increases in public use and to reduce illegal parking along Forest Road 4615 and Highway 46 there is a need to increase the capacity of the existing designated parking area.	Increase the parking area from the present 60 spaces to 180 spaces. Approximately 1.5 acres would be affected. See Figure 5 for conceptual design.
To help meet the increased demands of the public there is a need for an additional toilet facility.	Construct double vault toilet immediately adjacent to the parking area, near shelter.
To provide a focal point at the head of the trail system and provide an area for group events, including instructional and competitive, there is a need to provide a staging area.	Approximately 1 acre; tree & brush removal immediately to the north of the parking area, adjacent to the warming shelter; screening to be maintained between parking and staging area, and trees to be maintained throughout (Figure 6).
To provide a maps, information, and history of the area and to designate the start of the trail system, there is a need to construct an informational kiosk.	Roofed signboard adjacent to parking area within staging area
To provide a cleaner storage area and provide a better space to do repairs in the pole barn that provides storage of the snow groomer and equipment, snowmobile, and supplies, there is a need to have a better surface for the floor other than dirt.	Replace the dirt floor with a concrete floor

Figure 4: Alternative 2 (Proposed Action) Warming Shelter – 2,748 Square Feet

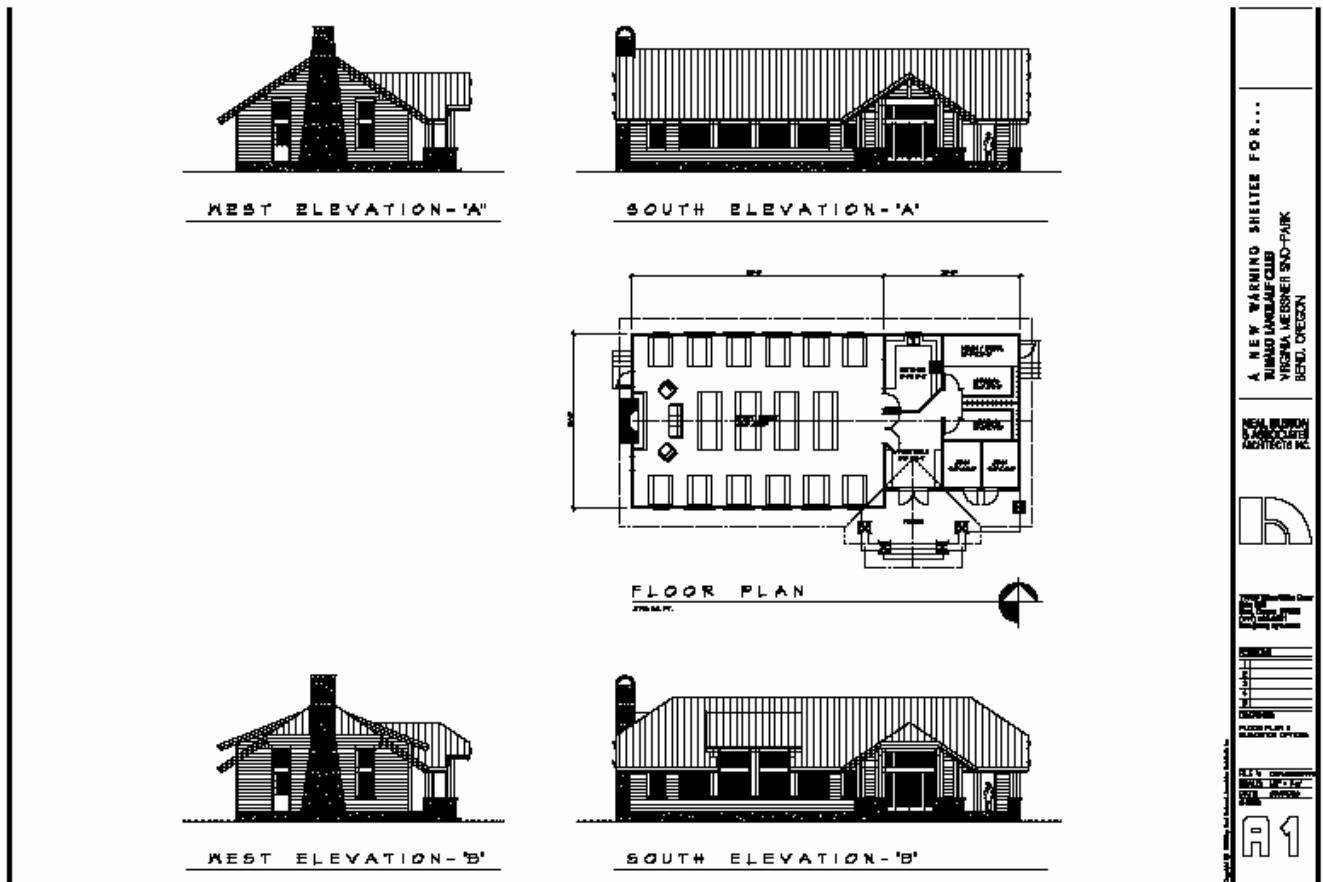
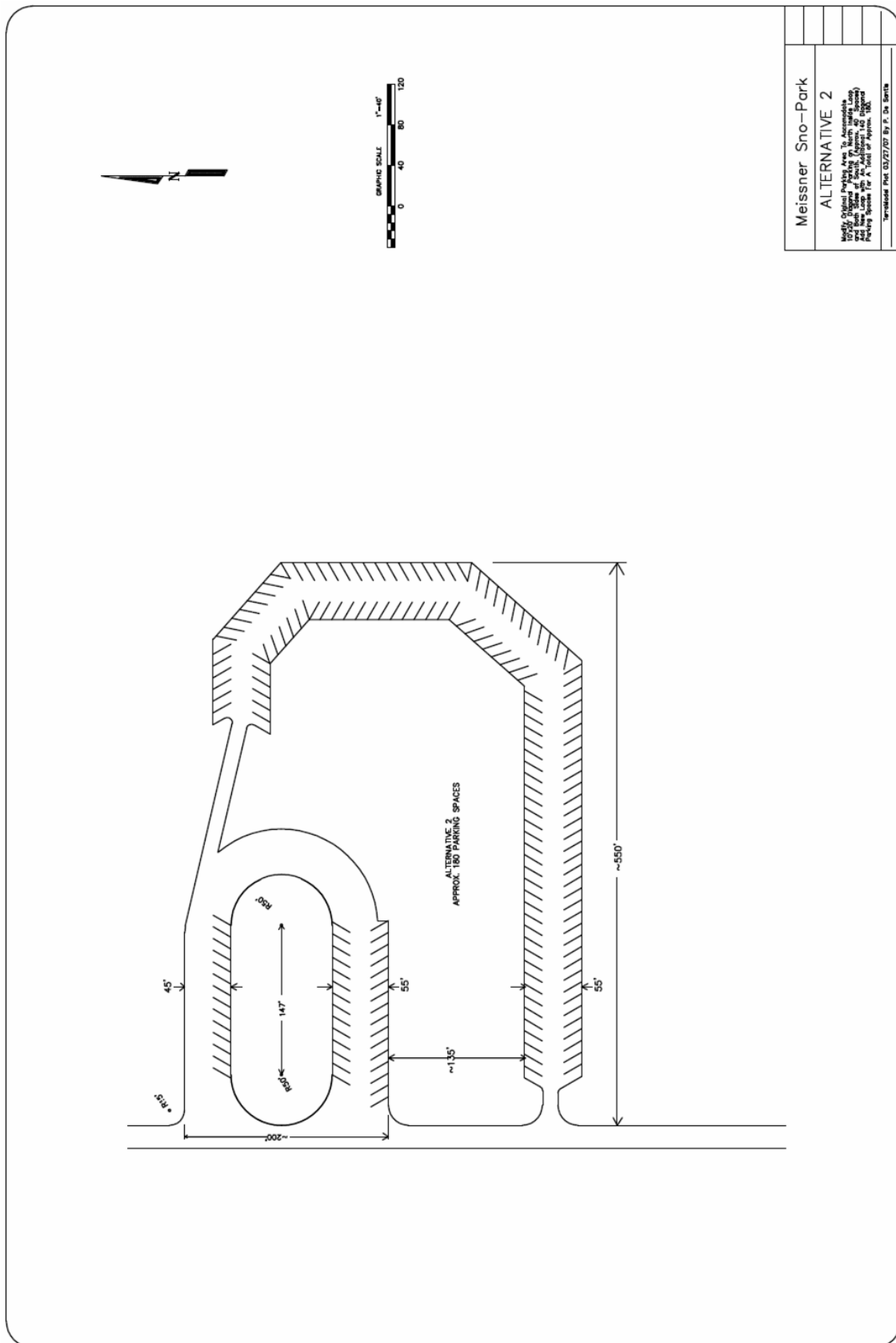


Figure 5: Alternative 2 (Proposed Action) Proposed Parking Area – 180 Vehicle Spaces



### Alternative 3

Alternative 3 was developed to address the Key Issue as discussed in Chapter 1. This alternative would continue to meet the purpose and need by proposing a smaller parking area and smaller warming shelter. There would be **no** lighted trails and there would be a net increase in ungroomed trails. Table 2 displays the need for action and how that need would be addressed.

<b>Table 2: Alternative 3 – Proposed Actions for the Meissner Sno-park</b>	
<b>Need for Action</b>	<b>Proposal for Action</b>
To offer new opportunities for various skill levels, there is a need to provide a variety of new trails.	Create 7.8 miles of trail, 18 feet wide (Refer to Figure 6 & 7)
To accommodate additional trail grooming, there is a need to remove vegetation along the sides of existing roads and trails.	Remove vegetation along 11 miles, from existing 13 feet wide out to 18 feet wide.
To expand the opportunities for all Nordic skiers, there is a need to expand the grooming area to include the proposed numbers 1 and 9 trails.	Trail number 1 is between Highway 46 and the Tangent Loop Trail; Trail number 9 is north of Forest Road 4615080
To develop and improve ski skills for adult beginning skiers and children there is a need to provide an area for a terrain park.	Approximately 2.7 acres, west side of Forest Road 4615. A track excavator would be used to shape terrain.
To provide warmth, shelter, and a location for groups to gather, particularly during race events, there is a need to provide a warming shelter that is easily accessible to the parking area. This shelter would provide a warming area, changing rooms, and a small kitchen.	1,370 square feet Immediately northeast of the parking area (Refer to Figure 4)
To accommodate increases in public use and to reduce illegal parking along Forest Road 4615 and Highway 46 there is a need to increase the capacity of the existing designated parking area.	Increase the parking area from the present 60 spaces to 120 spaces. Approximately 1.0 acres would be affected (Refer to Figure 5).
To help meet the increased demands of the public there is a need for an additional toilet facility.	Construct double vault toilet immediately adjacent to the parking area.
To provide a focal point at the head of the trail system and provide an area for group events, including instructional and competitive, there is a need to provide a staging area.	Approximately 1 acre; tree & brush removal immediately to the north of the parking area, adjacent to the warming shelter (Refer to Figure 8); Screening to be maintained between parking and staging area, and trees to be maintained throughout.
To provide a maps, information, and history of the area and to designate the start of the trail system, there is a need to construct an informational kiosk.	Put up a roofed signboard adjacent to parking area within staging area.
To provide a cleaner storage area and provide a better space to do repairs in the pole barn that provides storage of the snow groomer and equipment, snowmobile, and supplies, there is a need to have a better surface for the floor other than dirt.	Replace the dirt floor with a concrete floor

Figure 6: Alternative 3 (Proposed Action) Warming Shelter – 1,370 Square Feet

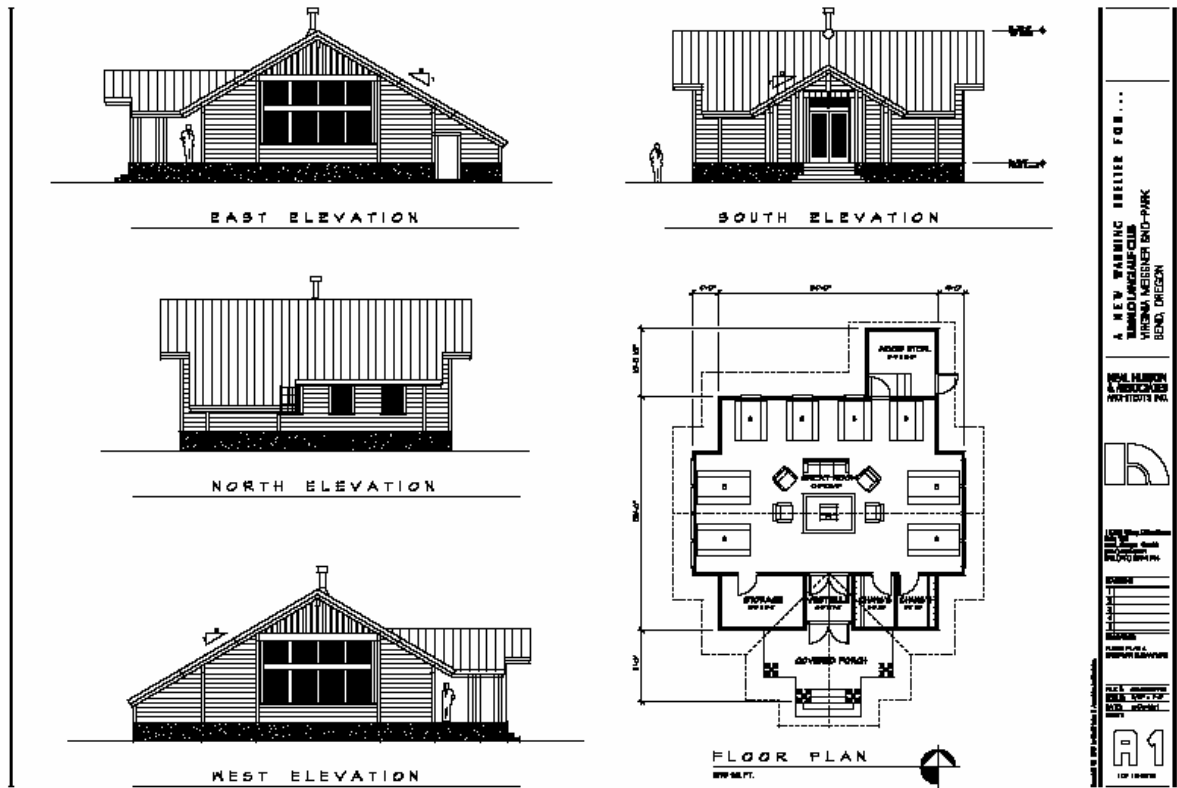
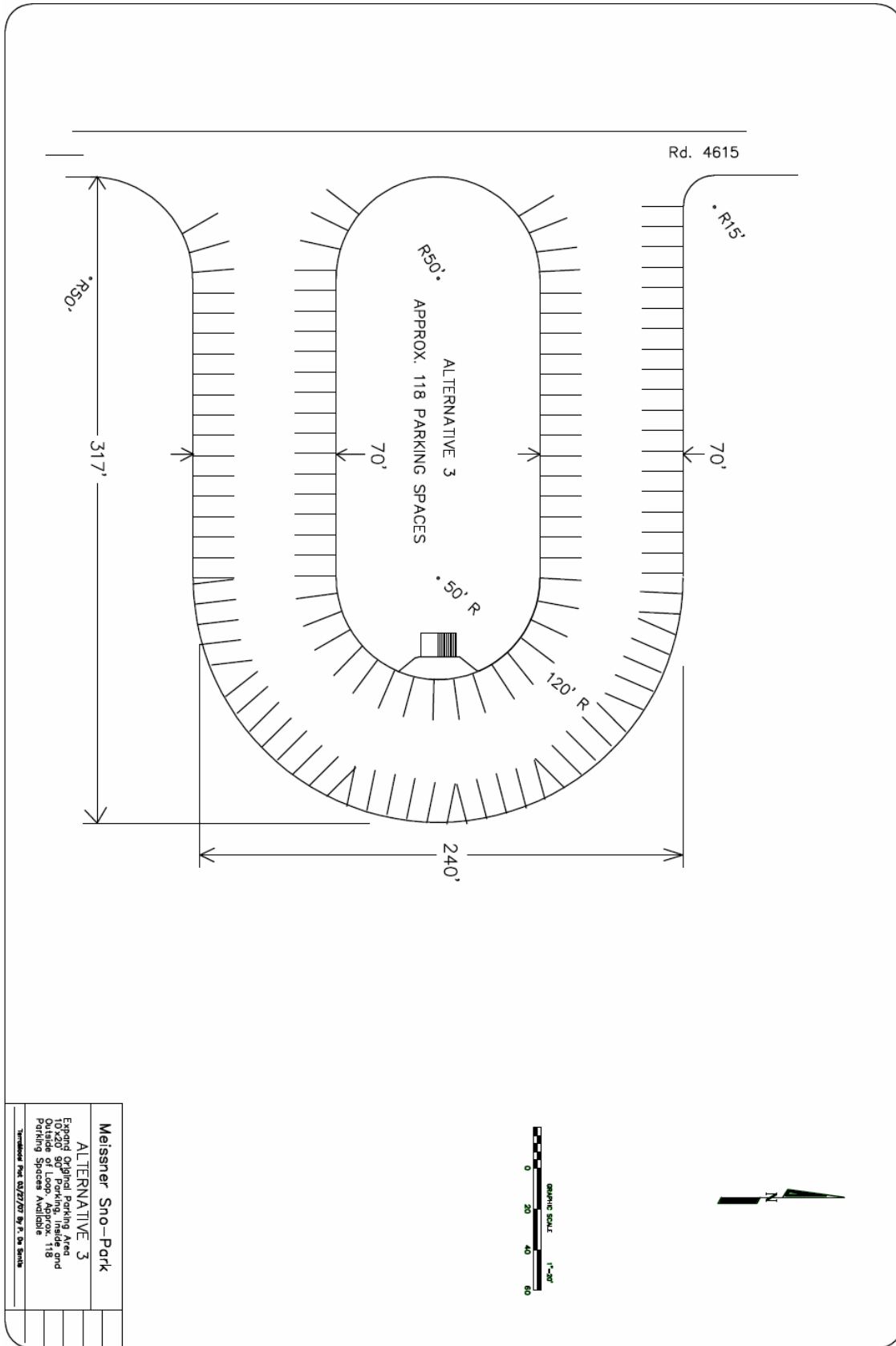
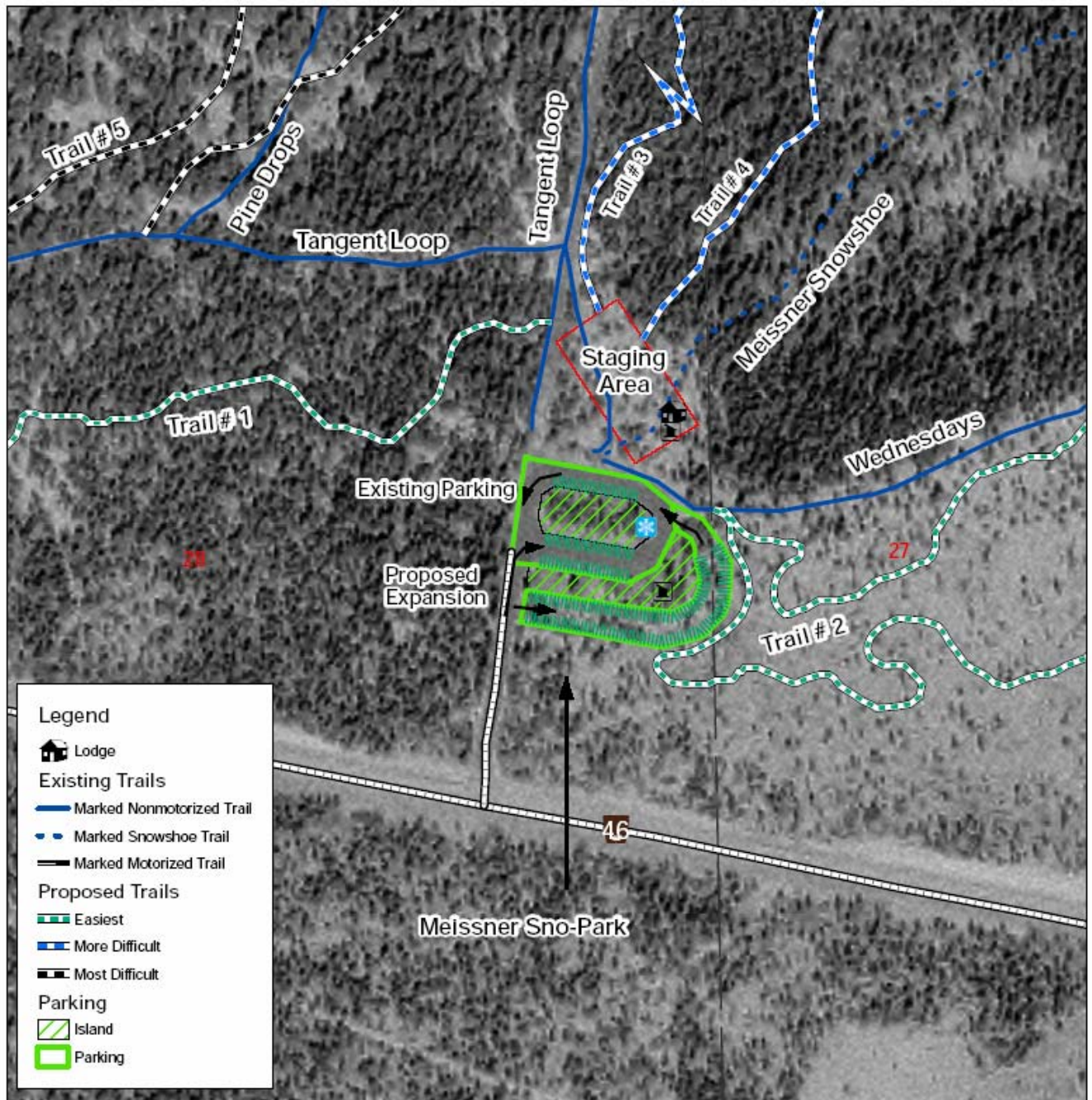


Figure 7: Alternative 3 Proposed Parking Area – 120 Parking Spaces



**Figure 8: Alternative 2 (Proposed Action) Proposed Parking and Staging Area with Proposed Trails 1 through 5.**



Figures 9 and 10 on the next two pages display the proposed expanded trails and grooming boundary. Expansion of the grooming boundary would include Trail numbers 1 (Section 28) and 9 (Sections 20 and 21).

# MEISSNER PROJECT Alternative 2

Figure 9

## Trails Types

- Existing - Groomed
- .... Existing - Ungroomed
- Proposed New - Groomed
- ▬ Trail On Road
- .... Other Trail Systems

▬ Arterial Roads

— Collector Roads

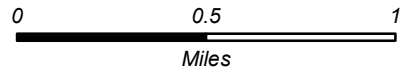
▭ Meissner Boundary

■ Nesting, Roosting, Foraging  
Habitat

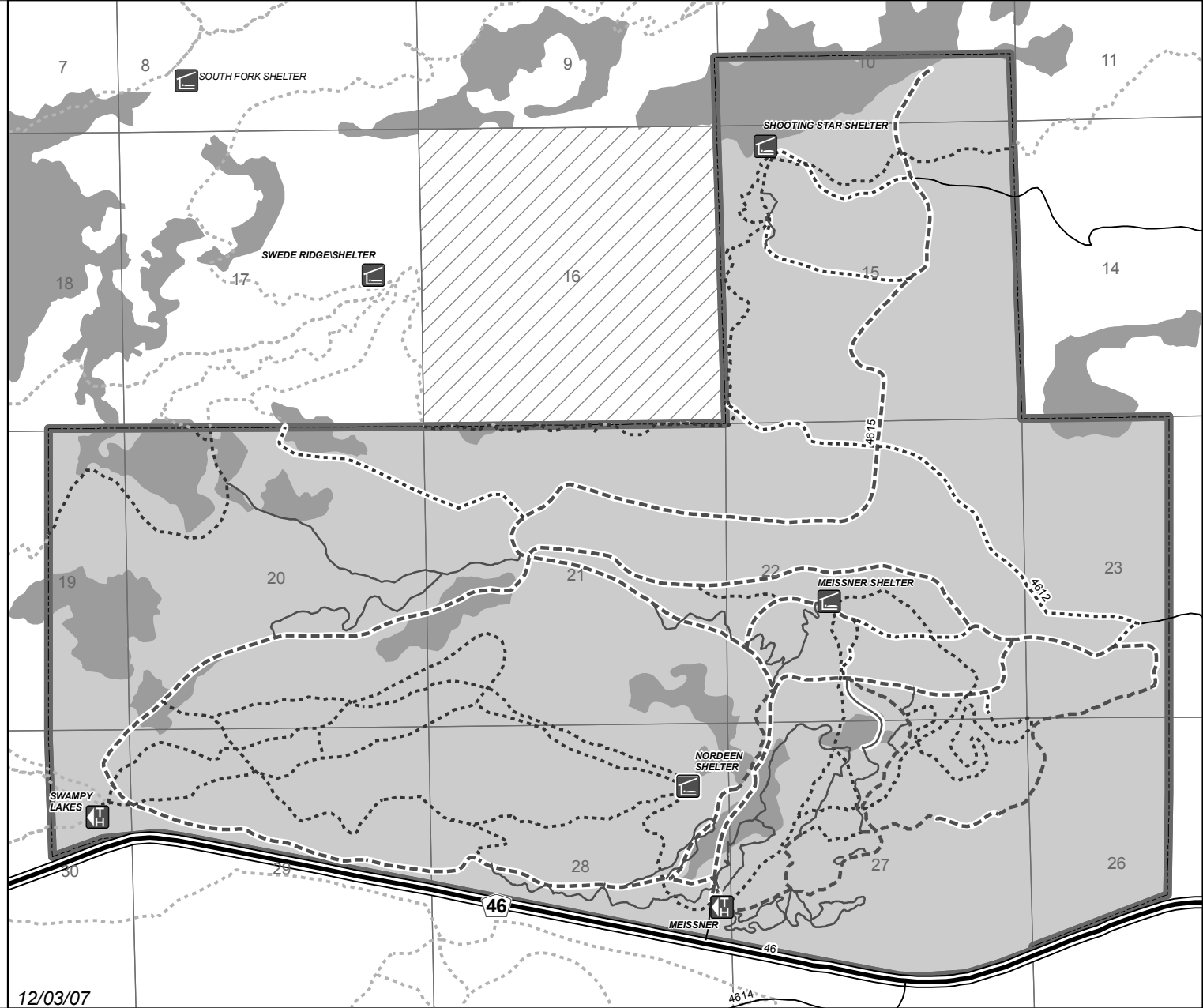
▨ Private Ownership

▣ Shelter

▣ Trailhead



T 18 S R 10 E



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# MEISSNER PROJECT

## Alternative 3

Figure 10

### Trails Types

- Existing - Groomed
- ..... Existing - Ungroomed
- .... Existing with Proposed Action - Groomed
- Existing with Proposed Action - Ungroomed
- Proposed New - Groomed

— Trail On Road

▬ Arterial Roads

— Collector Roads

..... Other Trail Systems

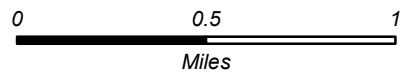
▭ Meissner Boundary

▨ Private Ownership

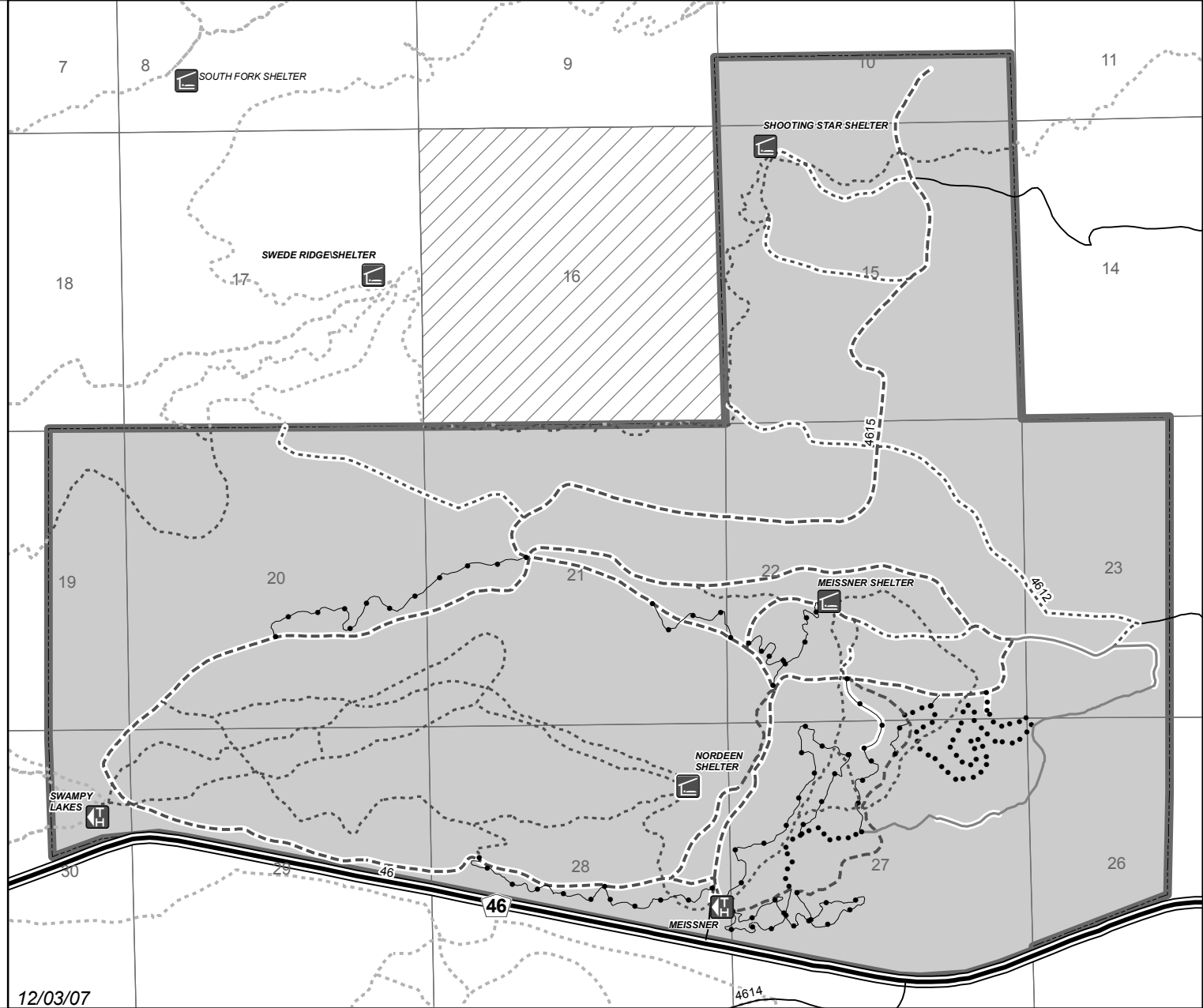
▣ Shelter

P SnoPark

⊞ Trailhead



T 18 S R 10 E



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## Resource Protection Measures Common to All Alternatives

Alternatives are designed to be consistent with the desired condition specified in the LRMP and the standards and guidelines contained therein. Resource protection measures are an integral part of each of the action alternatives. The following would be applied to reduce potential adverse impacts of Alternative 2 (Proposed Action) and Alternative 3.

### *Water Protection*

Any gas-powered or hydraulic equipment used in the construction of trails shall be refueled outside of streams and riparian areas. (Source: BMP T-21 Servicing and Refueling of Equipment)

### *Noxious Weed Prevention*

Clean all equipment before entering *and after leaving* National Forest System lands. Remove mud, dirt, and plant parts from project equipment before moving it into the project area and before proceeding to the next project.

Prior to project initiation, visit the known weed sites and treat those that are small enough to be hand-pulled. At the same time, check the project area for any new weeds that may have entered it and treat any weeds found.

### *Recommendations for Weed Prevention/Education:*

Incorporate noxious weed monitoring as part of the area for noxious weeds annually, if possible, after the project ends. If any noxious weeds are found they should be removed.

During the snow-free seasons, post noxious weed educational information at the site kiosk.

### *Wildlife*

#### *Project Design Criteria*

PDC #1 – To assure that suitable NRF habitat is remaining vacant, or becomes occupied by a pair of northern spotted owls, maintenance monitoring for northern spotted owls would occur every three years, starting in the year 2010, within ¼ mile of any groomed trails. If spotted owls are discovered within any of these particular stands, grooming would be seasonally restricted beginning on March 1. Also, if owls are found in any stands immediately adjacent to lighted trails, these trail lights would also be seasonally restricted beginning on March 1. Maps would be provided to the project file of the NRF stands that this would pertain to.

PDC#2 – To reduce potential negative impacts to wildlife that utilize this area during the winter, lighting would need to be shield, canter, or cut lighting to reach only the areas needing to be illuminated at the lowest possible wattage and spectrum. Lighting would occur on ski trails that are on roads only. Lighting would not occur on more than the proposed furthest distance (6.2 miles), days of the week (up to 5 days a week), or hours per day (up to 4 hours per day). If at any time, these lights are found to have a negative impact to wildlife, even with these measures, the Forest Service would revisit this issue. Options include reducing the distance lighting can be used, reducing the number of days per week, reducing the number of hours per day the lights are used, or removing the light altogether.

PDC#3 – To aid in reducing the impacts of fragmentation from trail construction and to deter from potential motorized and bike use during the summer, all green trees and/or snags felled during trail construction up to 12” dbh or less would be felled onto the trail bed (whether it is a groomed trail or not). All trees greater than 12” dbh can be felled to the outside of the trail bed. Logs larger than this would also be moved on site to the outside of the trail bed. All current trails that are void of this material (groomed or not), must have it placed in areas where they intersect with system roads or other non-winter

trails for the complete sight distance, either by felling an occasional tree or bringing the material from another sight. These new or widened trails would also need to be signed as no motorized or bike use. As another means to discourage motorized use outside of the Nordic season, where trails take off from existing open roads, the ground could be scarified for up to 50 feet.

PDC#4 – To prevent disturbance and possible nest abandonment by northern goshawks, none of the proposed actions of either of the action alternatives would take place within ¼ mile of the active nest from March 1 – August 31. This includes trail construction, parking lot expansion, lodge construction, improvements to the pole barn, and staging area construction. Artificial trail lighting and trail grooming would also be prohibited starting March 1 on this section of trail (4615 Road). Maps would be provided in the project file highlighting where outside of this ¼ mile restriction that activities could occur. This site could be monitored to determine nesting status. If nesting activities are not observed by May 15, project activities within this ¼ mile restriction could proceed (WL-12).

PDC #5 - Any active raptor nest found during management activities would be protected from disturbing activities within ¼ mile (1 mile for the use of explosives or activities associated with the rock breaker) of the nest by restricting site disturbing operations during the following periods:

<i>Northern goshawk</i>	<i>March 1 – August 31 (WL-11)</i>
<i>Cooper's hawk</i>	<i>April 15 – August 31 (WL-19)</i>
<i>Sharp-shinned hawk</i>	<i>April 15 – August 31 (WL28)</i>
<i>Red-tailed hawk</i>	<i>March 1 – August 31 (WL-3)</i>
<i>Golden Eagle</i>	<i>January 1 – August 31 (WL-3)</i>
<i>Osprey</i>	<i>April 1 – August 32 (WL-3)</i>
<i>Great gray owl</i>	<i>March 1 – June 30 (WL-33)</i>

A Bend/Ft. Rock Wildlife Biologist should be notified as soon as possible to determine the species of raptor if unknown, and to make a determination of nesting status and which trail construction activities need to cease and which can continue.

PDC#6 - Surveys for great gray owls have not been conducted, but should occur in one particular area within the Meissner Project area. Surveys should begin in 2008 and run for two consecutive years. The 2008/2009 surveys would use the method outlined in Quintana-Coyer, et al. (2004) “Survey Protocol for Great Gray Owls within the Range of the Northern Spotted Owl.” These surveys would be combined with surveys occurring within other project areas nearby. Trail construction on the North Tangent trail would be seasonally restricted from March 1 to June 30 (WL-33) and grooming of this same trail would not occur starting on March 1 of each year until the two year protocol is complete.

### *Mitigation Measures (Implementation Coordination)*

MM#1– During trail construction, place the proposed routes on the landscape in a manner where the least amount of habitat would be impacted (i.e. more open areas on the ground). To help retain habitat for species that need larger trees, snags, or CWM habitat, avoid as much as possible cutting large trees and snags (>18” dbh) or cutting through large single snags (>18” dbh) or large piles of CWM (place trails on outer edges, not through the middle of them). Try to route trails around this type of habitat.

### *Recommendations*

R #1 - To avoid potential nest abandonment, nest destruction, and loss of broods for woodpeckers, cavity nesters, and focal bird species, within or immediately adjacent to the project area, do not conduct trail construction activities (felling of trees and brushing out trails) during the period April 1 – August 15. Implement activities where possible during the fall, winter, and early spring (September through March). If the specified restriction period must be compromised, project activity at the beginning of the period

(within the first month) would be considered. If these activities could be done during these time periods, impacts such as disturbance and abandonment of nests or even nest destruction would be reduced.

### *Monitoring*

M#1 – Monitoring of the northern goshawk pair within the project area should occur on a yearly basis to determine if the activities from either of the action alternatives is having an impact on nesting success.

### *Soils*

- Forest Service recreation management specialists should ultimately be involved with the final design specifications for the new and modified recreation facilities. Considerations include visual and environmental impacts as well as costs associated with construction and maintenance.
- Under Alternatives 2 and 3, include appropriate Best Management Practices as part of the project design. Apply appropriate erosion-control measures to all ground disturbing activities associated with the construction and development of new facilities, as described in General Water Quality Best Management Practices (Pacific Northwest Region, 1988).
- Provision should be made for surface drainage from new recreation facilities as well as safe passage of surface runoff from other developed sites. The amount of maintenance can be reduced if drainage structures are properly installed during new construction.
- Consider the need for revegetation measures following construction activities to accelerate the re-establishment of ground cover vegetation and minimize soil particle movement. This would include seeding with an appropriate erosion-control seed mixture recommended by a local specialist, and the application of mulch and fertilizer as necessary.
- LRMP standard and guideline SL-6 (page 4-70 and 4-71) provides ground cover objectives to minimize accelerated erosion rates on disturbed sites with unprotected soils. On disturbed sites that would not be paved or covered with surfacing materials, it is expected that management objectives would be met by achieving 30 to 45 percent effective ground cover within the first year after disturbance and 46 to 60 percent cover after two years.
- Effective ground cover includes all living or dead herbaceous or woody materials and rock fragments greater than three-fourths of an inch in diameter in contact with the ground surface, including tree or shrub seedlings, grass, forbs, litter, and woody biomass.
- Monitor the implementation and effectiveness of erosion-control and other resource protection measures during and following construction activities. Prioritize where maintenance activities are needed and conduct regular preventative maintenance to minimize erosion damage on developed sites and in adjacent, runoff delivery areas.
- Due to presence of sensitive soils on slopes greater than 30 percent, consider the need for restricting mountain bikes and any other authorized recreation use to designated trail systems to minimize impacts to soils in adjacent areas.

## Comparison of the Alternatives

Table 3 compares the alternatives in relation to the activities proposed in Alternative 1 (No Action), Alternative 2 (Proposed Action), and Alternative 3. Measurements are approximate.

<b>Table 3: Comparison Of Alternatives</b>			
<b>Proposed Activity</b>	<b>Alternative 1 Existing</b>	<b>Alternative 2</b>	<b>Alternative 3</b>
Parking Lot Expansion (No. of Parking Spaces)	60	120 additional	60 additional
	60 total	180 total	120 total
Warming Shelter Size	0	2,748 ft. <sup>2</sup>	1,370 ft. <sup>2</sup>
Staging Area (Acres)	0	1	1
Trails – New (Miles)	0	9.7	7.8
Trails – Ungroomed (Miles)	9.3	0 additional	0.4 additional
Trails – Groomed (Miles)	12.8	9.1 additional	11 (3.2 miles on existing trails)
Trails – Lighting (Miles)	0	1.9 to 6.2	0
Expansion of Grooming Boundary to Include Additional Shelters	0	Trail #1 Trail #9	Trail #1 Trail #9
Terrain Park (Acres)	0	2.7 acres	2.7 acres
Double Vault Toilet	1	2	2
Informational Kiosk	Sign Board	Kiosk	Kiosk

## CHAPTER 3 – ENVIRONMENTAL CONSEQUENCES

This section of the environmental assessment considers the environmental consequences of implementation of the various alternatives. The effects may be direct, indirect, or cumulative.

This EA incorporates the Specialist Reports in the Project Record (40 CFR 1502.21). These Specialist Reports contain the detailed data, methodologies, analyses, conclusions, maps, references, and technical documentation that the resource specialist relied upon to reach the conclusions in this EA.

### Discussion of Effects – Key Issues

#### Key Issue #1 – Recreation Experience

The project area includes the trail system radiating from Virginia Meissner Snopark and is accessed by the Cascade Lakes Highway (CLH) on the Deschutes National Forest. This planning area is within 15 miles of Bend, Oregon. The area is comprised of gently rolling terrain with the intrusion of some steeper buttes. The terrain gains elevation to the west. Road 4615 is the main access off of CLH. Data collected from monitoring has indicated a forest-wide increase in use of 35% from 1982 through 1995 for dispersed type use. This equates to an increase of 35,000 Recreational Visitor Days (RVDs). Use has gone up on average in the developed campgrounds within the project area 44% in only a four-year period from 1995 through 1998. Facilities (such as parking areas like Meissner Snopark), and infrastructure at many developed sites are inadequate to meet today's needs and/or are in need of replacement or extensive repair.

Recreation use along all points of the CLH (and Scenic Byway) has been on the increase since the early-1980s, when Bend and Central Oregon became destination points for a variety of year-round outdoor pursuits. With abundant water, and the Cascade Mountains creating a spectacular backdrop, the Cascade Lakes area provides opportunities for camping (developed and dispersed), motorized and non-motorized boating, angling, and wildlife viewing during the summer and winter. These are only a handful of the more popular activities that thousands of people come to experience and enjoy every year.

More specifically, Meissner Snopark has always been a popular venue for Nordic skiing. In the last 5 years, there has been a marked increase in use there for two primary reasons; 1) the resurgence of snowshoe use and 2) the allowance of grooming of the Nordic trails for traditional and skate skiing. A series of snowshoe routes have been identified, inviting more snowshoe use. Also, the Tumalo Langlauf Club has been grooming with a full sized snowcat for skate skiing for two years. Meissner is the nearest snopark to Bend and the lowest elevation, creating the shortest season. Table 3, page 21 lists the current amount of trails and parking available.

Use at Meissner Snopark has increased by 100% from 1992 to 2000 in comparison to Swampy (located just to the west) where the use has only increased 40% (see Table 4). Since 2000 the snowshoe trail and skate ski grooming have been implemented. Currently, the parking lot is full all weekend and holidays and many weekdays. Car counts are not scientifically valid samples; rather they are rough estimates extrapolated from inconsistent counts.

**Table 4. Seasonal Use at Meissner Snopark from 1992 to 2000 (data extrapolated from car counts).**

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000
<b>MEISSNER</b>	4,054	2,371	4,536	5,982	3,431	4,511	5,584	9,036	8,273

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## Effects of the Alternatives

### Alternative 1

This alternative would continue current management. Recreation opportunities would remain relatively unchanged in the short-term. The trend of increased recreation use would continue which could reduce recreation opportunities for many at Meissner and force people to go elsewhere. They wouldn't however be able to ski on groomed routes unless they go to Mount Bachelors pay trail system. Use would continue to grow affecting parking opportunities and creating parking congestion and wrecks. Parking illegally is common now and would increase, creating a significant law enforcement challenge. As a result of finding no place to park, people would be dissatisfied. The trails would continue to become overcrowded causing more conflicts and more people dissatisfied. Increasing use would continue, resulting in more encounters on the trail system. This would be expected for many but no desired by some. Typical displacement would occur, with the likely results being increased use at Swampy Snopark and trails as well as Wanoga, where there are no designated trails but dogs are allowed off leash. The overflow from Meissner would increase the parking at the Snowplay Snopark, potentially displacing snowplay users. This alternative would not meet the purpose and need identified for the project.

The Cascade Lakes Highway connects Bend and other Central Oregon communities with many winter recreation sites, including Mt. Bachelor, a major ski resort. Most morning traffic on the Cascade Lakes Highway can be attributed to people heading to Mt. Bachelor or the snoparks. Use at Meissner constitutes approximately 5% of the use of the highway (100-150 vehicles per day with Meissner their destination, out of 1,800-2,000 per day using the highway on a weekend). With the rapid growth in Central Oregon, one can expect traffic on the Cascade Lakes Highway to increase, as people head to many destinations. With this growth, there would be expected incremental increases of traffic to Meissner under any of the alternative.

### Alternative 2

The proposed action would provide for current and future use tripling the parking potential to 180 parking slots and increasing the amount of trail, as well as constructing a shelter, toilet, staging area and terrain park. This alternative meets the purpose and need for the project at the largest level compared to the No Action or Alternative 3.

**Parking lot size:** The increase in parking to 180 spaces (120 space increase) would provide for current use on weekends as well as holidays. It should eliminate the need for vehicles to park outside of the snopark. It is estimated that future use would continue to increase and ultimately would max out again within 10 years given existing and expected trends in population and use. This would provide for more satisfied people being able to find parking and more encounters on the ski/snowshoe trails. This equates to 4.3 parking spaces per mile of trail compared to 1.7 spaces per mile of trail currently. Given an average of 2.7 people per vehicle, alternative 2 would result in 486 people dispersed on the trail system at one time, at full capacity. This is compared to 162 people on the trail system at one time currently. In other terms, if evenly dispersed, the trail system currently would hold 4.7 people per mile of trail compared with 11.6 people per mile in alternative 2. This relates to having an additional encounter on the trail system with another person 2.5 times as often, all things being equal and use being evenly distributed. This comparison does not take into account the number of skiers that park along the road in the current situation.

**Shelter:** The shelter would be 2748 square feet in size and lodge style. It would be larger and more elaborate than any in the area. It would be used by skiers preparing to ski and snowshoe. The size would allow for large groups inside for social events or race events. The shelter would likely add to the length of time that a user or group of users would be at the snopark. This could result in fewer people being able to park at peak times.

**Lighting:** Under Alt. 2, 4.3 miles (7 kilometers) of trail would be lit with low voltage lighting which faces down and lights the trail route. Lighting could affect the experience of some as opposed to natural lighting from the moon, or from using a headlamp. The trail lighting is designed to illuminate the route so that in the short day winter months, the day can be extended for more people, especially for those who aren't able to use the facility until late in the day. This would be a benefit for cross country ski teams especially.

**Trails:** 12.8 kilometers (7.8 miles) of new trail would be constructed under alternative 2. These trails or reroutes of existing trails would serve to provide better gradients on all trails while creating loop opportunities which lend themselves to enhancing race routes. The additional trails are mostly within 2 miles of the trailhead, adding to the dispersal of users within a timeframe in which most people ski, and increasing the density of trails closest to the snopark. On average the ski time is around 2 hours, which relates to 4-6 miles. These new trails would help disperse that close-in use. Other existing trails 23 km (14.3 miles), would be widened for skate skiing grooming width. This would create the opportunity to groom a total of 35.8 km of trails for skating or traditional Nordic skiing. Increasing the trail system for some would be changing the character of the Meissner area. Some prefer to have non – groomed trails. See discussion above under Parking lot size for comparison of effects on the trail system. The trail density is highest near the snoparks and becomes less so the farther away one gets.

**Common to all alts:** The terrain park, staging area and toilet are the same for all action alternatives. The terrain park would provide for training in mild gradient skiing and practicing turns. The staging area would be utilized for events and would be the same for all alternatives. The shelter would be located in/near the staging area. The toilet would be a double vault toilet and would be located near the shelter. The staging area, containing the shelter and toilet would be approximately one acre which would be cleared of most vegetation. Vegetation would be utilized on site or disposed of on site.

Direct effect of the shelter and toilet construction amount to .07 acres and the expansion of the snopark will be approximately .4 acre. These facilities would be retrievable in the long term but would be considered dedicated ground.

Indirect effects would include the flow of people in and around the facilities and snopark itself. The new shelter and the toilet would be located in the staging area and would be a gathering place for people out of the vehicle traffic flow. Those wanting to exit the parking lot directly onto the trails would be able to do that and those who wanted to linger in and around the shelter before or after could do that as well. It would be easy for those wanting to get on the trails quickly and disperse to do so. The shelter would be used for group social events and for a gathering place for races or other permitted events. All would have to go through the permit process for recreation events.

The lighting would extend the day use for a relatively short distance and would likely be used more for those wanting a short duration ski and physical workout, such as ski teams and other individual competitors. Those desiring to enjoy the beauty of the area as well as exercise would likely come during daylight hours.

This alternative is consistent Forest Plan direction for recreation in General Forest because the project is proposed in an area that does involve a concentration of recreation use already (M8-2); and it is consistent with direction for Winter Recreation because the project provides additional winter recreation opportunities within a forest environment that can be modified for visitor use and satisfaction (MA-13) and it continues the separation of motorized and non-motorized use while providing parking, shelters, and other structures to support the recreational activity that is occurring there (M13-2).

### **Alternative 3**

Alternative 3 would modify the size of the snopark expansion, the trail system and the shelter and would not approve lighting of trails. This alternative meets the purpose and need for the project, but at a more modest level compared to Alternative 2.



**Parking lot size:** The parking lot expansion would be limited to doubling the size to approximately 120 vehicles. This would be adequate for the current use and would likely fill up on a few holiday days each year. In the long term, the parking lot would accommodate future use for approximately 5-10 years. In limiting the expansion it would provide for current and future parking needs but would limit at some point and some times the overall use at one time. This would also limit the amount of congestion on the trail system with fewer encounters while skiing. This equates to 2.8 parking spaces per mile of trail compared to 1.7 spaces per mile of trail currently. Given an average of 2.7 people per vehicle, alternative 3 would result in 324 people dispersed on the trail system at one time, at full capacity. This would be compared to 162 people on the trail system at one time currently. In other terms, if evenly dispersed, the trail system would currently hold 4.7 people per mile of trail compared with 7.6 people per mile in alternative 3. This relates to having an additional encounter on the trail system with another person 1.6 times as often, all things being equal and the use being evenly distributed. This comparison does not account for the users that are currently parking outside of the Snopark.

**Shelter:** The shelter would be about 1370 square feet in size and lodge style. The size is commensurate with others in the area. The size would allow for moderate sized groups inside for social events or race events. People would tend to get prepared outside more and/or spend less time inside if the shelter is crowded. The size of the parking area would be adequate for current and future use. Larger groups would not be accommodated as well as in alternative 2, and the size of the shelter in this alternative is commensurate with other snopark shelters in the area.

**Lighting:** Under Alt. 3 there would be no lighting of trails. The effects would be no different than present, where the moon light or headlamps light the way, creating a more primitive/natural experience.

**Trails:** 12.6 kilometers (7.8 miles) of new trail would be constructed under alternative 3. These trails or reroutes of existing trails would serve to provide better gradients on all trails while creating loop opportunities which lend themselves to enhancing race routes. The additional trails are mostly within 2 miles of the trailhead, adding to the dispersal of users within a timeframe in which most people ski and would increase trail density closest to the snopark. On average the ski time is around 2 hours, which relates to 4-6 miles. These new trails would help disperse that close-in use. Alt. 3 has less new trail development to the east (Section 21) where trails are not as close together. Other existing trails 23 km (14.3 miles), would be widened for skate skiing grooming width. This would create the opportunity to groom a total of 35.8 km of trails for skating or traditional Nordic skiing. Increasing the trail system for some would be changing the character of the Meissner area. This alternative would provide a net increase of 0.4 miles of non-groomed trails which would be accessed within a mile of the parking lot. This would provide a more traditional experience for those who like it.

**Common to all alts:** The terrain park, staging area and toilet are the same for all action alternatives. The terrain park would provide for training in mild gradient skiing and practicing turns. The staging area would be utilized for events and would be the same for all alternatives. The shelter would be located in/near the staging area. The toilet would be a double vault toilet and would be located near the shelter. The staging area, containing the shelter and toilet would be approximately one acre in size, which would be cleared of most vegetation. Vegetation would be utilized on site or disposed of on site.

The proposed changes at Meissner proposed changes could cause effects on parking and use at Swampy and Wanoga Snoparks. With a larger lot at Meissner, there will be less pressure in the short term (10 years) on adjacent lots. On peak days and for events there would be an impact on parking at Swampy and potentially at Wanoga, as typical day users would be displaced during the peak times. These are estimated at approximately 6 days per season.

The overall use in the area would continue to increase at all snoparks and ultimately would result in full facilities on many weekend days during the season. In the long term (> 10 years), alternative transportation options would need to be explored and implemented such as shuttles from town.

In general, management of snoparks and winter recreation sites along the Cascade Lakes Highway would provide for high numbers of people while still protecting resource values. Users would expect increased

numbers of encounters while on the trail system. For those who value solitude the Forest provides other less used or less trailed area to explore and utilize.

This alternative is also consistent Forest Plan direction for recreation in General Forest because the project is proposed in an area that does involve a concentration of recreation use already (M8-2); and it is consistent with direction for Winter Recreation because the project provides additional winter recreation opportunities within a forest environment that can be modified for visitor use and satisfaction (MA-13) and it continues the separation of motorized and non-motorized use while providing parking, shelters, and other structures to support the recreational activity that is occurring there (M13-2).

## Discussion of Effects – Analysis Issues

### Wildlife

Discussion of the effects to wildlife is divided into the following sections: PETS Species, other rare and uncommon species, Management Indicator Species, Landbirds/Birds of Conservation Concern, and Special Habitat Features (Dead Wood, Coarse Woody Materials, and Late Seral and Old Growth Habitat).

#### *Field Reviews and Analysis Methodology*

Protocol Surveys to determine presence and nesting status were conducted for the northern spotted owl during the nesting season. Surveys for northern goshawk were conducted along proposed trails and at a historical nest site within the project area, also during the nesting season. Specific timing and methodology of the survey can be found under the species discussion. Field reconnaissance was conducted in the spring-fall 2006 and 2007 for habitat suitability specific to the species listed in Table 6.

A project boundary was placed around the proposed trail system to help in the analysis process. This boundary includes the existing Meissner ski-trail system and the proposed grooming expansion boundary and proposed new trail system. This area is approximately 4,643 acres (see alternative maps).

In some cases, in the absence of scientifically rigorous species surveys to determine population numbers and exact locations for each of the 58 species considered in the BE and Wildlife Report that have known or potential habitat within the general area, habitat and habitat components, in conjunction with anecdotal individual sightings were used for the analysis with the assumption that if appropriate habitat is available for a species, then that species occupies or could occupy the habitat. In other words, in the absence of protocol and scientifically rigorous surveys for all 58 species, a species was presumed present unless proven absent. Examples of specific habitat components that could be analyzed include: snag/coarse woody material (CWM) habitat, green tree replacements (GTRs), late/old structural habitat (LOS). Population trends were determined by assessing how the alternatives impact the structure and function of the vegetation (i.e. habitat) relative to the current and historic habitat availability in conjunction with state conservation status information and ranking for the species in the Natureserve (2007) database (<http://www.natureserve.org/explorer>).

In addition to field reconnaissance information, current analysis tools, recent and best available science, and Geographical Information System databases provided additional information.

Some wildlife habitats required a more detailed analysis and discussion. Level of analysis depends on the existing habitat conditions (i.e. limited habitat availability versus widespread habitat availability), the magnitude and intensity of the effects of the proposed actions (i.e. would the proposed actions cause a loss, no change, or increase in habitat), the risk to the resources (sustainability and availability of the habitat), and the issues identified. These factors were used to form conclusions as to how the information in regards to the effects would be useful and relevant in the process of making an informed decision.

#### *Methodology for Cumulative Effects including Bounding*

Potential cumulative effects are bounded by 6<sup>th</sup> field subwatersheds, of which two occur within the project area (Benham Falls and Lava Island Falls). To get a broader look at what possible cumulative effects are for species such as the northern spotted owl, not only were the subwatersheds that the project occur in reviewed (2), but the subwatersheds that two other recreation projects are to occur in were also reviewed. The two recreation projects (in the planning stage) are Kapka Butte Snopark and the Mountain Bike Events Course. These projects involve building additional trails and facilities. The area of impact for these projects covers an additional three subwatersheds. So the subwatersheds include in cumulative effects analysis are: Lava Island Falls, Benham Falls, Coyote Springs, Spring River, and Dutchman Creek (the project area includes two other additional subwatersheds, but the acreage included was low, and no new trails occurred within them, thus these two were not included within the analysis). This scale was chosen as the initial bound because it sets a logical boundary that is not too large, as in a 5<sup>th</sup> field watershed, or too small as the project boundary. Benham Falls, Coyote Springs, and Lava Island Falls subwatershed boundaries were clipped either at the Forest Service boundary or the Deschutes River because of the majority of the trails and recreation activities occur on the west side of the river and to delete the high percentage of private lands in these areas.

The cumulative effects are focusing on fragmentation from roads, trails, facilities, wildfires and timber sales (40 years old and newer), and how the fragmentation could possibly be breaking up the landscape for species that need core undisturbed habitat for successful breeding. Fragmentation will be discussed as a part of this project with current condition within the Specific Habitat Features Section and cumulative effects analysis within the listed subwatersheds for species that would be more affected by fragmentation (i.e. northern spotted owl and northern goshawk).

For bounding in time, generally 20 years is considered because it not only can represent multiple generations of a species, but also tree growth can alter the classification of habitat structure in this timeframe, and often, new management policies are in place.

For analysis of cumulative effects and other actions, the following present and reasonably foreseeable actions are considered: Any effects of past actions are indistinguishable from each other and combined have been considered as part of the existing condition and the suitability or quality of the habitat.

**Table 5. Ongoing and Reasonably Foreseeable Projects for Cumulative Effects Analysis**

Project	Description	Potential Cumulative Effects
<b>Ongoing Actions</b>		
County roads Right of way maintenance	Grading, hazard tree removal and snow removal	Loss of individual trees and snags; disturbance, edge effects
East Tumbull, Klak,	Commercial Thinning, Pre-commercial thinning	Reduction of hiding cover; delayed recruitment of small diameter (<15") snags and logs; increase in recruitment of larger trees (eventually larger snags and logs), increased shrub cover; fragmentation and edge effects
Kapka, Klak	Whipfalling	Reduced hiding cover, and multi-storied stands, increase in recruitment of larger trees.
East Tumbull	Mowing/Burning to reduce fuel hazard	Reduced shrub habitat; reduced winter forage, loss of nests, increased retention of trees, snags, and logs in event of wildfire.
Kapka, Kit, Klak	Machine piling	Loss of logs and disturbance
Kapka, Kit, Klak	Subsoiling	Disturbance
Midstate Electric Powerline Maintenance	Hazard trees, pole changes, mowing, access roads already established	Loss of individual trees and snags, maintenance of open habitat, access to recreating public

Project	Description	Potential Cumulative Effects
Trail Maintenance (hiker, biker, cross-country skiing, snowmobile)	Hazard tree falling/removal	Loss of individual trees, snags, and logs. Winter trails become more open allowing for other uses to occur during non-snow months; disturbance throughout the year.
Mountain bike trails (Lair Downhill trails)	biking trails	Human disturbance, fragmentation, edge effects
Hiking trails	miles of hiking trails	Human disturbance, fragmentation, edge effects
Edison OHV Trail System	miles of OHV trails	Human disturbance, fragmentation, edge effects
Edison Butte Sno-park, Swampy Lakes Sno-Park, Vista Butte Sno-park	miles of cross-country ski trails and snowshoe trails	Human disturbance, fragmentation, edge effects
Edison Sno-park, and Wanoga Sno-park	miles of snowmobile trails	Human disturbance, fragmentation, edge effects
<b>Reasonably Foreseeable Actions</b>		
Sparky	Hazard tree removal/felling	Loss of individual trees and snags, disturbance
Kapka Butte Snopark	Creation of a new snopark; 10 acres of habitat conversion	Loss of habitat (nesting/foraging), disturbance
Mountain Bike Events Course	Creation of 30 miles of trail	Loss of individual trees and snags, increase in human disturbance, and edge effects
NSA Connector Trails	Creation of 2 miles of new trail to connect COD, Lair, and Phil's Trailhead.	Loss of individual trees and snags; increase in human disturbance, and edge effects
Wanoga Downhill Mountain Bike Trail	Creation of 1 mile of downhill trails near the Wanoga Sno-play hill	Loss of individual trees and snags, increased human disturbance, and edge effects

All of these projects, with the exception of subsoiling, contribute to habitat loss.

**Proposed, Endangered, Threatened, and Sensitive Species**

A Biological Evaluation was prepared for this project in accordance with Forest Service Manual 2600. It addresses effects to federally proposed or listed candidate, threatened, or endangered species and Forest Service Sensitive Species (from Sensitive Species list July 2004). Projects proposed in occupied or potential habitat of any federal candidate, threatened, or endangered species on the Forest must be consistent with the Project Design Criteria (PDC) for the Joint Aquatic and Terrestrial Programmatic Biological Assessment (BA) for Fiscal Years 2006-09 (USDA et al. 2006), hereafter referred to as the Programmatic BA, in order to require no further consultation. Projects that affect the species addressed in the BE, and do not meet the applicable PDCs, must initiate the appropriate level of consultation with the U. S. Fish and Wildlife Service. PDCs for proposed species may be included in the BA but are optional for the management agencies. The BE considered and applied the best science available, including papers, reports, literature reviews, review citations, peer reviews, science consistency reviews, and results of ground-based observations or surveys. The best available science was used to determine species or habitat presence and effects. A complete list of the science used can be found within the species discussions and in the Literature Cited section of this EA.

Table 6 contains the name, status, a brief description, and the presence of habitat relative to this project of each of the wildlife species considered in the BE.

**Table 6. Federally Listed and Regional Forester Sensitive Wildlife Species. Those in bold receive further consideration.**

Species	Status	Habitat	Presence
Canada lynx	Federal Threatened	Subalpine fir with lodgepole pine	No habitat within or adjacent to the proposed project area.
<b>Northern Spotted Owl</b>	<b>Federal Threatened, MIS</b>	<b>Old growth mixed conifer forests</b>	<b>Documented in the watershed; dispersal habitat and nesting, roosting, foraging (NRF) habitat in the general project area; proposed trails are adjacent to NRF habitat.</b>
<b>Pacific fisher</b>	<b>Federal Candidate</b>	<b>Mixed conifer forest, complex forest structure</b>	<b>Unconfirmed reporting near the general project area. Potential habitat within the project area.</b>
Northern Bald Eagle	Regional Forester Sensitive, MIS	Lakeside or riverside with large trees	No habitat within or adjacent to the proposed project area.
Oregon Spotted Frog	Federal Candidate, Regional Forester Sensitive	Streams, marshes	No habitat within or adjacent to the proposed project area.
Crater Lake Tighcoil	Regional Forester Sensitive	Wet vegetation zone	Potential habitat occurs adjacent to the proposed project area, but would not be impacted by the project.
Bufflehead	Regional Forester Sensitive, MIS	Lakes, snags	No habitat within or adjacent to the proposed project area.
Harlequin Duck	Regional Forester Sensitive, MIS	Rapid streams, large trees	No habitat within or adjacent to the proposed project area.
Horned grebe	Regional Forester Sensitive, MIS	Lakes	No habitat within or adjacent to the proposed project area.
Red-necked grebe	Regional Forester Sensitive, MIS	Lakes	No habitat within or adjacent to the proposed project area.
Tricolored blackbird	Regional Forester Sensitive, BCC	Lakeside, bullrush	No habitat within or adjacent to the proposed project area.
Yellow rail	Regional Forester Sensitive, BCC	Marsh	No habitat within or adjacent to the proposed project area.
Greater sage grouse	Regional Forester Sensitive, BCC	Sagebrush flats	No habitat within or adjacent to the proposed project area.
American peregrine falcon	Regional Forester Sensitive, BCC	Riparian, cliffs	No habitat within or adjacent to the proposed project area.
Gray Flycatcher	Regional Forester Sensitive	Arid woodlands and shrublands	No habitat within or adjacent to the proposed project area.
Pygmy rabbit	Regional Forester Sensitive	Sagebrush flats	No habitat within or adjacent to the proposed project area.
<b>California wolverine</b>	<b>Regional Forester Sensitive</b>	<b>Mixed conifer habitat, high elevation</b>	<b>Potential habitat for dispersing wolverine and foraging habitat.</b>

**Rationale for Species not considered for further analysis:** In this section conclusions are made as to the presence or absence of the species based on habitat availability and suitability.

The Forest Wildlife Biologists for the Deschutes and Ochoco National Forests and the Crooked River National Grassland have made a determination based on the best available science, that no **Canada lynx** habitat or self-maintaining populations are present on these three administrative units (Jeffries and Zalunardo 2003). The authors of the letter relied upon the Lynx Biology Team’s definitions of habitat and definitions that are part of the Lynx Conservation Assessment and Strategy. The US Fish and Wildlife Service was an integral part of both the Biology Team and the Conservation Assessment and Strategy. Due to lack of habitat, any actions or no action within the proposed treatment areas would have “No Effect” to this species or its habitat. The full letter documenting the rationale can be found in Appendix A of the Wildlife Report.

The **northern bald eagle** is a permanent resident in Oregon. Suitable habitat for the bald eagle is characterized by the presence of large (mature) trees generally greater than 32 inches dbh (species is variable). However, on the Deschutes National Forest, ponderosa pine and Douglas fir trees with large open limb structures are preferred for nesting. Other habitat attributes are the availability of prey, usually within one mile of their nesting territory (typically a large water body, generally greater than 90 acres if a lake). Typical prey for this species during the nesting season and summer is fish. They will also

consume waterfowl and other birds, mammals up to approximately rabbit size and a variety of carrion. (Stalmaster 1987). Nesting habitat for the bald eagle does not occur within the project area, as the nearest body of water is approximately 5 air miles to the east of the project. A lack of habitat assumes a lack of presence and therefore any actions or no action within the proposed project area would have no impact and therefore not contribute to a trend towards federal listing for this species.

The **Crater Lake tightcoil** snail can be found in suitable wet habitat on the undersides of woody debris, among wet mosses, rushes and other low vegetation at the edges of wetlands, springs, seeps and streams and in perennially damp forest floor litter, especially where it has accumulated at the bases of shrubs and against logs (Duncan et al 2003).

Suitable wet habitat would be considered as almost exclusively very stable, perennially wet riparian edges around wetlands, springs, seeps and streams and damp forest floor litter. Areas that are temporarily wet habitat, such as stream borders that may change location (up and down the stream bank) or are seasonally underwater or dry, are not suitable habitat for this species. Only areas with constant water levels that create perennially saturated habitat year-round are suitable, and may be occupied (per discussion between Mark Lehner, USFS biologist and Nancy Duncan, BLM biologist). This type of habitat does not occur within the project area. A lack of habitat assumes a lack of presence and therefore any actions or no action within the proposed project area would have no impact and therefore not contribute to a trend towards federal listing for this species.

The **Oregon spotted frog** inhabits the margins of lakes, marshes, and pools in streams where there is an abundant growth of vegetation (Csuti et al. 2001). There is no standing water, streams (intermittent or perennial), or riparian areas near the proposed project area. A lack of habitat assumes a lack of presence and therefore any actions or no action within the proposed project area would have no effect and therefore not contribute to a trend towards federal listing for this species.

The **bufflehead** typically nests at high-elevation forested lakes in the central Cascades, using cavities or artificial nest boxes in trees close to water (Gilligan et al. 1994, Marshall 1996). Buffleheads have been observed on Wickiup Reservoir and have nested in former northern flicker cavities in the past (Marshall et al. 2003). The bufflehead is a “diving” duck, foraging mostly on aquatic insects, but also aquatic plants and small fish. Forested lakes do not occur within or adjacent to the project area. A lack of habitat assumes a lack of presence and therefore any actions or no action within the proposed project area would have no impact and therefore not contribute to a trend towards federal listing for this species.

**Harlequin duck** breeding mostly occurs west of the Cascades along low to moderate gradient (1-7%) third to fifth order streams with simple channels and abundant in-stream rocks for “loaf sites” (Marshall et al. 2003). This habitat type does not occur within the project area. A lack of habitat assumes a lack of presence and therefore any actions or no action within the proposed project area would have no impact and therefore not contribute to a trend towards federal listing for this species.

The **horned grebe** is a rare breeder east of the Cascades; they favor semi-permanent ponds (Marshall et al. 2003). There are no ponds within or in the vicinity of the proposed project area. A lack of habitat assumes a lack of presence and therefore any actions or no action within the proposed project area would have no impact and therefore not contribute to a trend towards federal listing for this species.

**Red-necked grebe** breeding habitat consists of extensive clear, deep-water marshy lakes and ponds in timbered regions (Johnsgard 1987, Watkins 1988). There are no lakes or ponds within or near the project area. A lack of habitat assumes a lack of presence and therefore any actions or no action within the proposed project area would have no impact and therefore not contribute to a trend towards federal listing for this species.

The **tri-colored blackbird**, in Oregon, is restricted to breeding in southern Oregon. This blackbird prefers to breed in freshwater marshes with emergent vegetation (cattails) or in thickets of willows or other shrubs (Csuti et al. 2001). Other sources emphasize marshes in or near croplands and grasslands as being habitat for this species (Erlich, et al 1988, Natureserve 2007). This type of habitat does not occur

within the project area. A lack of habitat assumes a lack of presence and therefore any actions or no action within the proposed project area would have no impact and therefore not contribute to a trend towards federal listing for this species.

The **yellow rail** inhabits freshwater marshes and wet meadows with a growth of sedges, and often with standing water up to a foot deep during the breeding season (Csuti et al. 2001). This type of habitat does not exist within the project area. A lack of habitat assumes a lack of presence and therefore any actions or no action within the proposed project area would have no impact and therefore not contribute to a trend towards federal listing for this species.

**Greater sage grouse** are sagebrush obligates (i.e. require sagebrush) found on sagebrush-dominated areas east of the Cascades (Aldrich 1963). They rely on sagebrush for food and cover throughout the year (*Jenny K. Barnett* in Marshall et al. 2003). There are no sagebrush-dominated areas within the proposed treatment areas. A lack of habitat assumes a lack of presence and therefore any actions or no action within the proposed project area would have no impact and therefore not contribute to a trend towards federal listing for this species.

In Oregon, the **American peregrine falcon** nests on cliffs ranging in height from a 75-foot escarpment at a reclaimed quarry to monolithic 1,500-foot high cliffs, as well as structural features of bridges (*Joel E. Pagel* in Marshall et al. 2003). There are no high escarpments, cliffs or tall bridges within the proposed project area. A lack of habitat assumes a lack of presence and therefore any actions or no action within the proposed project area would have no impact and therefore not contribute to a trend towards federal listing for this species.

The **pygmy rabbit** is closely associated with areas supporting tall, dense clumps of Great Basin or big sagebrush (*Artemisia tridentata*) (Csuti et al. 2001). The proposed treatment areas do not provide areas of tall, dense clumps of sagebrush. This species is also restricted to the northern parts of the Great Basin, and are thus not found in this area of the Bend-Ft. Rock District. A lack of habitat assumes a lack of presence and therefore any actions or no action within the proposed project area would have no impact and therefore not contribute to a trend towards federal listing for this species.

## **Northern Spotted Owl**

### **Federally Threatened, Management Indicator Species**

#### *Habitat Needs and Existing Condition – Nesting, Roosting, Foraging (NRF) Habitat*

According to the 2006-2009 Programmatic Biological Assessment (BA), suitable nesting habitat on the Deschutes National Forest includes stands of mixed conifer, ponderosa pine with white fir understories, and mountain hemlock with subalpine fir, all exclusive to a narrow forested band below the high-elevation subalpine forests and above the low-elevation lodgepole pine/ponderosa pine forests. Suitable habitat is naturally fragmented by intrusions of lava and other forest types. It is not found in large patches but as inclusions of other stands.

Edge effects from large forest openings may adversely impact the microhabitat conditions necessary for suitable owl habitat as well as contribute to increasing the risk to spotted owls imposed by predators or to competition from the barred owl (*Strix varia*) (USDA 2006).

Suitable nest sites are generally in cavities in the boles of either dead or live trees. Platform nests may also be used (but more rarely), which include abandoned raptor nests, broken treetops, mistletoe brooms, and squirrel nests. Relatively heavy canopy habitat with a semi-open understory is essential for effective hunting and movement (USDA 2006).

Habitat conditions that support good populations of northern flying squirrels (*Glaucomys sabrinus*), western red-backed voles (*Clethrionomys californicus*), and other nocturnal or crepuscular small mammals, birds, and insects are essential to supporting spotted owls (USDA 2006).

Within the project area, there are several different nesting, roosting, and foraging (NRF) polygons that proposed trails occur within or adjacent to (maps are located in the BE). Total acreage of NRF habitat within the project area is 374 acres. These stands were verified as suitable to marginally suitable habitat for northern spotted owls. The marginally suitable stands lack continuity in the canopy and an open understory. According to the NRF map, the stands surveyed are not part of larger contiguous blocks of habitat. These larger blocks of contiguous habitat can be found to the northwest of the proposed project within a roadless area (Bend Municipal Watershed).

R6 Protocol surveys for spotted owls were conducted in 2006 and 2007 within verified suitable to marginally suitable habitat, and within ¼ mile of the proposed project boundary. There were no responses from spotted owls during these surveys. Historically, there have been vocalizations heard from Nordeen Shelter (within the project area, 0.5 miles NW of the Meissner Sno-Park) during the winter (2001 and 2003) and approximately 0.5 miles north of the project area from the 4601-430 Road (2005). Spotted owl use is still possible within the project area, and, areas where vocalizations were heard may be used for winter foraging.

The project does not occur within a Late Successional Reserve (LSR) or a Critical Habitat Unit (CHU). The closest LSR is approximately 3 miles southwest (Sheridan) and the closest CHU is approximately 12 miles southwest of the project area.

The following table displays existing trails that travel through NRF habitat within the project area.

**Table 7. Trail Mileage that Occur Within or Adjacent to NRF Within the Meissner Project Area.**

Trail Type	On the Road (mi.)	Cross-Country (mi.)	Total (mi.)
Big Cat Groomed	0.77	0.03	0.8
Ungroomed Ski	0.03	0.05	0.08
Snowshoe		0.04	0.04
Bike		0.38	0.38
Total	0.8	0.5	1.3

Trails on roads are those that occur on existing system roads. Trails that occur cross-country are not on system roads, rather they travel across the landscape. Big Cat Groomed trails are those that utilize the large trail groomer requiring a larger area to operate (18 feet at a minimum).

*Habitat Needs and Existing Condition – Dispersal Habitat*

Dispersal habitat is important for the movement of spotted owl young away from natal areas or adults moving from one territory to another. Spotted owl dispersal habitat can also act de facto as corridors or movement habitat for a variety of other wildlife species that utilize mature forests. Using the 2006-2009 BA definition for dispersal habitat (a minimum of 30% canopy closure regardless of plant association, and a minimum average diameter of 7” dbh for lodgepole pine stands, and 11” dbh for mountain hemlock, ponderosa pine and mixed conifer stands), the 2004 Satellite Imagery Layer was queried with these definitions. The 7-11” dbh size class used for defining dispersal habitat was equivalent to the Pole (5-9” dbh) and Small tree (9-15” dbh) categories. Approximately 3,080 acres of dispersal habitat occur within the proposed Meissner Project area (66% of the project area). Of the total dispersal acres, 1,863 acres (60%) is of mixed conifer (stable at this time), and 1,216 acres (40%) is of lodgepole pine (some areas are declining due to a mountain pine beetle infestation).

The table on the following page displays the existing trails that travel through dispersal habitat within the project area.



**Table 8. Trail Miles that Occur Within or Adjacent to Dispersal Habitat Within the Meissner Project Area.**

Trail Type	On the Road (mi.)	Cross-Country (mi.)	Total (mi.)
Big Cat Groomed Ski	6.71		6.71
Snowmobile Groomed Ski	0.41	1.14	1.55
Ungroomed Ski	2.66	3.38	6.04
Snowshoe		5.17	5.17
Bike		3.21	3.21
Total	9.78	12.9	22.68

As explained for Table 7, trails on roads are those that occur on existing system roads. Trails that occur cross-country are not on system roads, but travel across the landscape. Big Cat Groomed trails are those that utilize the large trail groomer requiring larger area to operate (18 feet at a minimum), and snowmobile groomed trails are those groomed by a snowmobile pulling a small grooming machine. These trails are smaller than the big cat groomed trails, but larger than an ungroomed ski trail to accommodate snowmobiles. They are approximately 6-10 feet wide.

*Direct, Indirect, and Cumulative Effects*

Alternative 1 - Since there is no proposed action under this alternative there are no effects to spotted owls, and without a proposed action that would add incrementally to the ongoing or reasonably foreseeable actions, there would be no cumulative effects. Trails would continue to exist within the NRF habitat and dispersal habitat as they currently do, with grooming trails remaining as they currently do.

Due to continued human use of the area, owls may not be able to use the habitat as they may have historically. It is unknown where the exact locations of the owls heard from Nordeen Shelter were, but most likely were heard from NRF stands that occur adjacent to the 4615 Road. Maintenance surveys should be conducted to assure whether or not these stands are remaining vacant, or become occupied by a single or a pair of northern spotted owls (Ch. 2, PDC#1).

Alternative 2 – Alternative 2 would add an additional 0.85 miles of big cat groomed ski trail on roads, and 0.78 miles of big cat groomed ski trail that would occur cross-country, both within NRF habitat. It would also add 0.24 miles of big cat groomed ski trail to roads and 3.96 miles of big cat groomed ski trail cross-country within dispersal habitat. Table 9 summarizes these new trails with the existing condition.

**Table 9. Trail Miles that Occur Within or Adjacent to NRF and Dispersal Habitat Within the Meissner Project Area with the Addition of Alternative 2 (in parentheses).**

Trail Type	On the Road w/ Dispersal(mi.)	On the Road w/ NRF (mi.)	Cross-Country w/Dispersal(mi.)	Cross-Country w/NRF (mi.)	Total (mi.)
Big Cat Groomed Ski	6.71 + (0.24)	0.77 + (0.85)	(3.96)	0.03 + (0.78)	13.34
Snowmobile Groomed Ski	0.41		1.14		1.55
Ungroomed Ski	2.66	0.03	3.38	0.05	6.12
Snowshoe			5.17	0.04	5.21
Bike			3.21	0.38	3.59
Total	10.02	1.65	16.86	1.28	29.81

A 0.78-mile trail would remove approximately 1.7 acres of NRF habitat, including larger trees, logs, and snags (0.4% of the total NRF habitat within the project area). Mitigation MM #1 (page 23) states how trail construction will occur in order to minimize impacts to habitat (e.g. locating trail in more open areas and routing trails around large trees, snags, and CWM). Although habitat loss is minor, edge effects would impact approximately 38 acres (10% of the total NRF habitat within the project area) (placing a

buffer of 200 feet on each side of the trail as the area of edge effect – see the section on Fragmentation). This trail would fragment the stand, increasing the edge effects that already occur from roads and forest treatments adjacent to the stand, reducing its effectiveness as possible interior habitat for the northern spotted owl and other forest interior species. The potential effects are reduced by project design (PDC#3) that requires placing trees and sags into the trail bed to discourage use off season and signing trails.

This alternative would also remove 8.64 acres of dispersal habitat (0.3% of the total acres of dispersal habitat within the project area). With buffers placed on the trails, edge effects that may occur from the trail would impact approximately 192 acres (6% of the total acres of dispersal habitat within the project area) of dispersal habitat. This loss is not expected to reduce an owl's ability to move through the area. Small openings in forest habitat do not hinder dispersal of northern spotted owls (Forsman et. al 2002 p.22).

The terrain park, parking lot expansion, staging area, and lodge construction would not be removing NRF habitat or dispersal habitat, but occur adjacent to stands of NRF habitat. These improvements/expansions would function as a source of increased disturbance by inviting expanded and increased use of the sno-park because of the following: the expected use at the sno-park could potentially triple by expanding the size of the parking area three times its current size; folks may spend more time in the project area with construction of the lodge; and, cross-country ski racing is expected to occur here, which could draw large crowds.

Of the total 6.2 miles of lighting that may occur, 1¼ miles of trail are proposed for lighting through NRF habitat. Artificial lighting may reduce habitat suitability by impacting the owl's ability to hunt, avoid predators, mate or maintain their internal rhythms (Nelson 2004). It can reduce the suitable area of foraging habitat for owls and other night hunting birds (Ch. 2, PDC #2). Artificially lighting the trails at night would also draw more people to use the area at night, which would prolong the amount of daily disturbance.

Many miles of trail within the project area have been snowmobile groomed for approximately 12 years, while big cat grooming has only occurred for the past couple of years (personal communication with Marv Lang, USFS). Some of these groomed trails are adjacent to or within ¼ mile of NRF habitat. Past actions that have created the fragmented landscape, such as forest treatments, roads, trails, and winter activities such as grooming trails, may have all contributed to the habitat not currently being occupied, as well as the overall lack of connectivity to larger tracts of NRF. Expanding grooming and increased use by recreationists in the winter (and perhaps year round) may continue to make this habitat unusable.

Due to continued human use of the area, owls may not be able to use the habitat as they may have historically. It is unknown where the exact locations of the owls that have been heard from Nordeen Shelter were, but most likely were heard from NRF stands that occur adjacent to the 4615 Road. Maintenance surveys will be conducted to assure whether or not these stands are remaining vacant, or become occupied by a single or a pair of northern spotted owls (PDC #1). Seasonal restrictions would occur if owls were discovered.

In June 2007 meeting at the project site between biologists from the Forest Service and USFWS, the shared conclusion was that although the habitat is not currently occupied, the proposed trail through NRF habitat and the proximity of groomed trails to NRF habitat affects the quality of the habitat.

Alternative 2 “May Effect, but is Not Likely To Adversely Affect” the northern spotted owl and their habitat. NRF habitat, including larger trees, logs, and snags would be removed along 0.78 miles of trail (0.4 % of the NRF in the project area). This alternative increases the level of fragmentation of the habitat and creates additional and expanded avenues of disturbance with new trails, expanding groomed trails onto additional roads and other trails, and adds artificial night lighting. It is unlikely suitable habitat would be occupied due to the lack of connectivity between large suitable habitat patches, marginal habitat quality, and the level of disturbance currently existing; however, they have utilized these patches of habitat for some function, whether for dispersing, foraging, or as winter roost. These remaining patches of NRF habitat provide islands of habitat to move through, or to stay temporarily, or longer.

The effects to NRF habitat add cumulatively to the existing fragmentation from existing trails and human presence. These effects are within this project area and the subwatersheds this project occurs in and those associated with the fragmentation analysis (see Figures 6 and 7 in Appendix B of the BE).

Most NRF stands that occur in these subwatersheds are not part of larger contiguous blocks. Forest treatments, roads, and trails have fragmented much of the NRF habitat in these areas. Human use surrounding these stands is occurring in winter and increasingly in summer. It is unknown at what point NRF stands cannot be occupied because of human impacts. Additional human use and trails will add cumulatively to the fragmentation and disturbance effects caused by road and recreation use adjacent to these smaller patches of NRF habitat. The total number of trails within the project area that impact NRF and dispersal habitat and those within the surrounding subwatersheds is similar to what occurs across the larger landscape. They may not be usable as the center of a home range, but in an island of unsuitable habitat, these areas become islands of importance for owls and other species that depend on this type of suitable habitat such as the northern goshawk.

This alternative does not meet NSO PDC D.4 of the 2006-2009 Joint Aquatic and Terrestrial Programmatic Biological Assessment (BA) and is not covered by the scope of that document. If this alternative is selected, a project-specific BA must be prepared and submitted for consultation with the U.S. Fish and Wildlife Service.

Alternative 3 – Alternative 3 would add an additional 0.09 miles of big cat groomed ski trail on roads to the system within NRF habitat. No new big cat groomed ski trails would go cross-country through NRF. Trail placement has been moved outside of suitable habitat and follows the outer edge of the stand. It would also add 0.15 miles of big cat groomed ski trail to roads; 3.92 miles of big cat groomed ski trail cross-country, and 0.33 miles of ungroomed ski trail within dispersal habitat. Table 10 summarizes these new trails with the existing condition.

**Table 10. Trail Miles that Occur Within or Adjacent to NRF and Dispersal Habitat Within the Meissner Project Area with the Addition of Alternative 3 (in parentheses).**

Trail Type	On the Road w/ Dispersal(mi.)	On the Road w/ NRF (mi.)	Cross-Country w/Dispersal(mi.)	Cross- Country w/NRF (mi.)	Total (mi.)
Big Cat Groomed Ski	6.71 + (0.15)	0.77 + (0.09)	(3.92)	0.03	11.67
Snowmobile Groomed Ski	0.41		1.14		1.55
Ungroomed Ski	2.66	0.03	3.38 + (0.33)	0.05	6.45
Snowshoe			5.17	0.04	5.21
Bike			3.21	0.38	3.59
<b>Total</b>	<b>9.93</b>	<b>0.89</b>	<b>17.15</b>	<b>0.50</b>	<b>28.47</b>

Alternative 3 would not remove any suitable northern spotted owl habitat. Alternative 3 may contribute to edge effects to suitable habitat directly adjacent to proposed trails, but would not fragment habitat as Alternative 2 would.

This alternative would remove a total of 9.3 acres of dispersal habitat (0.3 % of the total acres of dispersal habitat within the project area) along 4.25 miles of trail. With buffers placed on trails, the edge effects that could occur from the trail would impact approximately 206 acres (7% of the total acres of dispersal habitat within the project area) of dispersal habitat. This loss is not expected to reduce an owl's ability to move through the area. Small openings in forest habitat do not hinder dispersal of northern spotted owls (Forsman et al 2002 p.22). The total acreage is fairly low, but it does create fragmentation within the landscape across a broad area, which can change the microclimate adjacent to these trails (see the Fragmentation discussion).

Other affects from activities such as the terrain park, lodge, staging area, and grooming would be similar as in Alternative 2. The parking lot would be doubled in size with this alternative instead of tripled as in

Alternative 2. Thus, it is expected that use would increase, but not as much as in Alternative 3 (see previous section on Recreation Experience). Tolerance of northern spotted owls to disturbance by recreationists at various times of the year is not clear. It is unknown, but assumed, that doubling the size of the parking area would have less effect to the potential use of suitable habitat than would tripling the size of the parking area because it would mean that less people could be in the area at one time. Although, the threshold of use may already have past.

Artificial night lighting is not proposed with this alternative, so impacts associated with this activity would not occur.

Many miles of trail within the project area have been snowmobile groomed for approximately 12 years, while big cat grooming has only occurred for the past couple of years (personal communication with Marv Lang, USFS). Some of these groomed trails are adjacent to or within ¼ mile of NRF habitat. Past actions that have created the fragmented landscape, such as forest treatments, roads, trails, and winter activities such as grooming trails, may have all contributed to the habitat not currently being occupied, as well as the overall lack of connectivity to larger tracts of NRF. Expanding grooming and increased use by recreationists in the winter, and perhaps year round, may continue to make this habitat unusable.

Due to continued human use of the area, owls may not be able to use the habitat as they may have historically. It is unknown where the exact locations of the owls heard from Nordeen Shelter were, but most likely were heard from NRF stands that occur adjacent to the 4615 Road. Maintenance surveys would be conducted to assure whether or not these stands are remaining vacant, or become occupied by a single or a pair of northern spotted owls (PDC #1).

Although the habitat is not currently occupied, the proposed groomed trail adjacent to NRF habitat and the proximity of groomed trails to NRF habitat affects the quality of the habitat.

Alternative 3 “May Effect, but is Not Likely to Adversely Affect” the northern spotted owl and its habitat. Many current and proposed groomed trails are within close proximity of NRF habitat. Disturbance from grooming and increased and expanded use of humans in the area habitat could affect potential northern spotted owl breeding, feeding, and shelter. It is unlikely suitable habitat would be occupied due to the lack of connectivity between large suitable habitat patches, marginal habitat quality, and the level of disturbance currently existing. The fact remains they have utilized them for some function, whether for dispersing, foraging, or as winter roost. These remaining patches of NRF habitat are valuable to afford this species with islands of habitat to move through, or to stay temporarily, or longer.

This alternative meets applicable NSO PDCs of the 2006-2009 Joint Aquatic and Terrestrial Programmatic Biological Assessment (BA) and is covered by the scope of this document. If this alternative is chosen, a BE, along with the necessary Compliance Checklist and Project Monitoring Form would be submitted to the Level 1 team member for packaging and submission to the USFWS. No further consultation with the USFWS is necessary.

Cumulative effects are the same as those for Alternative 2.

## **Pacific Fisher**

Federal Candidate, R6 Sensitive

### *Habitat Needs and Existing Condition*

The Pacific fisher primarily uses mature, closed-canopy coniferous forests with some deciduous component, frequently along riparian corridors (Csuti et al. 2001). In Ruggiero et. al. (1994), it is suggested fishers prefer closed-canopy (>60% canopy closure), late-successional forests with large physical structures (live trees, snags, and logs), especially if associated with riparian areas. A 2004 Species Assessment by the US Fish and Wildlife Service document key aspects of fisher habitat are those also associated with late-successional forests (i.e. high canopy closure, large trees and snags, large logs, hardwoods, and multiple canopy layers). However, distribution of fishers is limited by elevation and snow depth (Krohn et al 1997 *in* US Fish and Wildlife Service Species Assessment). Fishers generally

avoid areas of high human disturbance either from road density or recreational developments. Fishers are fairly large, weighing 3-13 lbs and 29-47 inches long (combined male and female ranges: males are generally larger than females). This may suggest a need of larger log sizes for dens than other animals with similar needs (e.g. marten). Aubry and Raley (2006) found in southwestern Oregon, fishers were found denning and resting in areas of at least 4,000 ft elevation, >80% canopy closure, > 16 snags 20"+dbh/acre and >67 logs >20" diameter per acre; supporting the suggestion this species utilizes large to very large structure. Denning and resting sites were also observed in large live trees (mostly Douglas-fir) with mistletoe brooms, limb clumping, rodent nests, or some other deformity. They also found fishers were preying upon woodpeckers, jays, grouse, quail, squirrels, hare, porcupine, and skunks. Most of these prey species can be found within the project area.

Fishers have not been documented within the project area. Although rare, they have been documented in the Three Sisters area, near Mt. Bachelor, Elk and Hosmer Lakes, and west of little Cultus Lake (Deibert et al 1970s). More recently (2003) an unconfirmed sighting of a fisher was reported in the Bridge Creek drainage, approximately 1.5 miles northwest of the project area.

Human activity may have the effect of altering species composition in local areas or over geographic landscapes. Snowmobile or ski trails may facilitate entry of species (on packed snow paths) that would otherwise be excluded by virtue of snow depth or conditions. Changes in species composition (range extensions of coyotes, bobcats, and mountain lions) may result in competition for food (prey species or carrion) and/or predation pressures that otherwise would not occur. Carrion is an important winter food source for wolverine. Therefore, displacement of ungulates or competition for carrion as a result of changes in species composition in an area may negatively impact wolverine (Claar et. al 1999).

Potential habitat does exist within the project area. Based on habitat descriptions in the literature, the majority of this type of habitat would exist in the same habitat suitable for the northern spotted owl (374 acres). Many of these stands contain white fir that is dead or decadent with these same species making up the log component. This would most likely be utilized as foraging and/or resting habitat and not denning habitat, which is more associated with drainage bottoms with riparian coniferous forests/mesic forest types (Buskirk et al 1994). Fishers generally have large territories, usually several hundred square kilometers (Csuti et al 2001), thus this area could also be used for foraging and nesting.

The project area includes many roads and recreation use that reduces the quality of the habitat for fisher. It is possible the project area could be utilized as part of a larger home range.

#### *Direct, Indirect, and Cumulative Effects*

Alternative 1 – Since there is no proposed action under this alternative there are no impacts to fishers, and without a proposed action that would add incrementally to the ongoing or reasonably foreseeable actions, there would be no cumulative impacts.

Alternatives 2 – It is possible that fisher could currently occupy the potential suitable habitat within the project area. Alternative 2 would construct 0.78 miles of groomed ski trail (see Figure 4, NRF habitat in Appendix C of the BE) within potential fisher habitat, possibly removing/modifying key habitat constituents for fisher and fragmenting this piece of habitat (Ch. 2, MM#1).

The terrain park, parking lot expansion, staging area, and lodge construction would not be removing potential fisher habitat, but occur adjacent to stands of NRF habitat. These improvements/expansions would function as a source of increased disturbance by inviting expanded and increased use of the sno-park because of the following: the expected use at the sno-park could potentially triple by expanding the size of the parking area three times its current size; folks may spend more time in the project area with construction of the lodge; and, cross-country ski racing is expected to occur here, which could draw large crowds.

The project area itself would become less likely to support fishers because of the increased fragmentation of the area from additional groomed ski trails, widespread grooming during the winter, and increased recreational use during the winter. With the creation of winter trails comes the possibility of use of these

trails during spring, summer, and fall. This would result in the project area, especially around the 4615 road, experiencing year round pressure from the density of roads and trails, and would also open up areas to new and expanded disturbances, making this area highly used by humans year round. PDC #3 will reduce the potential for year round use by discouraging use on the trails through signing and keeping coarse woody material in the trail.

Artificial night lighting could impact this species by confusing their natural patterns, deterring them from established foraging areas, and affecting their breeding cycles, basically modifying their behavior (Saleh 2007, IDA 2002, Campaign for Dark skies). This lighting is proposed adjacent and/or through 1 ¼ miles of potential fisher habitat. PDC #2 imposes some restrictions on the lighting to reduce potential negative effects to wildlife that use the area.

This alternative “may impact” fishers and their habitat within the project area. It is highly unlikely that fisher would use the area for denning purposes; it is highly probable it is used as a larger home range for resting and foraging habitat. Fisher habitat occurs elsewhere, but as more trails are added across the landscape, broadening the area of year round access to recreation, the pieces of habitat outside of these areas that provide potential suitable denning, resting, and foraging habitat become increasingly important. This project proposes numerous amounts of groomed trails in the vicinity of the sno-park, increasing the density of trails in a small area near the parking lot, plus expanding trails into adjacent stands in the project area. It may also have the effect of altering species composition by facilitating entry of other carnivores such as coyotes, bobcats, and mountain lions on snow-packed trails that could increase competition for prey species and predation pressure. This fragmentation of the landscape and increased disturbance by recreationists reduces the project area as suitable for this species. Since this species has a Natureserve Ranking of “imperiled” it is important to maintain as much habitat connectivity as possible.

This project would add incrementally to ongoing and foreseeable actions because additional trails and human presence in the project area would cumulatively increase the fragmentation that currently exists. This alternative may impact individuals and habitat, but would not likely contribute to a trend towards Federal listing.

Alternative 3 – – Impacts from Alternative 3 would be less than the impacts from Alternative 2. Trail construction would not occur through potential fisher habitat artificial night lighting would also not occur, and the parking lot would be doubled in size, not tripled.

All other impacts (with the exception of impacts of trail construction through potential fisher habitat and the use of artificial lighting) would be similar to those in Alternative 2.

This alternative “may impact” fishers and their habitat within the project area. Although the trail would be moved out of potential fisher habitat, it would follow the edge for a distance, possibly removing large snags and logs that occur at the fringes of this habitat, which could still be used by fisher. Mitigation MM#1 (page 23) requires avoiding habitat as much as possible in order to reduce the potential for impacts. It is highly unlikely that fisher would use the area for denning purposes; it is highly probable it is used as a larger home range for resting and foraging habitat. Fischer habitat occurs elsewhere such as the Wilderness and Bend Municipal Watershed; but the pieces of habitat outside of these areas that provide potential suitable denning, resting, and foraging habitat become increasingly important. This project proposes new groomed trails in the vicinity of the sno-park, thus increasing the density of trails in a small area near the parking lot, plus expanding trails into adjacent areas. This fragmentation of the landscape and increased disturbance by recreationists reduces the project area as suitable for this species to disperse to and utilize for foraging and resting.

## **California Wolverine**

### **Region 6 Sensitive**

#### *Habitat Needs and Existing Condition*

The wolverine is the largest member of the weasel family (weasels, martens and fishers), and is known to be a solitary and wide-ranging species. They tend to be found in alpine or boreal coniferous forests with a large home range of 73-1,000 sq km (avg. 422 sq. km. or 104,000 acres). Wolverines are known to avoid areas of high human population or road densities. Wilderness and roadless areas are key to maintaining wolverine habitat. Wolverines utilize downed logs and rock crevices or talus for denning. Prey is no a limiting factor for wolverines because they are opportunistic carnivores that also eat a variety of berries and roots (Natureserve 2007).

Populations in the Cascade Mountains are believed to be small and scattered. Wolverine habitat in Oregon lies within the Hudsonian life zone at elevations from 6,000 feet to above timberline. Dominant tree species are white bark pine, mountain hemlock, and subalpine fir (Ingram 1973). In winter, wolverine will move lower in elevation into mixed conifer and lodgepole pine habitats within the Canadian Life Zone described by Bailey. Wolverine habitat is probably best defined in terms of adequate year-round food supplies in large, sparsely inhabited wilderness areas. Preference for forest type is also related to abundance of prey species, and also to avoidance of high temperatures and of humans (USDA 1994). Wolverines tend to rely on cover provided by mature and intermediate timber, and tend to avoid openings such as those caused by fires and clearcuts (Hornocker and Hash, 1981; Banci 1994). Although openings are generally avoided, the wolverine will frequent open areas above timberline (Ingram 1973).

Home ranges may encompass 10 to 80 square miles. This variation may be related to differences in the abundance and distribution of food. Although large carrion is a key element in the wolverine diet, the diet requires scavenging and hunting smaller prey. A prey base diverse in size and in species is important because large carrion is not always available (USDA 1994). The wolverine has an extremely sensitive nose and can locate carrion under three feet of snow (Ingram 1973).

Den sites are usually located in rocky crevices or on the ground under a snow bank (Ingram 1973). Dens can also be found under tree roots, protruding rocks, in caves, or in burrows within overhanging banks.

The essential component of wolverine habitat may be isolation and the total absence of disturbance by humans. The greatest impact on the potential of the land to support wolverine in the Pacific Northwest Mountains is forestry, settlement, and access (USDA 1994).

The Meissner Project Area potentially provides lower elevation winter foraging habitat for wolverine. However, increased human use during the winter may affect the suitability and availability of habitat in the area for this species. The best habitat for this species closest to the project area is to the northwest in the Bend Municipal Watershed. Although this area still receives a high degree of recreation use due to the presence of trails (hiking, biking and cross country skiing and some snowmobile trails), there is relatively less human disturbance than in the Meissner project area which includes a high degree of trails and year round recreation, and also has a high density of roads. This species could be found as a transient in the area, but denning habitat does not occur.

Diebert et al (1970s) recorded wolverine observations in the area of Three-Fingered Jack (1965), Broken Top (1969), Many Lakes Basin (1972), and Willamette Pass (1973). More recently, wolverine tracks were found in the Deschutes Bridge area, during winter track surveys by the Oregon Dept. Fish and Wildlife (ODFW 2007). The closest confirmed wolverine sighting was 6 miles northwest of the project area near Broken Top (1969).

#### *Direct, Indirect, and Cumulative Effects*

Alternative 1 – Since there is no proposed action under this alternative there are no impacts to wolverine, and without a proposed action that would add incrementally to the ongoing or reasonably foreseeable actions, there would be no cumulative impacts.

Alternatives 2 and 3 – The project area most likely only provides lower elevation foraging habitat and dispersal habitat. The action alternatives would increase the density of winter trails in addition to the roads within the project area. The vegetation removal for these trails would fragment the landscape, but, could not be a barrier to wolverine. While this width and trail construction is not considered a barrier,

artificial lighting (in Alternative 2) and human activity and disturbance are considered barriers under both alternatives, which makes it likely this species would avoid using the area after the project is completed.

This project would add incrementally to ongoing and reasonably foreseeable actions, cumulatively impacting this species by human activity and disturbance by construction of new trails across the project area. Use of this and the surrounding areas is expected to increase year round as all forms of recreation on the Forest become popular and with the population of Bend continuing to grow. In the future, new trail construction in the higher elevations and with continued growth of numbers of people entering the backcountry may increase fragmentation of movement for wolverine, decreasing potential dispersal opportunities for this species, that is considered “critically imperiled” by NatureServe (2007). This project may impact individuals, but would not negatively impact populations or contribute towards a trend to federal listing.

**Management Indicator Species**

During the preparation of the Deschutes LRMP, several wildlife species were identified as management indicator species (MIS). These species were selected because their condition could be used as an indicator of the condition of other species dependent upon similar habitat. Indicator species can be used to assess the effects of management actions on a wide range of other wildlife with similar habitat requirements. The species listed in Table 11 were selected for the Deschutes National Forest and for which there is potential habitat in the project area. Other MIS species were previously discussed in the Threatened or Sensitive sections are northern bald eagle, northern spotted owl, bufflehead, harlequin duck, horned grebe, red-necked grebe, tricolored blackbird.

**Table 11. Deschutes National Forest Management Indicator Species which are addressed further in this document.**

Species	Status	Habitat	Presence
Great gray owl	MIS Rare and Uncommon	Mature and old growth forests associated with openings and meadows	Potential habitat adjacent to the proposed project area.
Northern goshawk	MIS	Mature and old-growth forests; especially high canopy closure and large trees	Documentation in the general project area. Suitable habitat within the proposed project area.
Cooper’s hawk	MIS	Similar to goshawk, can also use mature forests with high canopy closure/tree density	Potential habitat within the proposed project area.
Sharp-shinned hawk	MIS	Similar to goshawk in addition to young, dense, even-aged stands	Potential habitat within the proposed project area.
Red-tailed hawk	MIS	Large snags, open country interspersed with forests	Potential habitat within the proposed project area.
Elk	MIS	Mixed habitats	Habitat and sightings occur within the proposed project area.
Mule deer	MIS	Mixed habitats	Habitat and sightings occur within the proposed project area.
American marten	MIS	Mixed conifer or high elevation late-successional forests with abundant down woody material	Potential habitat occurs within the proposed project area.
Snags and Downed Wood associated species and habitat	Habitat for MIS	Snags and down woody material	Habitat occurs within the proposed project area.
Woodpecker Species			
Williamson’s sapsucker	MIS, Landbird Focal species, BCC	Mature or old growth conifer forests with open canopy cover; weak excavator	Potential habitat occurs within the proposed project area.
Hairy woodpecker	MIS	Mixed conifer and ponderosa pine forests	Habitat and sightings occur within the proposed project area.



Species	Status	Habitat	Presence
White-headed woodpecker	MIS, Landbird focal species, BCC	Mature ponderosa pine forests; weak excavator	Potential habitat occurs within the proposed project area.
Three-toed woodpecker	MIS	High elevation and lodgepole pine forests	Potential habitat occurs within the proposed project area.
Black-backed woodpecker	MIS, Landbird focal species	Lodgepole pine forests, burned forests	Potential habitat occurs within the proposed project area.
Northern flicker	MIS	Variety of forest types but more associated with forest edges	Habitat and sightings occur within the proposed project area.
Pileated woodpecker	MIS	Mature to old-growth mixed conifer forests	Habitat and sightings occur within the proposed project area.

**Table 12. Management Indicator Species for which no habitat exists within the project area. These species will not be considered further because no habitat exists within the project area. Refer to the Wildlife Report for rationale regarding habitat availability and suitability.**

Species	Status	Habitat	Presence
Great blue heron	MIS	Riparian edge habitats including lakes, streams, marshes and estuaries	No habitat within or adjacent to the proposed project area.
Golden eagle	MIS, BCC	Large open areas with cliffs and rock outcrops	No habitat within or adjacent to the proposed project area.
Osprey	MIS	Large snags associated with fish bearing water bodies	No habitat within or adjacent to the proposed project area.
Western big-eared bat	MIS	Caves and old dwellings	No habitat within or adjacent to the proposed project area.
All Waterfowl Species	MIS	See Wildlife Report for specifics	No habitat within or adjacent to the proposed project area.
Lewis' woodpecker	MIS, Landbird focal species, BCC	Ponderosa pine forests, burned forests	No habitat within or adjacent to the proposed project area.
Red-naped sapsucker	MIS	Riparian hardwood forests	No habitat within or adjacent to the proposed project area.
Downy woodpecker	MIS	Riparian hardwood forest	No habitat within or adjacent to the proposed project area.

## Great Gray Owl

### Management Indicator Species, Rare and Uncommon

#### *Habitat Needs and Existing Condition*

Great gray owl nest stands vary in stand type from mixed stands of ponderosa pine and lodgepole pine to mixed conifer. Within these stands, for optimum nesting habitat canopy cover ranges from 50-70%. Nest stands are generally associated with open forest containing canopy closure that ranges from 11-59% dominated with grasses, open grassy habitat, including bogs, selective and clear-cut logged areas, and natural meadows (Bull and Henjum 1990). The Deschutes LRMP defines this owl's habitat as being: lodgepole pine dominated overstory, overstory tree density of 67 trees per acre for trees greater than 12 inches diameter at breast height, canopy cover of 60% (50-70%), and distance to nearest meadow 440 (63-1,070ft.) feet (LRMP WL-31). The NWFP states that "the great gray owl, within the range of the northern spotted owl, is most common in lodgepole pine forests adjacent to meadows. However, it is also found in other coniferous forest types. Specific mitigation measures for the great gray owl, within the range of the northern spotted owl, include the following: provide a no-harvest buffer of 300 ft. around meadows and natural openings and establish ¼ mile protection zones around known nest sites." (page C-21). Great gray owls have a home range size of approximately 1,000-2,000 acres (Natureserve, 2007).

Potential habitat does exist within the Meissner project area. Potential habitat for great gray owls was identified using the 2004 protocol (e.g. > 45% canopy closure, average tree diameter >16" and within 200m of a meadow). Surveys have not been conducted to date. There are no historical sightings within the project area.

*Direct, Indirect, and Cumulative Effects*

Alternative 1 – There is no proposed action under this alternative, so there are no impacts to great gray owls, and without a proposed action that would add incrementally to the ongoing or reasonably foreseeable actions, there would be no cumulative impacts.

Alternatives 2 and 3 – There are two meadow areas within the Meissner project area that are potential foraging habitat for great gray owls. One of the meadows occurs within ¼ mile of the proposed North Tangent Loop Trail. The trail south of this proposed trail is currently groomed during the winter (4615 – 080 Road). Construction of the North Tangent Loop, and grooming of this and the Tangent Loop Trail may impact great gray owls because they are within ¼ mile of the meadow. If owls are nesting in the forested stands surrounding this meadow, they could be impacted by trail construction activities and noise from grooming if these occur during the breeding season (Ch. 2, PDC #6).

Of the maximum 6.2 miles of lighting that could occur, approximately 1 mile of trail that are proposed for lighting travel adjacent to potential great gray owl habitat. If great gray owls are nesting in this area, this lighting in natural areas could impact the owl's ability to hunt, avoid predators, mate or maintain their internal rhythms (Nelson 2004). It can also reduce the suitable area of feeding habitat for owls and other night hunting birds (Ch.2, PDC #2).

Of the two action alternatives, Alternative 2 would have more potential impacts from lighting the ski trails. The implementation of these alternatives may impact individuals, but would not contribute to negative cumulative impacts to this species or cause a trend towards federal listing.

## **Northern Goshawk**

### **Management Indicator Species**

#### *Habitat Needs and Existing Condition*

In Oregon, goshawks tend to select mature or old-growth stands of conifers for nesting, typically those having a multi-layered canopy with vegetation extending from a few meters above ground to more than 40 meters high. Generally nesting sites are chosen that are near a source of water and are on moderate slope, usually having a northerly aspect. This habitat type is quite similar to that used by the Cooper's hawk, but the trees tend to be older and taller and have a better-developed understory of coniferous vegetation (Reynolds et al. 1982). Foraging generally occurs within these mature stands where small openings occur. These birds generally forage on passerines (e.g. songbirds), but often utilize small mammals such as rodents as well as the occasional snowshoe hare. Some gallinaceous bird species are also preyed upon such as blue and ruffed grouse. Species and abundance of gallinaceous prey varies in the range of the goshawk depending on elevation and latitude.

Similar to the Pacific Fisher, within the project area, goshawks would tend to utilize habitat considered NRF habitat for the northern spotted owl (374 acres).

Surveys for goshawks were conducted in 2006 and 2007 within areas of suitable habitat that the proposed ski trails would be traveling through. A nest site that was discovered in 1997 during field reconnaissance for the Katalo West Timber Sale was found to be active in 2006 and 2007. The trail does not go through this stand, but is within ¼ mile of the nest site.

*Direct, Indirect, and Cumulative Effects*

Alternative 1 – Since there is no proposed action under this alternative there are no impacts to goshawks, and without a proposed action that would add incrementally to the ongoing or reasonably foreseeable actions, there would be no cumulative impacts.

Alternative 2 – This alternative would construct a groomed ski trail through a core nest stand for a northern goshawk pair. This pair has been active in this stand since it was discovered in 1997. Placing this trail in this stand may cause impacts similar to those of a road (see Fragmentation discussion).

Most northern goshawks stay within their territory year round, migrating to lower elevations mainly to find prey. The activities that occur with this alternative, including creation of groomed ski trails, grooming trails, and lighting of the trails “may impact” this pair of goshawks that have been in this stand for at least 10 years. Any of the proposed project activities that occur within ¼ mile of the nest would be seasonally restricted to prevent disturbance and possible nest failure to this species that is ranked “vulnerable” by Natureserve (2007). This would include artificial night lighting and grooming periods (Ch. 2, PDC#4).

Similar to the northern spotted owl, this bird is also a forest interior dependent species, and this alternative would negatively impact the northern goshawk by fragmenting the habitat this bird species depends on.

This alternative would add incrementally to ongoing and reasonably foreseeable actions, cumulatively impacting this species by fragmenting available core habitat, and increasing human activity and disturbance by construction of new trails across the project area. Human use of this and the surrounding areas are expected to increase year round as all forms of recreation on the Forest become popular and with the population of Bend continuing to grow. This alternative may impact individuals, but would not negatively impact populations or contribute towards a trend to federal listing.

Alternative 3 – Alternative 3 removes the actions that would have the most impact to the northern goshawk. It does not include the trail through the stand the hawk is nesting in, and does not include the artificial lighting that could potentially disrupt reproductive patterns and cause the birds to move and avoid the area.

Although the above activities would not occur within this alternative, this alternative would still increase human use of this area and increase grooming on trails adjacent to the nest stand. These activities “may impact” this pair of northern goshawks and possibly cause them to abandon their nest stand.

The proposed project activities that occur within ¼ mile would still be seasonally restricted as in Alternative 2.

This alternative would add incrementally to ongoing and reasonably foreseeable actions, cumulatively impacting this species by increasing human activity and disturbance by construction of new trails adjacent to suitable habitat across the project area. Use of this and the surrounding areas are expected to increase year round as all forms of recreation on the Forest become popular and with the population of Bend continuing to grow. Continuing to add new trails of all forms in the surrounding landscape within or adjacent to suitable habitat, adds to and expands disturbance issues on the northern goshawk (Ch. 2, R#2). This alternative may impact individuals, but would not negatively impact populations or contribute towards a trend to federal listing.

## **Cooper’s Hawk and Sharp-shinned Hawk Management Indicator Species**

### *Habitat Needs and Existing Condition*

The Cooper’s hawk prefers coniferous, mixed and deciduous forests, as well as riparian, juniper, and oak woodlands. Vegetative profile around nests are trees 30-60 and 50-70 years old in northwest and eastern

Oregon, respectively with tree density of 265/ac. and 469/ac. Coopers hawks commonly nest in deformed trees infected with mistletoe (Marshall et al. 2003).

Sharp-shinned hawks, in Oregon, breed in a variety of forest types that have a wide range of tree species, though conifers dominate most. Nests have been located at elevations that range from roughly 300 to 6000 feet. Vegetative characteristics found at nest sites, include high tree density and high canopy cover, which produce cool, shady conditions. Nest stands preferred by sharp-shinned hawks are younger than those preferred by Coopers' and goshawk, usually 25-50 yr old, even-aged stands. In eastern Oregon all nest sites found by Reynolds et al. (1982) were in even-aged stand of white fir, Douglas-fir, ponderosa pine, or aspen, with ground vegetation limited to grasses and creeping barberry (Marshall et al. 2003).

There are no known Cooper's hawk or sharp-shinned hawk nests within or adjacent to the proposed ski trails. Surveys for goshawks, often can disclose Cooper's and sharp-shinned hawk territories, but no responses were heard during the surveys.

*Direct, Indirect, and Cumulative Effects*

Alternative 1 – Since there is no proposed action under this alternative there are no impacts to Cooper's or sharp-shinned hawks, and without a proposed action that would add incrementally to the ongoing or reasonably foreseeable actions, there would be no cumulative impacts.

Alternatives 2 and 3 – This project is not expected to have an impact on Cooper's or sharp-shinned hawks. Habitat is limited in the project area for these birds. During project implementation, if an active Cooper's hawk or sharp-shinned hawk pair and/or nest is discovered, project activities may be seasonally restricted (Ch. 2, PDC #5). The implementation of this project is not expected to contribute to negative cumulative impacts to either of these species or cause a trend towards federal listing.

## **Red-tailed Hawk**

### **Management Indicator Species**

*Habitat Needs and Existing Condition*

Red-tailed hawks have an extremely wide tolerance for habitat variation. Red-tailed hawks are largely perch hunters. Habitat types that provide suitable perches (trees, utility poles, outcrops, etc.) and are open enough to permit the detection of ground-dwelling prey, will typically support Red-tailed Hawks. Red-tails frequent woodland, agricultural land, clearcuts, grasslands, sagebrush plains, alpine environments, and urban areas. They construct nests in a variety of situations including tree, utility poles cliffs, and place there nests higher than other broad-winged hawks (Marshall et al. 2003).

There are no known red-tailed hawk nest sites within the project area.

*Direct, Indirect, and Cumulative Effects*

Alternative 1 – There is no proposed action under this alternative, so there are no impacts to red-tailed hawks. Without a proposed action that would add incrementally to the ongoing or reasonably foreseeable actions, there would be no cumulative impacts.

Alternatives 2 and 3 –Nesting habitat for these hawks may be lost by the action alternatives if potential nest trees are felled during trail construction (MM #1). During project implementation, if an active red-tailed hawk pair and/or nest is discovered, project activities may be seasonally restricted (PDC #5).

This project may potentially impact red-tailed hawk habitat, although this habitat is not considered limited within or adjacent to the project area. A majority of the area is forested, contains mature trees for perching, and openings that provide prey habitat. The implementation of this project would not contribute to negative cumulative impacts to this species or cause a trend towards federal listing.

## Elk and Mule Deer

### Management Indicator Species

#### *Habitat Needs and Existing Condition*

There are no Key Elk Areas (KEA), within the project area. Elk are transient in this area during the summer and fall as elk move between the Ryan Ranch KEA, Kiwa Butte KEA, and the Tumalo Mountain KEA.

The project area is summer range for mule deer. They are often seen during this time in the area. Because of their ability to use a variety of habitats, mule deer habitat is not seen as limited.

A majority of the project area is within Lava Island Falls subwatershed, which according to GIS, the road density is at 4.2 miles per square mile (mi/mi<sup>2</sup>) of road. The Benham Falls subwatershed is at 4.1 mi/mi<sup>2</sup>. This analysis includes system and non-system roads (those that are user-created or are not considered a system road), so is not meant to address Forest Plan guidelines for open road density. Additionally, these numbers do not take into account those roads authorized for closure from the Katalo and Katalo West EAs and the East Tumbell EA. It is uncertain when these closures would occur.

#### *Direct, Indirect, and Cumulative Effects*

Alternative 1 – There are no impacts to elk or mule deer because there is no proposed action under this alternative, and without a proposed action that would add incrementally to the ongoing or reasonably foreseeable actions, there would be no direct, indirect, or cumulative impacts.

Alternatives 2 and 3 – Direct impacts to deer and elk are not expected to occur from any of the action alternatives. This project is a winter use project. Deer and elk are not within the project area during the time of year when grooming and skiing would occur because of the snow depth. Trail construction may occur during the late spring, summer or fall when deer or elk may be present, but would generally avoid the areas of trail construction for the duration of the project.

The creation of groomed ski trails opens up other avenues of travel for humans during the summer months. There are several miles of non-system roads within the project area that are user-created, or occur on groomed ski trails (downed wood has been removed from these). These trails and user-created roads have a similar impact to big game as do system roads. From action Alternative 2, 0.28 mi/mi<sup>2</sup> would be added and from action Alternative 3, 0.34 mi/mi<sup>2</sup> would be added to the Lava Island Falls subwatershed, increasing system and non-system road density to 4.5 mi/mi<sup>2</sup> with both alternatives. With both action alternatives, 0.09 mi/mi<sup>2</sup> would be added to the Benham Falls subwatershed, increasing road density to 4.2 mi/mi<sup>2</sup>. PDC#3 (see Chapter 2) includes steps to deter summer use of these trails and avoid the indirect effects they may cause from increased human presence during the summer months.

The implementation of this project would add incrementally to the ongoing or reasonably foreseeable actions, contributing to cumulative impacts. Trails do have an impact to deer and elk. This project is providing additional avenues for human disturbance within the watershed in conjunction with the current road system. With the implementation of this activity and other trail activities within the affected subwatersheds, human disturbance is becoming more prevalent and occurring year round. This project does occur within summer range, which disturbance during this time is less critical than when it occurs during the winter months when animals are under stress from reduced forage and cold weather conditions.

## American Marten

### Management Indicator Species

#### *Habitat Needs and Existing Condition*

American martens occupy a narrow range of habitat types, living in or near coniferous forest. More specifically, they associate closely with late-successional stands of mesic (moist or wet) conifers, especially those with complex physical structure near the ground (Buskirk and Powell 1994). The

information synopsis in Natureserve (2007) states that fallen logs and debris are special habitat features, and that an average territory size is approximately 10 sq. km (4 sq. mi or 2,560 acres) with densities as high as 1-2 per sq. kilometer (approx. 250-500ac) in the fall. Complex physical structure addresses important life needs. It provides protection from predators, access to the subnivean (below snow) space where most prey are captured in winter, and provides protective thermal microenvironments (Buskirk and Powell 1994). In the western U.S. in winter, most prey is captured beneath the snow surface. In these areas, structure near the ground is important in providing access to subnivean spaces (Corn and Raphael 1992). Desirable forest types of the marten are large, somewhat dense, stands of lodgepole pine, mixed conifer, and mountain hemlock. Abundant coarse woody material in these stands is important to support a rodent prey base (LRMP WL-61). It has been determined that marten tend to use forest cover with at least 40% canopy closure and upwards of 70-80% canopy closure (Spencer et al 1983 and Jones 1990).

Old Growth Management Areas (OGMA) were designated under the original LRMP within the lodgepole pine associations with marten being one of the target species for such a designation. Although there are no designated OGMA's, the habitat classified as NRF has many of the habitat constituents that marten would use. This is approximately 374 acres.

There are no known sightings within the Meissner project area, but it is expected that with suitable habitat, they may be present.

*Direct, Indirect, and Cumulative Effects*

Alternative 1 – There are no impacts to marten because there is no proposed action under this alternative, and without a proposed action that would add incrementally to the ongoing or reasonably foreseeable actions, there would be no cumulative impacts.

Alternatives 2 – It is possible that marten could currently occupy the potential suitable habitat within the project area. Alternative 2 would construct 0.78 miles of groomed ski trail within potential marten habitat, possibly removing/modifying key habitat constituents for marten and fragmenting this piece of habitat (Ch. 2, MM#1).

The project area itself would become less apt to support marten because of the increased fragmentation of the area from additional groomed ski trails, widespread grooming during the winter, and increased recreational use during the winter. With the creation of winter trails comes the possibility of use of these trails during spring, summer, and fall, which would make the project area, especially around the 4615 road, have year round human pressure from the density of roads and trails, and would also open up areas to new and expanded disturbances (Ch. 2, PDC#3).

Artificial night lighting could impact this species by confusing their natural patterns, deterring them from established foraging areas, and affecting their breeding cycles, basically modifying their behavior (Saleh 2007, IDA 2002, Campaign for Dark skies). This lighting is proposed adjacent and/or through 1 ¼ miles of potential marten habitat (Ch. 2, PDC#2).

The trails would introduce more human use and disturbance, which on a project scale, could negatively impact marten habitat and marten use of the area. This alternative “may impact” marten and their habitat within the project area. Marten habitat occurs elsewhere within the project area and surrounding subwatersheds, but as trails are added across the landscape, broadening the area of year round access to recreationists, the available habitat becomes more important. This project proposes new groomed trails in the vicinity of the sno-park, increasing the density of trails in a relatively small area, and expands trails across the project area (see the Fragmentation section for road and trail density within the Meissner Project area). This fragmentation of the landscape and increased disturbance by recreationists reduces the project area’s suitability for this species. This species is considered vulnerable in Oregon.

This project would add incrementally to ongoing and reasonably foreseeable actions, cumulatively impacting this species by increasing fragmentation by increasing trails and human presence across the landscape. This alternative may impact individuals and habitat, but would not likely contribute to a trend towards Federal listing.

Alternative 3 – Impacts from Alternative 3 would be less than the impacts from Alternative 2. Trail construction would not occur through potential marten habitat and artificial night lighting would also not occur.

Although the trail would be moved out of potential habitat, it would follow the edge for a distance, possibly removing large snags and logs that occur at the fringes of this habitat, which could still be used by marten (Ch. 2, MM#1).

All other impacts (with the exception of impacts of trail construction through potential marten habitat and the use of artificial lighting) would be similar to those in Alternative 2.

### **MIS Woodpecker Species**

#### **Williamson's Sapsucker**

Management Indicator Species, Landbird Focal Species, Bird of Conservation Concern

##### *Habitat Needs and Existing Condition*

Williamson's sapsuckers are a focal species for large snags in mixed conifer habitat. They will often utilize ponderosa pine habitat, specifically dead and live trees for foraging and select for large (>20" dbh) snags for nesting (Bull et al 1986).

In the proposed project area, the Williamson's sapsucker would use the dominant ponderosa pine stands.

#### **Hairy Woodpecker**

Management Indicator Species

##### *Habitat Needs and Existing Condition*

Bull et al (1986) reported hairy woodpeckers using both lodgepole and ponderosa pine and mixed conifer habitats and a variety of snags sizes. This species would be in mature stands and utilize (i.e. nest and forage) snags greater than 10 inches in diameter. Hairy woodpeckers may forage along the edges of existing timber sale units.

This woodpecker has been seen often within the project area in a variety of habitats.

#### **White-headed woodpecker**

Management Indicator Species, Landbird Focal Species, Bird of Conservation Concern

##### *Habitat Needs and Existing Condition*

White-headed woodpeckers utilize both live and dead ponderosa pines. They will forage on both live and dead pines often selecting the large diameter pines because they have more seeds and make more suitable nesting habitat. Having large ponderosa pine does not assure this species' presence. Indications have been made that a well-developed understory of trees and shrubs may encourage mammalian predation on nests (Marshall 1997). White-headed woodpeckers are absent from early seral ponderosa pine stands. These woodpeckers are poor excavators and generally select for a more moderately decayed or softer snag in which to nest (Dixon 1995).

Habitat for white-headed woodpeckers is limited within the project area due to the lack of climax ponderosa pine associations. There are large ponderosa pines (live and dead) in the project area so potential habitat is present.

#### **Three-toed Woodpecker**

Management Indicator Species

##### *Habitat Needs and Existing Condition*

Three-toed woodpeckers use higher elevation (greater than 4,500 feet) habitats of mature lodgepole pine stands or stands with a lodgepole component (Goggans et al 1988; Bull et al 1986). The three-toed

woodpecker is often associated with the black-backed woodpecker. Both species utilize smaller diameter snags for foraging and nesting. One way this woodpecker competes with other woodpecker species, specifically the black-backed woodpecker, is by utilizing higher elevation habitat (Bull et al 1986). When using Goggans et al (1988) to compare this species habitat with the black-backed woodpecker, it appears that the three-toed woodpecker does not generally occupy a wide range of habitat conditions. Therefore, areas considered as marginal black-backed woodpecker habitat, would not likely be three-toed woodpecker habitat.

A majority of the project area is above 4,500 feet in elevation. The project area and adjacent areas have a mountain pine beetle epidemic moving through, so lodgepole pine snags are currently becoming more abundant across the project area and surrounding adjacent landscape. Similar to the black-backed woodpecker, this species may only be limited by the number of standing snags.

### **Black-backed Woodpecker**

**Management Indicator Species, Landbird Focal Species, Bird of Conservation Concern**

#### *Habitat Needs and Existing Condition*

According to Goggans (1988) and Bull et al (1986), the black-backed woodpecker uses mature ponderosa pine and lodgepole pine habitat types at relatively low elevations (less than 4500 feet), but can be found at higher elevations. Altman (2000) designates black-backed woodpeckers as a focal species for old-growth lodgepole pine. The black-backed woodpecker will use smaller snags for nesting as well as foraging. Bull et al (1986) suggested that this use of smaller diameter snags for nesting is a way of competing with other woodpecker species in the same habitat (e.g. white-headed woodpecker, northern flickers, etc.).

The project area contains little habitat less than 4,500 feet, but is it expected that the black-backed woodpecker would also be found here, especially if there is a mountain pine beetle epidemic providing an abundance of food and nesting habitat. Similar to the three-toed woodpecker, this species may only be limited by the number of standing snags, although this species has been observed utilizing other species of snags than just lodgepole pine.

### **Northern Flicker**

**Management Indicator Species**

#### *Habitat Needs and Existing Condition*

Northern flickers are perhaps the most common woodpecker resident in Oregon. They can be found in a range of terrestrial habitat but are generally abundant in open forests and forest edges adjacent to open country (Marshall et al 2003). Being a large cavity nester (12.5" long according to Sibley 2005); they require large snags or large trees with decay in order to build their nests.

Northern flickers have been observed within the project area adjacent to the proposed trails. Potential habitat for this species is considered any plant association with large trees.

### **Pileated Woodpecker**

**Management Indicator Species**

#### *Habitat Needs and Existing Condition*

The pileated woodpecker is associated with forest habitats that have large trees, especially snags, for nesting and foraging. It is most common in old-growth ponderosa pine/mixed conifer forests in eastern Oregon (Csuti et al. 2001).

Although there is a lack of observations of the actual bird, there are observations of tell-tale, pileated foraging revealing their presence within the project area and within proximity to proposed trails.

The pileated woodpecker would most likely utilize habitat classified as suitable NRF habitat (374 acres)



*Direct, Indirect, and Cumulative Effects for woodpeckers and cavity nesters*

Alternative 1 – There are no impacts to woodpeckers or cavity nesters because there is no proposed action under this alternative, and without a proposed action that would add incrementally to the ongoing or reasonably foreseeable actions, there would be no cumulative impacts.

Alternatives 2 and 3 – Both action alternatives are expected to remove trees, snags and logs that afford suitable nesting and foraging habitat for the above listed woodpeckers. Alternative 2 would have the added impact of constructing a trail through LSOG habitat that provides habitat for pileated woodpeckers and potential habitat for white-headed woodpeckers. Depending upon the size and number of trees removed, there could be impacts to local woodpeckers and cavity nesters by removal of this habitat within the project area (Ch. 2, MM#1). If the project occurs during the breeding season, trail construction and other actions that would remove trees (parking lot expansion, lodge construction, and staging area), could have direct, negative impacts to woodpeckers and other cavity nesters. Disturbance during this time could result in nest failure (noise disturbance) or direct loss of individuals (from tree removal or adults away from the nest for too long) (Ch. 2, R#1).

Impacts from the high presence of humans and artificial lighting (Alternative 2) are not expected during the winter when woodpeckers may still be present (many species do not migrate south, but may migrate to lower elevations). Human disturbance during late fall and winter are not as critical as disturbance during the breeding season.

One of the possible indirect impacts by construction of groomed ski trails would be the increase of predators (i.e. accipiters and corvids) to cavity nesters in the area. This would mainly be notable where the trails would go through denser stands of trees and older interior forest stands.

Most woodpeckers that occur within the project area are rated secure or apparently secure by Natureserve (2007), with the exception of the white-headed woodpecker, which is ranked as imperiled, and the three-toed woodpecker and black-backed woodpecker, which are ranked as vulnerable.

This project would add incrementally to ongoing and reasonably foreseeable actions, cumulatively adding to the loss of snag and log habitat across the subwatersheds within and adjacent to the project area. Although this habitat is continually removed for new trail projects and maintenance of trails, timber sales, and hazard tree removal projects, recurring insect and disease events also create habitat, thus the project is adding cumulatively to the removal of this habitat, but the cumulative impacts are not expected to be adverse because of the continued addition of habitat. This alternative may impact individuals and habitat, but would not likely contribute to a trend towards Federal listing for any woodpeckers or cavity nesters.

**Birds of Conservation Concern, Landbirds, and Shorebirds**

Executive Order 13186 (signed by President Clinton in 2001) provides for enhanced cooperation between the Forest Service and USFWS in regards to addressing impacts to neotropical migratory birds in conjunction with the Migratory Bird Treaty Act. Specific activities are identified where cooperation between the parties will substantially contribute to conservation and management of migratory birds, their habitat, and associated values, and thereby advances many of the purposes of the Executive Order.

In response to this Executive Order and subsequent compliance with the Migratory Bird Treaty Act, the Deschutes National Forest is currently following guidelines from the “Conservation Strategy for Landbirds of the East-Slope of the Cascade Mountains in Oregon and Washington” (Altman 2000). This conservation strategy addresses key habitat types as well as biological objectives and conservation strategies for these habitat types found in the East Slope of the Cascades, and the focal species associated with these habitats. The conservation strategy lists priority habitats: 1) Ponderosa Pine 2) Mixed Conifer (Late Successional) 3) Oak-Pine Woodland 4) Unique Habitats (Lodgepole Pine, White Bark Pine, Meadows, Aspen, and Subalpine Fir). There is no Oak-Pine Woodland, White Bark Pine, or Meadow habitat within the proposed project areas.

Another publication became available in 2002 from the U.S. Fish and Wildlife Service entitled “Birds of Conservation Concern 2002” (BCC) which identifies species, subspecies, and populations of all migratory non-game birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act (ESA) of 1973. Bird species considered for inclusion on lists in this report include non-game birds, gamebirds without hunting seasons, subsistence-hunted non-game species in Alaska, and Endangered Species Act candidates, proposed endangered or threatened, and recently delisted species. While all of the bird species included in BCC 2002 are priorities for conservation action, the list makes no finding with regard to whether they warrant consideration for ESA listing. The goal is to prevent or remove the need for additional ESA bird listings by implementing proactive management and conservations actions (USFWS 2002).

From this publication, Bird Conservation Regions (BCRs) were developed based on similar geographic parameters. One BCR encompasses the Bend/Ft.Rock Ranger District –BCR 9, Great Basin. Species on these lists are discussed within this document if they were known to or potentially could occur within the proposed treatment areas.

In 2004, a publication called “High Priority Shorebirds – 2004” became available, also by the U.S. Fish and Wildlife Service. This publication identifies U.S. and Canadian shorebird populations that are considered highly imperiled or of high conservation concern by the U.S. Shorebird Conservation Plan as of August 2004.

**Table 13. Landbird Focal Species with habitat in the project area.**

Species	Status	Habitat	Presence
Pygmy nuthatch	Landbird focal species,	Mature ponderosa pine forests and snags	Habitat occurs within the proposed project area.
Chipping sparrow	Landbird focal species	Open understory ponderosa pine forests with regeneration	Habitat and sightings occur within the proposed project area.
Brown creeper	Landbird focal species	Large trees in mixed conifer forests	Habitat occurs within the proposed project area.
Flammulated owl	Landbird focal species, BCC,	Interspersed grassy openings and dense thickets in mixed conifer forests	Habitat and sightings occur within the proposed project area.
Hermit thrush	Landbird focal species	Multi-layered/dense canopy in mixed conifer forests	Habitat and sightings occur within the proposed project area.
Olive-sided flycatcher	Landbird focal species	Edges and openings created by wildfire in mixed conifer forests	Habitat and sightings occur within the proposed project area.

The species in the following table do not have habitat present within the project area and will not be considered further. Refer to the Wildlife Report in the project file for rationale regarding habitat availability.

**Table 14. Landbirds focal species and BCC with no habitat in the project area.**

Species	Status	Habitat	Presence
Clark's Nutcracker	Landbird focal species	High elevation mountains, mature/old-growth whitebark pine	No habitat within or adjacent to the proposed project area
Swainson's hawk	BCC	Open country	No habitat within or adjacent to the proposed project area.
Ferruginous hawk	BCC	Open sagebrush flats; open country	No habitat within or adjacent to the proposed project area.
Prairie falcon	BCC	Rimrock, cliffs in open country	No habitat within or adjacent to the proposed project area.
American golden plover	BCC, Shorebird	Upland tundra, rare in OR in dry mudflats, fields and pastures	No habitat within or adjacent to the proposed project area.

Species	Status	Habitat	Presence
Snowy plover	BCC, Shorebird	Sandy beaches	No habitat within or adjacent to the proposed project area.
American avocet	BCC	Shallow water	No habitat within or adjacent to the proposed project area.
Solitary sandpiper	BCC, Shorebird	Small, freshwater mudflats	No habitat within or adjacent to the proposed project area.
Whimbrel	BCC, Shorebirds	Grassy marshes and tidal flats	No habitat within or adjacent to the proposed project area.
Long-billed curlew	BCC, Shorebird	Dry grasslands	No habitat within or adjacent to the proposed project area.
Marbled godwit	BCC, Shorebird	Coastal mudflats, sandy ocean beaches, wet margins of reservoirs or brackish lakes and sewage ponds	No habitat within or adjacent to the proposed project area.
Sanderling	BCC, Shorebird	Sandy beaches with wave action	No habitat within or adjacent to the proposed project area.
Wilson's phalarope	BCC, Shorebird	Shallow ponds within grassy marshes	No habitat within or adjacent to the proposed project area.
Yellow-billed cuckoo	BCC	Riparian hardwoods	No habitat within or adjacent to the proposed project area.
Burrowing owl	BCC	Open grassland or agricultural land	No habitat within or adjacent to the proposed project area.
Black swift	BCC	Damp coastal cliffs	No habitat within or adjacent to the proposed project area.
Loggerhead shrike	BCC	Open habitat with scattered trees and shrubs	No habitat within or adjacent to the proposed project area.
Gray vireo	BCC	Rocky, dry hillsides with scattered trees	No habitat within or adjacent to the proposed project area.
Virginia's warbler	BCC	Mountain mahogany	No habitat within or adjacent to the proposed project area.
Brewer's sparrow	BCC	Sagebrush habitats	No habitat within or adjacent to the proposed project area.
Sage sparrow	BCC	Sagebrush habitats	No habitat within or adjacent to the proposed project area.
Piping plover	Shorebird	Rare in OR on sandy beaches	No habitat within or adjacent to the proposed project area.
Mountain plover	Shorebird	Shortgrass prairies	No habitat within or adjacent to the proposed project area.
Buff-breasted sandpiper	Shorebird	Nests in tundra, forages on shortgrass prairie	No habitat within or adjacent to the proposed project area.
Black oystercatcher	Shorebird	Coastal rocks	No habitat within or adjacent to the proposed project area.
Upland sandpiper	Shorebird	Grassy fields (4-8" tall) with open patches	No habitat within or adjacent to the proposed project area.
Bristle-thighed curlew	Shorebird	Rare in OR in marshes or beaches. Nests in Alaska tundra	No habitat within or adjacent to the proposed project area.
Hudsonian godwit	Shorebird	Mudflats and shallow water; nests around spruce woods	No habitat within or adjacent to the proposed project area.
Black turnstone	Shorebird	Tundra, winters on rocky, coastal shores	No habitat within or adjacent to the proposed project area.
Surfbird	Shorebird	Nests on barren gravel hilltops, winters on rocky shorelines	No habitat within or adjacent to the proposed project area.
Western sandpiper	Shorebird	Mudflats and sandy beaches	No habitat within or adjacent to the proposed project area.
Rock sandpiper	Shorebird	Rocky shorelines	No habitat within or adjacent to the proposed project area.
Short-billed dowitcher	Shorebird	Mudflats and shallow muddy ponds along coast	No habitat within or adjacent to the proposed project area.

Species	Status	Habitat	Presence
American woodcock	Shorebird	Damp, brushy woods	No habitat within or adjacent to the proposed project area.
Wilson's plover	Shorebird	Rare in OR on sandy beaches, sandflats or mudflats away from shoreline	No habitat within or adjacent to the proposed project area.
American oystercatcher	Shorebird	Rare in OR on rocky coasts	No habitat within or adjacent to the proposed project area.
Bar-tailed godwit	Shorebird	Low tundra in western Alaska	No habitat within or adjacent to the proposed project area.
Ruddy turnstone	Shorebird	Rocky and sandy shorelines	No habitat within or adjacent to the proposed project area.
Red Knot	Shorebird	Sandy beaches	No habitat within or adjacent to the proposed project area.
Dunlin	Shorebird	Sandy beaches and mudflats	No habitat within or adjacent to the proposed project area.

**Pygmy Nuthatch**  
Landbird Focal Species

*Existing Condition*

Pygmy nuthatches are a focal species for large trees in the ponderosa pine stand types (Altman 2000). In Oregon, it occurs in mature and old growth ponderosa pine or mixed-species forests dominated by ponderosa pine. However, sometimes they forage in young ponderosa pines and in lodgepole pine stands adjoining or near ponderosa pine stands (Stern, Del Carlo et al 1987). They nest in cavities in snags or dead portions of live trees (Norris 1958). Foraging is on outer branches in upper canopy on needle clusters, cones, and emerging shoots. Their diet varies by season and locale, but consists mainly of insects (Norris 1958). Population declines have been based on habitat deterioration caused by loss of large diameter snags and replacement of large ponderosa pines with smaller trees and other conifer species through fire control and logging (Agee 1993).

This species has not been observed within the project area, but could occupy many of the stands within the project area.

*Direct, Indirect, and Cumulative Effects*

Alternative 1 - There are no impacts to pygmy nuthatches because there is no proposed action under this alternative, and without a proposed action that would add incrementally to the ongoing or reasonably foreseeable actions, there would be no cumulative impacts.

Alternatives 2 and 3 – Both action alternatives are expected to remove foraging habitat for pygmy nuthatches. Alternative 2 would have the added impact of constructing a trail through LSOG habitat that provides potential nesting habitat for this species (along 0.78 miles or a total of 1.7 acres). Depending upon the size and number of trees removed, there could be impacts to this species by removal of this habitat within the project area (Ch. 2, MM#1). If the project occurs during the breeding season, trail construction and other actions that would remove trees (parking lot expansion, lodge construction, and staging area), could have direct and indirect negative impacts to pygmy nuthatches. Disturbance during this time could result in nest failure (noise disturbance) or direct loss of individuals (from tree removal or adults away from the nest for too long) Ch. 2, R#1).

Impacts from the high presence of humans, trail grooming, and artificial lighting (Alternative 2) are not expected during the winter when pygmy nuthatches may still be present (many species do not migrate south, but may migrate to lower elevations). Human disturbance during late fall and winter are not as critical as disturbance during the breeding season.

One of the possible indirect impacts by creating the groomed ski trails would be the increase of predators (i.e. accipiters and corvids) to cavity nesters in the area. This would mainly be notable where the trails would go through denser stands of trees and older interior forest stands.

This species is apparently secure in Oregon. The implementation of this project may impact individuals, but is not expected to contribute to negative cumulative impacts to this species or cause a trend towards federal listing.

## **Chipping Sparrow**

### **Landbird Focal Species**

#### *Habitat Needs and Existing Conditions*

Chipping sparrows are a focal species of more open ponderosa pine stands with active regeneration (Altman 2000). The chipping sparrow is a low-tree/ground-nester that uses open-overstory ponderosa pine and lodgepole pine (Marshall et al 2003). This species prefers these open coniferous forests or stands of trees interspersed with grassy species or other areas of low foliage suitable for ground foraging (Farner 1952). In Central Oregon, they are found in good numbers in juniper, ponderosa pine, and lodgepole pine forests. This bird species feeds primarily on seeds of grasses and herbaceous annuals, adding insects and other invertebrates when breeding (Middleton 1998). Habitat changes have brought on increased risk of cowbird brood parasitism and competition with house sparrows and house finches (Middleton 1998).

Potential habitat for this species may be characterized by the smaller size class and low canopy cover stands within the project area. This species has been observed within the project area.

#### *Direct, Indirect, and Cumulative Effects*

Alternative 1 - There are no impacts to chipping sparrows because there is no proposed action under this alternative, and without a proposed action that would add incrementally to the ongoing or reasonably foreseeable actions, there would be no cumulative impacts.

Alternatives 2 and 3 – Approximately 0.75 miles of trail traverse through potential chipping sparrow habitat with the action alternatives, which would remove 1.6 acres of habitat. This is not a large amount of total habitat loss, and this species could occupy many acres within and adjacent to the project area. Direct and indirect negative impacts could occur during implementation of the project (felling of trees, brushing of trails, etc.) if it occurs during the breeding season. Disturbance during this time could result in nest failure (noise disturbance) or direct loss of individuals (from tree/shrub removal or adults away from the nest for too long) (Ch. 2, R#1).

Impacts from the high presence of humans, trail grooming, and artificial lighting (Alternative 2) are not expected during the late fall and winter. Chipping sparrows are migratory, and are not in the area during this time.

One of the possible indirect impacts by creating the groomed ski trails would be the increase of predators (i.e. accipiters and corvids) and nest parasitism (brown-headed cowbirds) to chipping sparrows in the area.

This species is apparently secure by Natureserve (2007) in Oregon. The implementation of this project may impact individuals, but is not expected to contribute to negative cumulative impacts to this species or cause a trend towards federal listing.

## **Brown Creeper**

### **Landbird Focal Species**

#### *Existing Condition*

Brown creepers are a focal species for large trees within mixed conifer (i.e. white or Douglas-fir) plant association (Altman 2000). They usually nest under loose, sloughing bark of relatively large diameter dead trees (Marshall et al 2003).

Brown creepers have not been observed in the project area, but habitat does exist (NRF stands), and they are expected to occur within this habitat.

Alternative 1 - Direct, Indirect, and Cumulative Effects of No Action

There are no impacts to brown creepers because there is no proposed action under this alternative, and without a proposed action that would add incrementally to the ongoing or reasonably foreseeable actions, there would be no cumulative impacts.

Alternatives 2 and 3 – Both action alternatives are expected to remove foraging habitat for brown creepers. Alternative 2 would have the added impact of constructing a trail through LSOG habitat that provides potential nesting habitat for this species (along 0.78 miles or a total of 1.7 acres). Depending upon the size and number of trees removed, there could be impacts to this species by removal of this habitat within the project area (Ch. 2, MM#1). If the project occurs during the breeding season, trail construction could have direct and indirect negative impacts to brown creepers. Disturbance during this time could result in nest failure (noise disturbance) or direct loss of individuals (from tree removal or adults away from the nest for too long) (Ch. 2, R#1).

Impacts from the high presence of humans, trail grooming, and artificial lighting (Alternative 2) are not expected during the late fall and winter. Brown creepers are migratory, and are not in the area during this time.

One of the possible indirect impacts by creating the groomed ski trails would be the increase of predators (i.e. accipiters and corvids) to this species in the area. This would mainly be notable where the trails would go through denser stands of trees and older interior forest stands.

This species is apparently secure in Oregon. The implementation of this project may impact individuals, but is not expected to contribute to negative cumulative impacts to this species or cause a trend towards federal listing.

## **Flammulated Owl**

### Landbird Focal Species, Bird of Conservation Concern

#### *Habitat Needs and Existing Condition*

Flammulated owls are a focal species of grassy opening and dense thickets within late-successional mixed conifer plant associations. This species is most closely associated with ponderosa pine forests, but also nests in mixed coniferous stands dominated by ponderosa pine and include Douglas-fir, grand fir and/or western larch. Forest stands used for nesting tend to have moderate to high levels of canopy closure with rather open understory or an open area adjacent (Bull and Anderson 1978). These areas also contain very dense patches of saplings or shrubs, which are used as roost sites (Goggans 1985).

The flammulated owl is a cavity nester. Most cavities are in snags, but some are found in live trees, which ponderosa pine is most commonly used. Snags and trees used for nesting average 22 to 28 inches in diameter (Bull et al. 1990).

Flammulated owls were heard in the project area during surveys for the northern spotted owl. There was no confirmed nesting, although it is suspected because vocalizations were made during the breeding season and consistently from particular area(s). The vocalizations were in areas of proposed trails.

#### *Direct, Indirect, and Cumulative Effects*

Alternative 1 - There are no impacts to flammulated owls because there is no proposed action under this alternative, and without a proposed action that would add incrementally to the ongoing or reasonably foreseeable actions, there would be no cumulative impacts.

Alternatives 2 and 3 - Both action alternatives are expected to remove foraging habitat for flammulated owls. Alternative 2 would remove potential nesting habitat along approximately 1 mile of trail (2.2 acres) and Alternative 3 would remove potential nesting habitat along approximately 1.75 miles of trail (3.8 acres). Depending upon the size and number of trees and snags removed, there could be impacts to this species by removal of this habitat within the project area (Ch. 2, MM#1). If the project occurs during the breeding season, trail construction could have direct and indirect negative impacts to flammulated owls. Disturbance during this time could result in nest failure (noise disturbance) or direct loss of individuals (from tree removal or adults away from the nest for too long) (ch. 2, R#1).

Impacts from the high presence of humans, trail grooming, and artificial lighting (Alternative 2) are not expected during the late fall and winter. Flammulated owls are migratory, and are not in the area during this time.

One of the possible indirect impacts by creating the groomed ski trails would be the increase of predators (i.e. accipiters and corvids) to owls in the area. This would mainly be notable where the trails would go through denser stands of trees and older interior forest stands.

This species is apparently secure in Oregon. The implementation of this project may impact individuals, but is not expected to contribute to negative cumulative impacts to this species or cause a trend towards federal listing.

## **Hermit Thrush**

Landbird Focal Species, S4 Apparently Secure

### *Existing Condition*

Hermit thrushes are a focal species of multi-layered, dense mixed conifer stands (Altman 2000). This species breeds in mature forests of all types that provide a shaded understory of brush and small trees (Aldrich 1968). Hermit thrush nest on the ground, in dense brush, or in small trees (Mannan 1980).

Hermit thrushes have been observed within the project area. No nesting was confirmed but it is assumed because of the presence of suitable habitat and the observations of adults in suitable habitat.

### *Direct, Indirect, and Cumulative Effects*

Alternative 1 - Since there is no proposed action under this alternative there are no impacts to hermit thrush, and without a proposed action that would add incrementally to the ongoing or reasonably foreseeable actions, there would be no cumulative impacts.

Alternatives 2 and 3 - Both action alternatives are expected to remove foraging habitat for hermit thrushes and remove potential nesting habitat along approximately 3 miles of trail (6.5 acres). This is not a lot of habitat within the project area, but the trail would invite impacts of its own. If the project occurs during the breeding season, trail construction could have direct and indirect negative impacts to hermit thrushes. Disturbance during this time could result in nest failure (noise disturbance) or direct loss of individuals (from tree/shrub removal or adults away from the nest for too long) (Ch. 2, R#1).

Impacts from the high presence of humans, trail grooming, and artificial lighting (Alternative 2) are not expected during the late fall and winter. Hermit thrushes are migratory, and are not in the area during this time.

One of the possible indirect impacts by creating the groomed ski trails would be the increase of predators (i.e. accipiters and corvids) and nest parasitism (brown-headed cowbirds) to this species in the area.

This species is ranked apparently secure in Oregon (Natureserve 2007). The implementation of this project may impact individuals, but is not expected to contribute to negative cumulative impacts to this species or cause a trend towards federal listing.

### **Olive-sided Flycatcher**

Landbird Focal Species, S3 Vulnerable

#### *Habitat Needs and Existing Condition*

Olive-sided flycatchers are a focal species of edges and openings created by wildfires (Altman 2000). Breeding habitat is in conifer forests with the following circumstances: within forest burns where snags and scattered tall, live trees remain; near water along the wooded shores of streams, lakes, rivers, beaver ponds, marshes, and bogs, often where standing dead trees are present; at the juxtaposition of late- and early-successional forest such as meadows, harvest units, or canyon edges; and in open or semi-open forest stands with a low percentage of canopy cover (Altman and Sallabanks 2000). It forages mostly from high, prominent perches at the top of snags or the dead tip or uppermost branch of a live tree.

This bird species has been steadily declining since 1966. Factors potentially related to the decline of the species on breeding grounds include habitat loss through logging, alteration of habitat from forest management practices including clearcutting and fire suppression, lack of food resources, and reproductive impacts from nest predation or parasitism.

There are no areas that have been burned recently within the project area. There are some areas of beetle kill where olive-sided flycatchers could reside, but in this area, most occur within previously treated stands.

#### *Direct, Indirect, and Cumulative Effects*

Alternative 1 - Since there is no proposed action under this alternative there are no impacts to olive-sided flycatcher, and without a proposed action that would add incrementally to the ongoing or reasonably foreseeable actions, there would be no cumulative impacts.

Alternatives 2 and 3 - Both action alternatives are expected to remove potential foraging and nesting habitat for olive-sided flycatchers along approximately 2 miles of trail (4.4 acres). This is not a lot of habitat within the project area, and for the most part the habitat the trail would be in is more open and less habitat would need to be removed. If the project occurs during the breeding season, trail construction could have direct and indirect negative impacts to these flycatchers. Disturbance during this time could result in nest failure (noise disturbance) or direct loss of individuals (from tree removal or adults away from the nest for too long) (Ch. 2, R#1).

Impacts to this species from the high presence of humans, trail grooming, and artificial lighting (Alternative 2) are not expected during the late fall and winter. Olive-sided flycatchers are migratory, and are not in the area during this time.

One of the possible indirect impacts by creating the groomed ski trails would be the increase of predators (i.e. accipiters and corvids) and nest parasitism (brown-headed cowbirds) to this species in the area.

This species is rated vulnerable in Oregon (Natureserve 2007). The implementation of this project may impact individuals, but is not expected to contribute to negative cumulative impacts to this species or cause a trend towards federal listing.



## Special Habitat Features

### *Snags*

Numerous species of animals use snags for foraging, nesting, denning, roosting and resting. A snag is defined as a dead tree that is over 10 inches dbh and taller than 10 feet. The most notable species that use snags and are the primary cavity nesters (e.g. woodpeckers and nuthatches) that excavate nest cavities in decayed wood in standing trees. Vacated cavities are subsequently used by many other birds and small mammals (i.e. secondary cavity users). Where wildlife species that utilize these habitat and that are known or suspected to occur in the proposed action areas, it is shown in the species lists (Tables 5, 11, 13), and can be found within the specific discussions under each species (e.g. hairy woodpecker, three-toed woodpecker, flammulated owl, etc.). The American marten is known to use larger cavities for nesting, and some bat species roost underneath bark sloughing off from snags.

### *Coarse Woody material*

Coarse woody material is considered to be dead and down material that is 5 inches in diameter (Mellen et al 2006). Coarse woody material (CWM), or logs, can be considered as either places animals forage or places that afford them protection. Besides hiding cover and protection, logs provide physically complex structures where animals find stable temperatures and moisture for nesting, denning, feeding, and food storage (Bull et al. 1997).

Small mammals use logs extensively as runways, making these areas important for birds of prey or other mammals that feed on these small mammals.

The smaller logs can benefit small mammals, amphibians, and reptiles, for which they function primarily as escape cover and shelter when the animal can get inside or under the log. Large diameter logs, especially hollow ones, also benefit a variety of other vertebrates like martens, minks, coyotes, bobcats, cougars, and black bears. Bears will use hollow logs for winter dens, and forage for invertebrates in logs during the summer and fall. Fishers are known to use hollow logs for denning, along with decaying or dead trees (Bull et al. 1997).

Large numbers of downed trees (i.e. “jackstraw condition”) can provide critical structure for some mammals. Marten, mink, and cougar hunt in them; when snow covers the logs, a complex array of snow-free spaces and runways provide important habitat for protection and foraging by martens, fishers, and small mammals under the snow. Tree squirrels also spend much of the winter in this type of environment, feeding on seeds from stashed cones (Bull et al. 1997).

No analysis on the amounts of snags or coarse woody material in the project area (or within the watershed) has been done. A DecAid analysis is not required for this project.

During field reconnaissance, this type of habitat was observed at varying levels. Within older multi-storied stands, snags and CWM was common. In younger single and multi-storied stands, and in areas previously treated, snags and CWM was not as common, as is seen across much of the District.

### *Direct, Indirect, and Cumulative Effects*

Alternative 1 - Since there is no proposed action under this alternative there are no impacts to dead wood habitat, and without a proposed action that would add incrementally to the ongoing or reasonably foreseeable actions, there would be no cumulative impacts.

Alternatives 2 and 3 – The action alternatives have a direct possibility of cutting down snags and removing CWM from the ground. This activity could have local impacts to the very species that depend on this type of habitat (Ch. 2, MM#1). Although this project could impact snag and CWM habitat and thus individual species that utilize it, it would not negatively impact populations or contribute towards a trend to federal listing.

Many other projects listed in Table 5 would also be removing snags and removing and/or disturbing CWM either within the project area (Sparky and misc. trail maintenance) or within the subwatershed.

This project would add cumulatively to the loss of snags and CWM habitat, thus impacting wildlife species known to be associated with decayed wood for part or all of their life's needs. The loss from this project would be more localized and associated with the trails themselves and not across the landscape.

*Late Seral and Old Growth Habitat*

Late Seral and Old Growth Habitat (LSOG) habitat contributes to the overall biological diversity within the landscape. These forests have integrity as a functioning ecosystem with the ability to provide habitat to species associated with the forest interior that is influenced by stand size (Rosenburg and Raphael 1986). Logging and other human activities have reduced the size and connectivity of these forests. This fragmentation increases the ecological importance of the remaining stands, including their value as habitat for forest interior animals. The impact of this isolation and fragmentation is not fully understood, but populations and numbers of species associated with LSOG forests decreases with fragmentation and reduction in stand size.

There are no Northwest Forest Plan Late Successional Reserves (LSR) or Forest Plan Old Growth Management Areas (OGMA) within the project area. The closest known LSR is approximately three miles to the southwest, and the closest OGMA is approximately one mile southwest of the southwest edge of the project area boundary. There is suitable nesting, roosting, and foraging habitat for the northern spotted owl within the project area, which contains many habitat constituents for old growth habitat (large trees, snags, and CWM) and may be considered LSOG habitat.

*Direct, Indirect, and Cumulative Effects*

Alternative 1 - Since there is no proposed action under this alternative there are no impacts to LSOG habitat, and without a proposed action that would add incrementally to the ongoing or reasonably foreseeable actions, there would be no cumulative impacts.

Alternatives 2 and 3 – Alternative 2 proposes to add 0.78 miles of trail through the middle of potential LSOG habitat. This trail would effectively remove approximately 1.7 acres. Although this is not large total habitat loss, the edge effects that could occur from this trail would impact approximately 38 acres (placing a buffer of 200 feet on each side of the trail as the area of edge effect – see fragmentation below). This trail would fragment this stand, increasing the edge effects that already occur from roads and forest treatments adjacent to the stand, reducing its effectiveness as a possible wildlife corridor and interior habitat for species such as the northern goshawk and northern spotted owl. This alternative would add cumulatively to fragmentation and addition of edge effects to the ongoing and reasonably foreseeable actions that are currently or would potentially be impacting LSOG habitat.

Under Alternative 3 this trail is located out of this LSOG habitat, skirting the edge of it. This could still have edge effects to those sections closest to it, but would not fragment this stand as Alternative 2 would. This alternative is not expected to cumulatively add to the loss and fragmentation of LSOG habitat.

***Fragmentation***

Fragmentation, or breaks in connectivity, reduces the size and connectivity of stands that compose a forest (FEMAT 1993). Fragmentation can occur as natural openings or result from induced methods that may be irretrievable or retrievable. Irretrievable fragmentation is induced by the development of surfaced roads, powerlines, rock pits, and building sites. However, the majority of fragmentation occurring within the forest and this project area is retrievable. Retrievable fragmentation includes wildfires, harvest treatments, native surface roads, areas of insect invasion or disease pockets, and areas of blowdown. This fragmentation may take a few to several decades to once again provide connectivity with eventual re-establishment of large continuous stands. Connectivity would not be re-established within irretrievable fragmentation.

Different groups of vertebrates differ in the way they respond to habitat fragmentation. This is related to the numerous differences in the natural histories of these animals (Urban and Shugart 1986). Thus, fragmentation reduces the average size of patches of a given habitat, increases distances between patches,

decreases the ratio of interior to edge area within patches, and temporarily increases the landscape diversity of an area by creating new patches that undergo succession (Irwin et. al 1989).

Forests are naturally fragmented by disturbances such as fire and disease; small patches dominated east-side forests. In drier east-side forest regions, fire suppression over time has “de-fragmented” patterns of fuel distribution and increased the potential for large wildfires (Rochelle 1998) and thus the greater threat of fragmentation.

One of the effects of fragmentation includes changing the microclimate by increased evaporation, temperature and solar radiation, and a decrease in soil temperature (Reed et al. 1995). Another effect is what is called the “edge effect.” Edge habitats are those that provide two kinds of habitat for food and cover needs. All of the activities mentioned above provide edge habitat. Both positive and negative effects of forest “edge” have been documented in recent research, although more species are positively, rather than negatively associated with edge (Rochelle 1998). The richness and density of generalist bird species usually increases along forest edges because of the variety of vegetation and abundance of food. However, migratory bird populations may decline and the numbers of some habitat specialist species may decrease near edges. Increases in nest predation by small mammals, snakes, ravens, and crows are a commonly cited cause of these declines (B.C. Ministry of Forests Research Program 1998), as well as the influx of nest parasites as the brown-headed cowbird. Other species that may benefit from edge include deer, rabbits, and ruffed grouse, and those that would shun away from edge include the northern spotted owl, thrushes and pileated woodpecker.

Not mentioned above, is the fragmentation that can arise from trails. Although these types of retrievable fragmentation sources are small in comparison to roads, they can still impact population structure of wildlife species. As with anything that is built on the landscape, any trail changes its surroundings. Some of which are minor and temporary (such as a deer that is disturbed by a hiker that returns once the hiker is gone) and others, which are more major and long lasting (such as an aggressive bird species that follows a trail expanding its habitat, displacing sensitive species and songbirds). As people intrude into an area, the effects on animals can include altered behavior, increased stress, or changes in productivity and diet. The populations can change in size and distribution, and the species composition and interactions of whole communities can change (Knight and Cole 1991). The changes can extend from several feet to hundreds, even thousands of feet (Trails and Wildlife Task Force et al. 1998).

Morrison, Marcot, and Mannan (1992) describe that providing adequate patch size helps maintain patch-interior conditions. Forest fragments are subject to drying and invasion by early successional plant species along edges and at large openings. A rule of thumb is that such effects occur at least two tree heights (approximately 200-400 feet) into the forest stands from the edge, road, or large opening. Width of edge effects can vary depending upon factors such as the type of edge (high, moderate, or low contrast, topography, and aspect), thus, a circular forest patch of approximately 80 acres in size consists of only 30.77 acres of core habitat with edge effects up to 400 feet and 52.5 acres of core habitat with edge effects up to 200 feet. Some environmental conditions, such as equable temperature and moisture regimes, are found only in interiors of forest stands. To protect interiors of forests for wildlife species closely associated to old growth temperate conifer forests of the Western U.S. (i.e. northern spotted owl and northern goshawk), a starting guideline would be to provide a patch size of at least 80 acres. The presence of a species in a patch may be a consequence not only of patch size and isolation, but also of the structure and composition of the surrounding landscape.

Harvest is retrievable, and depending on whether a patch of habitat is adjacent to a clear-cut (high contrast) or an area that was lightly thinned (low contrast), varies the degree of “edge” effect to the particular patch and most likely the species that could utilize that patch. This fragmentation analysis does not distinguish between high or low contrast, rather all harvest is grouped together.

Irretrievable and retrievable sources of fragmentation were mapped (see Wildlife Report). A buffer of 400 feet was placed on the edges of wildfires and forest treatment areas, with 200-foot buffers on each side of a road and groomed trails, and 20-foot buffers from the edges of biker and hiker trails. The areas

outside of these buffers are the available wildlife habitat patches. Table 15 summarizes the existing conditions of this buffer to habitat.

**Table 15.** Summary of Fragmentation Attributes in the Meissner Project Area and Pertaining Subwatersheds.

Fragmentation	Meissner Project Area	Benham Falls	Lava Island Falls	Coyote Spring	Dutchman Creek	Spring River
Irretrievable Roads	55	502	436	32	549	403
Retrievable Roads	1,172	3,935	4,577	3,062	3,381	4,830
Ret. Snowmobile Trails	0	137	28	0	721	21
Retrievable Harvest	1,296	3,339	3,894	2,706	3,881	5,753
Retrievable Trails	44	83	190	18	83	2
Natural Openings	0	442	554	496	1,429	137
Irretrievable Developed	17	44	323	109	71	230
Fire	0	0	211	0	0	86

As the table shows, much of the fragmentation occurs from retrievable roads and retrievable harvest. Forest fragmentation can change through time as these harvest areas age and as some old roads become less used and are reclaimed by vegetation or they are part of road closure efforts by the Forest Service.

Most habitats available on the west side of the Meissner project area are considered edge because of the existence of roads and past timber harvest. The east side of the project area has fewer and is therefore less impacted by either of these. Approximately 56% of the project area is fragmented. There are several areas that provide patches larger than 80-acres, but these areas have little connective habitat between them. On the east side of the project area these connections are disrupted mainly by roads, and on the west side, roads and past harvest. LSOG (NRF) habitat occurs where some of the non-fragmented larger patches are, but are still impeded by fragmentation from roads and harvest areas. LSOG habitat that meets the structural characteristics still may not meet wildlife needs due to fragmentation and effects of edge. Reduction of fragmented areas is critical to maintain connectivity and interior habitats for LSOG species; the current condition described here is the result of the management emphasis for the area, which has been primarily for timber harvest and recreational use.

In 1996, to better assess the issue of forest fragmentation in relation to timber sales on the landscape, the Bend/Ft. Rock Wildlife Staff, utilizing various literature and professional judgment, felt that to provide for a variety of wildlife species and their needs, fragmentation exceeding 50% across the larger landscape, such as by subwatershed, should be further evaluated. This level was identified to achieve the balance of not only providing a diverse array of habitats that would function as suitable for species whose requirements are varied (i.e. treated stands and edges) but also for those species that require late successional and interior forest species (i.e. northern spotted owl and goshawk). This number is not described in any literature as a threshold, as species have varying needs in amounts of suitable habitat across the landscape.

While the minimum area of habitat required is affected by needs of the individual species, the surrounding landscape and other factors, some research suggests survival will be affected if the area of suitable habitat across the broader landscape falls below a threshold of 20-30% (Rochelle 1998), thus, loss of suitable habitat can have a far greater impact to a species than fragmentation itself.

As mentioned above, at least 56% of the project area is impacted by edge, and the two subwatersheds the project occurs in are at 55% and 58% fragmentation. That means that wildlife species that would normally inhabit the remaining stands (i.e. northern spotted owls, northern goshawk, flying squirrels, fisher, and marten to name a few) may occur incidentally or may have been displaced due to fragmentation and the effects of edge habitat. The other subwatersheds looked at have been impacted by fragmentation also (Table 16).

**Table 16. Fragmentation within the Project Area and Pertaining Subwatershed**

Subwatershed	Acres	Non-Fragmented Acres	Fragmented Acres	% Fragmentation
Meissner PA	4,643	2,059	2,584	56%
Benham Falls	15,520	7,038	8,482	55%
Lava Island Falls	17,565	7,352	10,213	58%
Coyote Springs	10,385	3,962	6,423	62%
Dutchman Creek	21,137	11,022	10,115	48%
Spring River	16,404	4,942	11,462	70%

The areas not heavily fragmented are the tops of buttes, some lodgepole pine stands (most of which have either been impacted by insects and diseases and/or woodcutters) and tracts of black bark pine stands. Wildlife that relies on unfragmented habitats would seek these areas if the plant association is suitable for their needs.

*Direct, Indirect, and Cumulative Effects*

Alternative 1 - The existing level of fragmentation would remain the same. Since there is no proposed action under this alternative there are no additional impacts that would lead to increased landscape fragmentation, and without a proposed action that would add incrementally to the ongoing or reasonably foreseeable actions, there would be no cumulative impacts.

Alternatives 2 and 3 - The majority of the fragmentation is retrievable (native surface roads and past harvest units). It is highly unlikely, though, that system native surface roads and trails would be allowed to return to a vegetative state. Table 17 displays the fragmentation that would result from the action alternatives. Much of the fragmentation from these alternatives overlaps with other areas of existing fragmentation. Alternative 2 would increase fragmentation by 3% within the project area, but would not increase fragmentation within the Benham Falls subwatershed, and would increase fragmentation within the Lava Island subwatershed by 2%. Alternative 3 would increase fragmentation by 2% within the project area and 0-1% within the Benham Falls and Lava Island Falls subwatersheds respectively. Again, some of the fragmentation overlaps with areas already fragmented.

**Table 17. Fragmentation from Alternatives 2 and 3**

Subwatershed	Non-Fragmented Acres	Fragmented Acres	% Fragmentation
Meissner PA	1,920 (alt. 2)	2,723 (alt. 2)	59% (alt. 2)
	1,938 (alt. 3)	2,705 (alt. 3)	58% (alt. 3)
Benham Falls	7,025 (alt. 2)	8,495 (alt. 2)	55% (alt. 2)
	7,028 (alt. 3)	8,492 (alt. 3)	55% (alt. 3)
Lava Island Falls	7,079 (alt. 2)	10,486 (alt. 2)	60% (alt. 2)
	7,280 (alt. 3)	10,285 (alt. 3)	59% (alt. 3)

Both action alternatives would add to human-caused fragmentation and edge effects by adding ski trails (groomed and un-groomed) to this area. Alternative 2 would have the greatest impact by placing a trail through suitable LSOG (and NRF) habitat. Both alternatives would fragment this NRF habitat north of the Meissner Sno-park and east of the 4615 Road, but Alternative 2 fragments this stand to the point where there is no core habitat available, and the entire stand is considered edge (see Figure 8 in Appendix C of the Wildlife Report). There is currently a goshawk pair nesting in this stand. This stand has already been heavily impacted by roads, past harvest activities and trails, creating a stand with less than 80 acres of core habitat. Additions of a ski trail, especially through this stand, may create an environment within the stand not suitable for this goshawk pair, potentially causing them to abandon the area.

There are many areas of core habitat within the project area. Most of the proposed trails are concentrated within one mile of Meissner Sno-park. Much of the fragmentation from the trails in Alternatives 2 and 3 overlap with other areas of fragmentation from roads and harvest activities. Alternative 2 and 3 would heavily impact the habitat available on the east side of the project area because of the concentration of trails in a small area. Alternative 3 moves the trail out of the NRF/LSOG habitat, but still has similar fragmentation impacts to the surrounding area. These trails are retrievable, but would most likely remain on the landscape long-term. The harvest areas that they overlap may one day provide non-fragmented habitat for wildlife. Both alternatives would minimally impact the west side of the project area as new trails are less numerous.

The creation of 18 foot wide groomed ski trails is similar to creating a new road. Being similar in size as a road comes similar impacts of a road. The first is an invitation for increased human use. The trails would benefit some species while harming others. They offer a competitive advantage to disturbance-adapted species, which typically do not need such an advantage, while creating a sink habitat for others; roads create both edge habitat and habitat fragmentation. They serve as corridors for pests and non-native plant species, but also sever the travel corridors used by other species (USDA 1995).

The purpose of these trails is for winter use. The increased human presence occurs during the winter, at a time when critical animal movements and behaviors are minimal. However, many winter trails have or are beginning to be used during the spring, summer, and fall by bikers, hikers, OHVs and vehicles, causing year round disturbance to wildlife species, not just during the winter time when there are less species in the area. There are already some trails within the project area that are not system roads, but snowmobile groomed ski trails, that are being used by vehicles. PDC #3 (chapter 2) is intended to reduce this type of use.

Fragmentation within the subwatersheds that this project occurs in and surrounding subwatersheds are all above 50%. Both action alternatives would add cumulatively to the ongoing and reasonably foreseeable actions by adding to fragmentation and edge effects across the landscape. Increasing trails are introducing humans into wider areas across the landscape year round and fragmentation of habitat decreases this and surrounding areas as effective habitat corridors by increasing edge effects for wildlife species.

#### *Artificial Night Lighting of Trails*

There are many different negative impacts on a variety of organisms including mammals, birds, fish, amphibians, reptiles and insects from artificial night lighting. These impacts include disturbance of migration patterns, disruptions in feeding behavior, complete avoidance of lit areas, disruptions in reproductive patterns, and an overall negative impact on nocturnal wildlife physiology (Saleh 2007, IDA 2002, Campaign for Dark skies).

#### *Direct, Indirect, and Cumulative Effects*

Alternatives 1 and 3 - Since there is no artificial night lighting proposed with these alternatives, there would be no impacts to species that could be affected by lighting, and without a proposed action that would add incrementally to the ongoing or reasonably foreseeable actions, there would be no cumulative impacts.

Alternative 2 - The impacts from this project would be at night during the winter, when many species of wildlife do not occur because they have either moved to lower elevations or warmer climates (neotropical migratory birds or NTMBs). The possible impacts should not be ignored. Lights are being proposed in an area that has never had night lighting, or an influx of people at night. The wildlife that currently utilizes the area during the winter and at night (i.e. owls, rodents, and potential carnivores including wolverine, fisher and marten) could be impacted as such described by Saleh 2007. PDC #2 in Chapter 2 will be followed.

This action is not expected to add to effects from the ongoing or reasonably foreseeable action, therefore there would be not cumulative impacts.

## Botanical Resources

A biological evaluation was prepared for this project to document consideration of Threatened, Endangered, and Sensitive (TES) plants. It was prepared in compliance with the Forest Service Manual (FSM) 2672.4 and the Endangered Species Act of 1973 (Subpart B; 402.12, section 7 consultation).

Effects of this activity are evaluated for those TES plant species on the current Regional Forester's Sensitive Species List (FSM 2670.44, 2004) that are documented or suspected to occur on the Deschutes National Forest.

### Summary of findings:

Alternatives 1 & 3: The proposed action will have no impact on Proposed, Endangered, Threatened, or Sensitive plant species.

Alternative 2: The proposed action may impact individuals or habitat of Newberry's Gentian, but will not likely contribute towards Federal listing.

The area is dominated by several plant associations, including lodgepole pine/bitterbrush/Idaho fescue; mixed conifer/snowbrush; lodgepole pine/sedge-needlegrass basins; lodgepole/sedge-lupine-penstemon; and mixed conifer/snowbrush/sedge. Soils are characterized by sandy volcanic ash and pumice on a buried soil over glacial till. The elevations range between 5200' and 5800'. The average annual precipitation measures in the 15" – 30" range.

Other, relatively localized sensitive plant surveys were conducted in the project area in 1995 and 1998. These surveys did not locate any sensitive plant sites.

In addition to there being habitat and known sites of Newberry's Gentian (GENE), there is a low probability of the green-tinged paintbrush (*Castilleja chlorotica*) occurring within the project area.

No habitat for Threatened, Endangered, Proposed, or Candidate plant species (these species, and their habitats, are listed in Appendices C and D) exists within the project area, with the possible wildcard exception of *Botrychium lineare*, a Candidate species. Its range distribution is very wide and its habitat varies just as widely. However, it has not been found on the Deschutes National Forest, (nor more specifically in the project area), after 16 years of project-level surveys, which include complete lists of plants encountered. The nearest known site lies in northeastern Oregon, in Wallowa County.

Additionally, the bryophytes, lichens, and fungi added to the Forest's sensitive plant list in July 2004 do not have potential habitat within the project area (see Appendix B of the Botany Biological Evaluation).

A field survey was conducted in 2006 within likely habitat in the project area; only Newberry's Gentian, a Regional Forester's sensitive plant species, numbering about 7,000 plants, was located within three connected meadows. A trail is proposed in Alternative 2 that would bisect this population.

### Effects to TES Plants

#### Alternative 1 (No Action)

No direct, indirect, or cumulative effects have been identified for the No Action alternative.

#### Alternative 2 (Proposed Action)

Direct Effects: While in the depths of a snowy winter, there are no particular concerns to the string of meadows the trail is proposed to go through or near. However, during the "shoulder" seasons, when snow is sparse, the meadows could be compromised by trail use.

There are about 7,000 GENE plants present in the string of meadows. By placing the trail directly through the meadows, it is conceivable that all plants present there could be jeopardized. The nearest known GENE population, a tiny population of four plants, is about 2.5 miles away, with the core

populations, constituting over a million plants, located about 4-8 miles distant. The population found within the Meissner Nordic Expansion project constitutes about 0.5 % of the local (Deschutes National Forest) population, and an unknown, but even smaller, percentage of the global population (population numbers for those populations found outside the Deschutes National Forest were not available).

The trail may impact individuals or habitat of Newberry's Gentian, but will not likely contribute towards Federal listing. This is because the population located within the project, while numbering in the thousands, still only represents a portion of one percent of the known population on the Deschutes National Forest; and its proportion of the global population is thus even smaller.

The GENE populations found on the Deschutes National Forest occur in generally higher-elevation meadows. These meadows, while not readily accessible for much of the year due to snow cover, do occur in a relatively high-use recreation zone. These meadows receive visits from humans, in the form of illegal bonsai tree taking, illegal driving on them, horse traffic, and other visitors just wanting to walk through the meadows. These all pose some level of risk to the overall well-being of the GENE populations found there. So, the Deschutes population as a whole is probably relatively stable, but human pressures upon their habitat will continue.

Indirect Effects: Other forest uses such as hikers, bikers, and off-road vehicles could potentially fall into the trail, thus further damaging the meadows. If this were to happen, the Newberry Gentian population present in the meadows would also be compromised and reduced.

Cumulative Effects: During a September 2006 visit to the GENE sites within the project, the author did not note any potentially damaging activities occurring to the GENE populations or their habitat, nor are any others planned.

### Alternative 3

Direct, Indirect, and Cumulative Effects: None have been identified. This alternative does not propose a trail through the GENE populations.

## Other Rare and Uncommon Plant Species

### Field Reconnaissance

In 2006, a field survey was conducted in areas of the proposed project where there existed a higher likelihood of finding habitat for sensitive plants. During that survey, habitat for other rare plant species that would require survey was also evaluated; none was located.

Vascular Plants: There is no habitat present within the project area for *Botrychium minganense* and *B. montanum*, two grape-fern species, or for *Cypripedium montanum*; these species would require pre-disturbance surveys if habitat is present. Additionally, there are no known sites present within the project area for these species that would require management of those sites.

Non-vascular Plants: Note: There are currently six non-vascular plant species with potential to occur on the Deschutes NF which were moved to the Sensitive Species list. Analysis for these species can be found within the Meissner Nordic Expansion Biological Evaluation for plants. These species are *Scouleria marginata*, *Dermatocarpon luridum* (also known as *D. meiophyllizum*), *Rhizomnium nudum*, *Leptogium cyanescens*, *Schistostega pennata*, and *Ramaria amyloidea*.

Bryophytes: Of the bryophytes requiring pre-disturbance survey if habitat is present, there is no habitat present within the project area for *Marsupella emarginata* var. *aquatica*, *Tritomaria exsectiformis*, and *Tetraxis geniculata*. Additionally, there are no known sites present within the project area for these species that would require management of those sites.



Lichens: There is no habitat present within the project area for the one lichen, *Pseudocyphellaria rainierensis*, that requires pre-disturbance survey if habitat is present. Additionally, there are no known sites present within the project area for this species that would require management of those sites.

Fungi: There is no habitat or known sites present within the project area for the one fungi species, *Bridgeoporous nobilissimus*, that requires pre-disturbance survey if habitat is present. Additionally, there are no known sites present within the project area for the other species that would require management of those sites.

### Effects to Other Rare and Uncommon Species

Direct, Indirect and Cumulative Effects of all alternatives: There are no expected direct, indirect, or cumulative effects to the species described in this section, because there is no habitat located within the project area, nor are there any known sites present.

### Noxious Weeds

Forest Service Manual (FSM) direction requires that Noxious Weed Risk Assessments be prepared for all projects involving ground-disturbing activities. For projects that have a moderate to high risk of introducing or spreading noxious weeds, Forest Service policy requires that decision documents must identify noxious weed control measures that will be undertaken during project implementation (FSM 2081.03, 29 November 1995).

Aggressive non-native plants, or noxious weeds, can invade and displace native plant communities causing long-lasting management problems. Noxious weeds can displace native vegetation, increase fire hazards, reduce the quality of recreational experiences, poison livestock, and replace wildlife forage. By simplifying complex plant communities, weeds reduce biological diversity and threaten rare habitats. Potential and known weeds for the Deschutes National Forest are listed in Appendix A of the Noxious Weed Report.

In addition to noxious weeds, which are designated by the State, there is a group of non-native plants that are also aggressive though are not officially termed "noxious". These species are also considered in this assessment.

The area is characterized by multiple plant associations, including lodgepole pine/bitterbrush/Idaho fescue; mixed conifer/snowbrush; lodgepole pine/sedge-needlegrass basins; lodgepole/sedge-lupine-penstemon; and mixed conifer/snowbrush/sedge. Soils are characterized by sandy volcanic ash and pumice on a buried soil over glacial till. The elevations range between 5200' – 5800'. The average annual precipitation measures in the 15" – 30" range.

There are known weed sites in or adjacent to the project area. Although the actual winter use of the trails per se should not pose a concern, the construction of those trails may. The weeds are located at these sites:

1. *Road 4612 (Wednesdays trail)*. Three relatively small populations of spotted knapweed were found in 2006, all comprising less than 60 plants each, in sections 22 and 23.
2. *Grooming shed, junction of roads 4615 and 4615-040*. One plant of spotted knapweed was found in front of the door in 2006.
3. *Near Road 4615/4615-070 junction*. Two plants of Dalmation toadflax were found in 2004, pulled, and were not found in 2005.
4. *Near junction of Roads 4615 and 4615-160*. Twenty plants of spotted knapweed were found in 2006.

5. Near junction of Hwy 46 and Road 4615 (entrance to Meissner Sno-Park). In 2002, about 40 spotted knapweed plants were found; this site is in an herbicide treatment zone and is assumed to be under control, although no follow-up checks have been recorded.

### **Noxious Weed Risk Ranking**

Factors considered in determining the level of risk for the introduction or spread of noxious weeds are:

#### **X HIGH**

Has to be a combination of the following three factors:

1. Known weeds in/adjacent to project area.
2. Any of vectors\* #1-8 in project area.
3. Project operation in/adjacent to weed population.

\***Vectors** (if contained in project proposal) ranked in order of weed introduction risk:

1. Heavy equipment (implied ground disturbance)
2. Importing soil/cinders
3. OHVs
4. Grazing (long-term disturbance)
5. Pack animals (short-term disturbance)
6. Plant restoration
7. Recreationists (hikers, mountain bikers)
8. Forest Service project vehicles

### **Discussion of Ranking**

While generally speaking the project area is relatively weed-free, a risk ranking of HIGH is appropriate for this project because heavy equipment will be brought into the area to construct the new trails, lodge, parking lot, etc. (which brings a risk of importing weed seeds or parts with it), there are known weed populations at and near the project area, and the equipment may intersect the populations. Following the mitigations below will address this issue and will reduce, but not eliminate, the risk.

### **Effects on Noxious Weed Introduction and Spread**

#### No Action

No effects have been identified, because no new activity would occur.

#### Both Action Alternatives (#'s 2 and 3)

**Direct Effects:** It is possible that the heavy equipment brought to the site will carry in noxious weed seeds or parts and introduce them to the site. Making sure that the equipment is cleaned prior to project entry (mitigation #1) reduces this concern, but does not eliminate the risk.

**Indirect Effects:** With the increased size of the parking area, use of the sno-park in the summer (snow-free) season may increase, which in turn increases the possibility of weeds being brought there on the tires or undercarriages of vehicles, which in turn could spread via off-highway vehicles, bicycles, or passenger vehicles elsewhere. To help mitigate this concern, noxious weed information should be posted at the site in the summer, in order to raise the awareness level of the general public that may be using the site. These mitigations will reduce the concern, but not eliminate it.

**Cumulative effects:** This project, in conjunction with the nearby proposed Wanoga play area, Wanoga mountain bike trails and event course, and the Kapka Butte sno-park, will invite more vehicles (motorized and non-motorized) into the area. Because of this, it presents an overall increased risk of weeds being spread into these areas.

### Comparison of Alternatives

From a weed standpoint, the No Action alternative provides the most protection from noxious weeds being introduced to the project area, because no heavy equipment would be brought in to work on the site. Next most attractive is Alternative 3, in which two less kilometers of trails are proposed than Alternative 2, thereby decreasing the chances of weeds being spread to new sites via construction equipment. Least attractive is Alternative 2 (Proposed Action), which has more and larger construction planned; the chances of new weed sites developing there would be higher.

### **Prevention Strategy**

A Record of Decision for Preventing and Managing Invasive Plants was signed in October 2005, and incorporates its standards into the Forest Plan of the Deschutes National Forest. Two of those standards specifically address prevention of weed introductions (#'s 1 and 2, see Appendix B) into projects of the type that the Meissner Nordic Expansion project represents. These standards obligate the Forest Service to incorporate weed prevention into its planning documents and implementation phase. Chapter 2 lists prevention measures for this project.

### **Noxious and Exotic Weeds of Concern for the Project Area**

Spotted knapweed, *Centaurea biebersteinii*, is a very invasive plant that grows along most major highways in Central Oregon. It is a perennial forb in the sunflower family that lives for 3-5 years. It is very competitive on disturbed dry to mesic sites because it is able to germinate in a wide range of conditions and it grows early in spring before many native plants. Seeds may be dispersed on animals and humans, and by being caught up in vehicles. Distribution over large areas is linked to transportation systems. Known sites along Highway 46 are, among other places, currently being treated under the Deschutes National Forest Noxious Weed Control Environmental Assessment (1998).

Dalmatian toadflax (*Linaria dalmatica*) looks like bright yellow snapdragons with leathery leaves clasping the stem and grows easily in dry rangeland sites, gravel pits, and along roadsides. It is a perennial plant and stands 2-4 feet tall. One plant can produce up to 500,000 seeds per year, and they remain viable in the soil for up to 10 years. Pulling this plant will usually result in more plants sprouting from its root system, unless all root parts are removed from the soil, which is often difficult to do.

### **Water Resources / Fisheries**

The project area is mostly devoid of surface water with the exception of an intermittent channel on the western side of the ski area (Sections 20 and 21). This channel has no surface connection to perennial water, lakes, large wetlands, or fish-bearing streams. There are riparian areas adjacent to the channel near the headwaters.

There are no fish-bearing streams or lakes, nor perennial stream channels within the project area. The intermittent channel within the project area has no surface connection to perennial water, lakes, large wetlands, or fish-bearing streams. The Riparian Reserve widths for intermittent channels per the NWFP Record of Decision is 100 feet from both sides of the banks of the channel.

Northwest Forest Plan (NWFP)

Standard and Guideline RM-2: Adjust dispersed and developed recreation practices that retard or prevent attainment of Aquatic Conservation Strategy objectives. Where adjustment measures such as education, use limitations, traffic control devices, increased maintenance, relocation of facilities, and/or specific site closures are not effective, eliminate the practice or occupancy.

Deschutes Land and Resource Management Plan (LRMP)

Standard and Guideline RP-17: Roads and trails will be at the lowest density, which meets long-term resource needs. Where existing roads or trails are inhibiting the achievement of fisheries or water quality objectives, measures shall be taken to eliminate the problem.

Standard and Guideline RP-22: Road and trail maintenance shall be performed on a frequency necessary to maintain drainage efficiency at all runoff control and drainage structures (dips and culverts).

Mitigation Measure -- T-21 Servicing and Refueling of Equipment: Any gas-powered or hydraulic equipment used in the construction of trails shall be refueled or refilled outside of streams and riparian areas.

### **Effects to Water Resources / Fisheries**

Alternative 1 (No Action): Direct and Indirect Effects: There would be no effect to fish, water, or riparian resources as no management activities would occur.

Alternatives 2 and 3: Direct, Indirect, and Cumulative Effects: There is no new trail construction proposed within the Riparian Reserve of the intermittent channel. There would be no adverse direct, indirect, or cumulative effects to water, fisheries, or riparian resources. The effects are the same for either alternative.

Aquatic Conservation Strategy Objectives: The proposed activities under Alternative 2 and 3 meet or do not prevent attainment of the 9 Aquatic Conservation Strategy objectives listed on page B-11 of the Record of Decision for the NWFP.

The action alternatives are consistent with the Standards and Guidelines of the NWFP and the LRMP. Fisheries and water quality objectives are met and the ACS objectives are met or the actions do not prevent attainment of the objectives.

### **Soils**

The Deschutes Land and Resource Management Plan (LRMP) specifies that management activities are prescribed to promote maintenance or enhancement of soil productivity by leaving a minimum of 80 percent of an activity area, in a condition of acceptable productivity potential following land management activities (Forest Plan page 4-70, SL-1 and SL-3). This is accomplished by following Forest-wide standards and guidelines to ensure that soils are managed to provide sustained yields of managed vegetation without impairment of the productivity of the land. Standard and Guideline (SL-4) directs the use of rehabilitation measures when the cumulative impacts of management activities are expected to cause damage exceeding soil quality standards and guidelines on more than 20 % of an activity area. Standard and Guideline (SL-5) limits the use of mechanical equipment in sensitive soil areas. Guideline (SL-6) provides ground cover objectives to minimize soil erosion by water and wind. Management Allocation Areas MA-8, MA-9, and MA-12 do not contain specific standards and guidelines for the soil resource.

The Regional supplement to the Forest Service Manual (FSM 2520, R-6 Supplement No. 2500-98-1) provides policy for planning and implementing management practices which maintain or improve soil quality. This Regional guidance and is consistent with LRMP standards and guidelines.

Management direction for the soil resource applies to lands where vegetation and water resource management are the principle objectives. These soil quality standards and guidelines do not apply to intensively developed sites such as developed recreation facilities because they could not be constructed to result in limited disturbance below specific thresholds. Soils dedicated to management facilities remove land from production and preclude other uses of the soil for as long as these facilities remain in use.

### **Scope of the Analysis**

For this project proposal, the discussion of soil effects will be focused on the proposed locations of new facilities and upgrades to existing facilities needed to accommodate recreation use objectives. A qualitative assessment of potential soil impacts was conducted to ensure that acceptable soil productivity is maintained for the growth of desired vegetation on undeveloped portions of the Meissner Sno-Park area.

The primary objective for the soil resource is to plan and conduct management activities so that on-site loss of soil productivity is minimized on lands which are not officially dedicated to permanent facilities necessary to achieve other land management objectives. The analysis also considered the effectiveness and probable success in project design and implementation of Best Management Practices (BMPs) and erosion control measures that would be implemented to minimize or reduce potentially adverse impacts to soils in adjacent areas.

### **Landscape Characteristics and Existing Condition of the Soil Resource**

The landscape is generally characterized by gentle-to-moderately sloping glacial uplands, ground moraines and broad benches with slopes that range from 0 to 40 percent. Less than five (5) percent of the planning area is comprised of relatively small buttes and cinder cones (25 to 70 percent slopes) that rise above the glacial uplands and outwash plains. Elevation ranges from about 5,150 feet within the valley bottomland in the eastern portion of the planning area to approximately 5,873 feet on top of a cinder cone in the central portion. All landforms and soils within the planned activity areas have been influenced by glacial outwash flooding that once occurred to the west of the project area. The landscape has been covered with a moderately thick layer of volcanic ash and pumice deposits. Soil surface layers consist of non-cohesive (loose), sandy-textured materials with very little structural development due to the young geologic age of the volcanic parent materials. Underlying soils have developed from glacial till deposits that are buried at depths that range from approximately 20 to 40 inches. These glacial materials consist of sands and gravels that have been reworked by running water from the melting of mountain glaciers. Dominant soils are deep (greater than 40 inches) with moderate to high productivity potential for the growth of vegetation. The proposed activity areas meet criteria for land suitability that would allow them to be regenerated or resist irreversible resource damage.

These volcanic ash-influenced soils have sandy textures with high infiltration and percolation rates that account for low amounts of overland flow. Most of the water yielded from these lands is delivered to streams as deep seepage and subsurface flows. Surface erosion by water is generally not a concern because representative soils have low-to-moderate erosion hazards on gentle to moderately sloping landforms which are naturally stable. At the present time, soils are adequately protected by vegetation and organic litter layers to control erosion rates within tolerable limits. Dominant soil types are sufficiently resistant to erosion to permit limited and temporary exposure of bare soil. There are no perennial streams or other water bodies within the project area.

Soils derived from volcanic ash and pumice deposits have naturally low bulk densities and low compaction potential. However, mechanical disturbances can still reduce soil porosity to levels that limit vegetative growth, especially where there is a lack of woody debris and surface organic matter to help cushion the weight distribution of ground-based equipment. The sandy-textured surface layers are also easily displaced by equipment operations, especially during dry moisture conditions. The maneuvering of equipment is most likely to cause soil displacement damage on the steeper landforms.

Based on criteria for identifying sensitive soils to management (Deschutes LRMP, Appendix 14, Objective 5), sensitive soils within the project area include soils on landtypes with slopes greater than 30 percent gradient. There are no potentially wet soils with seasonally high water tables or soils with a high hazard for surface erosion that would require special mitigation.

The current condition of the soil resource has mainly been influenced by the transportation system, past logging facilities (i.e., skid trails, log landings) and existing recreation facilities. Most project-related impacts to soils occurred on and adjacent to intensively developed sites (e.g., roads, recreation facilities)

and heavy use areas (e.g., logging facilities) where mechanical disturbances removed vegetative cover, displaced organic surface layers, or compacted soil surface layers. Soils dedicated to management facilities typically have disturbed properties that remove land from production for as long as the facility remains in use or until their functions have been served and disturbed sites are restored back to a productive capacity. Surface erosion on these sites will continue to exceed the natural rates of undisturbed soils for as long as bare surface soils are exposed to the elements of erosion. Frost heaving and freeze-thaw cycles have gradually restored soil porosity in areas with slight to moderately compacted layers near the ground surface. Other factors that have helped the recovery process include root penetration, rodent activity, wetting and drying cycles, and surface organic matter. The establishment of vegetative ground cover and the accumulation of litter and organic matter continue to improve areas of displaced surface soil.

Adequate amounts of coarse woody debris and surface organic matter currently exist to protect mineral soil from erosion and maintain the soils ability to retain moisture and provide both short and long-term nutrient supplies for the growth of vegetation.

Resource protection measures and erosion-control Best Management practices will be incorporated into the project design to avoid or minimize erosion problems on or adjacent to disturbed sites (Refer to Chapter 2)

*Direct, Indirect, and Cumulative Effects to the Soil Resource*

Direct effects occur at essentially the same time and place as the actions that cause soil disturbance, such as soil displacement and compaction caused by equipment operations. Indirect effects occur sometime after or some distance away from the initial disturbance, such as increased runoff and downslope erosion from previously compacted areas. Cumulative effects include all past, present, and reasonably foreseeable actions that cause soil disturbance within the same activity areas.

*Alternative 1 (No action)*

Under this alternative, no additional land would be removed from production to build new structures and upgrades to existing recreation facilities. No trees or other vegetation would be cleared to widen existing ski trails and expand the existing parking area.

The extent of exposed mineral soil would not increase from construction activities, so erosion control measures would not be necessary. Surface erosion on existing roads and other management facilities would continue at current levels. Erosion rates would not change appreciably unless intense wildfires occur in dense stands of trees within the planning area.

*Cumulative Effects*

The cumulative effects of past and current soil disturbances were previously described for the current condition.

The amount of coarse woody debris and surface organic matter will gradually increase over time. In the long-term (greater than 5 years), the accumulation of down wood and forest litter would increase the risk for wild land fires.

Foreseeable future actions are assumed to occur as planned in the schedule of projects for the Deschutes National Forest. No out-year timber sales or fuel reduction projects are currently scheduled within the Meissner Sno-Park planning area. The only foreseeable future actions include continued recreation use and standard road maintenance. Existing recreation facilities and surrounding areas would continue to be maintained to prevent or minimize soil erosion problems and potential impacts to other resource values. Road maintenance activities would reduce accelerated erosion rates where improvements are necessary to correct road drainage problems. Therefore, the combined effects of current and future activities would maintain acceptable soil productivity for the growth of desired vegetation on undeveloped portions of the planning area.

*Alternatives 2 and 3*

Both action alternatives would implement the proposed actions described in Chapter 2. The primary difference is the overall extent of new soil disturbance associated with the expansion and development of additional facilities. Alternative 2 would build approximately 9.7 miles of new trail, widen about 30.7 miles of existing trail, develop a one (1) acre staging area, a 2.7 acre terrain park, a 2700 square foot shelter, and increase the size of the existing parking area from 1.3 acres to 4.9 acres. Alternative 3 would build approximately 7.8 miles of new trail, widen about 21.6 miles of existing trail, develop a one (1) acre staging area, a 2.7 acre terrain park, a 1500 square foot shelter, and increase the size of the existing parking area from 1.3 acres to 1.7 acres. The total number of acres removed from production is predicted to be approximately 20.0 acres under Alternative 2 and 16.2 acres under Alternative 3 or a difference of 3.8 acres of land.

The anticipated disturbance associated with clearing operations for new ski trails and widening existing trails would be inconsequential. Vegetation would be cleared 18 feet in width for new trail locations and existing trails would be widened from 13 feet to 18 feet. The emphasis during clearing is on maximizing the maintenance of low growing vegetation and minimizing mechanical disturbance of the soil. Most of this work would be accomplished manually using chainsaws and hand tools. The primary effects would be a temporary reduction in existing vegetation. These non-mechanical treatments would produce only localized areas of exposed mineral soil that would not qualify as a detrimental condition (FSM 2520, R-6 Supplement). Recreation use on completed trails would occur over a compacted snow base that would effectively prevent detrimental soil compaction. Felled trees and other vegetation would be retained on the ground to provide surface cover and a source of nutrients as these organic materials gradually decompose. This would have beneficial effects to site productivity by improving the soils ability to resist surface erosion and providing organic matter for humus development in mineral soil.

A small tracked excavator would be used to remove some of the larger stumps, to position logs for erosion control, and to construct banked curves on downhill corners of steep areas. Mechanical disturbances would displace topsoil in localized areas, but compaction is not a concern due to the limited amount of machine traffic. Although some trail segments would likely cross steep portions of some landtypes, the project design would include appropriate Best Management Practices (BMPs) to control erosion during construction activities (General Water Quality Best Management Practices, Pacific Northwest Region, 1988). These BMPs are tiered to the Soil and Water Conservation Practices Handbook (FSH 2509.22) which contain erosion control measures that have proven effective in protecting and maintaining the soil resource. Mitigation measures for erosion control would likely include various techniques for providing soil cover and holding and/or trapping soils on slopes such as: lopping and scattering slash, placement of trees in close contact with the ground and anchored behind tree stumps, and promoting revegetation with shrub species and other low growing plants. The types and locations of soil disturbance are not expected to cause any indirect, off-site impacts to soils in adjacent areas, such as loss or burial of productive surface soils. There is low risk for mechanical disturbances to cause soil mass failures (landslides) due to the inherent stability of dominant soils and the lack of seasonally wet soils on steep slopes.

A staging area is proposed in close proximity to the parking area. This area would measure approximately 150 by 300 feet (about one acre) on flat to gradually sloping terrain. A ski trail would circle the perimeter of the staging area. The area is already partially cleared, so it is anticipated that only a small number of trees may need to be cleared by hand to provide ingress and egress to the trail system and parking area. These activities would produce only small, localized areas of exposed mineral soil that would not qualify as a detrimental soil condition.

A 2.7 acre terrain park is proposed to improve and develop ski skills. The location of this facility has a varying degree of slope from five to 20 percent with a nearly flat area at the bottom of a hill. The terrain features will include banked slopes and turns, small bumps, moguls and jumps that will be created along three paths through the park. These features will require earthwork using a tracked excavator to move

soil and shape the terrain. None of these activities would occur in areas with sensitive soils. Mechanical disturbances would detrimentally disturb soil properties where topsoil displacement occurs in areas greater than 100 square feet, which is at least 5 feet in width (FSM 2520, R-6 Supplement). Although this would adversely change the natural capability of soils in such areas, soil quality standards are not applicable to intensively developed sites such as developed recreation facilities. As with the other sites where mechanical disturbance would take place, appropriate Best Management Practices (BMPs) would be implemented to control erosion during and following construction activities.

A warming shelter and toilet facilities would be constructed to accommodate snow park users. Construction activities inevitably disturb soil properties and alter soil-hydrologic function by removing the natural vegetation, displacing the organic topsoil, and compacting the subsoil materials. Consequently, these physical disturbances increase the potential for surface runoff and accelerated erosion. Excavation work exposes subsoil that is often used for backfill around the foundation perimeter and for grading the terrain around the facility. The greatest potential for accelerated soil erosion occurs during the construction phase when the largest area of disturbed soil is exposed to precipitation events. Once completed, the area of the footprint covered by the structure is no longer susceptible to erosion. However, the surrounding perimeter of exposed soil would require temporary or permanent erosion control measures to provide surface cover on disturbed soils. Appropriate BMPs would be implemented to control erosion during construction activities and prevent soil materials from being transported off-site.

The parking lot expansion would temporarily expose the largest area of disturbed soil during grading operations. Accelerated erosion rates are greatest within the first two years following disturbance. Temporary erosion-control BMPs would be applied to prevent off-site impacts to soils in adjacent areas, such as loss or burial of productive surface soils. The parking lot would be paved, so there is no potential for long-term erosion problems following the completion of this facility.

#### *Cumulative Effects*

The combined effects of current disturbances and the proposed management activities were previously addressed under current conditions and the direct and indirect effects of implementing the action alternatives.

Felled trees and other vegetation would be retained on the ground following clearing operations. Therefore, the amount of down woody debris and surface organic matter would increase slightly over existing levels. In the long-term (greater than 5 years), the accumulation of additional down wood and forest litter would increase the fire hazard.

Future management activities are assumed to occur as planned in the schedule of projects for the Deschutes National Forest. No out-year timber sales or fuel reduction projects are currently scheduled within the Meissner Sno-Park planning area. The only foreseeable future actions include continued recreation use and standard road maintenance. As previously addressed under cumulative effects for Alternative 1, there are no soil-related concerns associated with the combined effects of these future activities.

#### *Management Consistency*

The primary objective for the soil resource is to plan and conduct management activities so that on-site loss of soil productivity is minimized on lands which are not officially dedicated to permanent facilities necessary to achieve other land management objectives.

Management direction for the soil resource applies to lands where vegetation and water resource management are the principle objectives. Soil quality standards and guidelines do not apply to intensively developed sites such as mines, developed recreation facilities, and administrative sites (FSM 2520, R-6 Supplement No. 2500-98-1).

The action alternatives would cause some new soil disturbances in undeveloped portions of the planning area. The planned locations for construction activities would not disturb sensitive soils with a high



erosion hazard or potentially wet soils that would require special mitigation. Soils are sufficiently resistant to erosion to permit limited and temporary exposure of bare soil during development or use. As previously discussed under direct and indirect effects, project design would include appropriate Best Management Practices (BMPs) to control surface erosion during and following construction activities. These BMPs are tiered to the Soil and Water Conservation Practices Handbook (FSH 2509.22) which contain erosion control measures that have proven effective in protecting and maintaining soil and water resource values. Potential soil loss is not expected to exceed tolerable limits because various techniques would be implemented to provide effective ground cover that would reduce the potential for soil erosion. The types and locations of soil disturbance are not expected to cause any indirect, off-site impacts to soils in adjacent areas, such as loss or burial of productive surface soils.

Neither action alternative is expected to create any impacts that would cause irreversible damage to soil productivity. There is low risk for mechanical disturbances to cause soil mass failures (landslides) due to the inherent stability of dominant landtypes and the lack of seasonally wet soils on steep slopes. Careful planning and the application of erosion-control Best Management practices would be used to minimize erosion problems on or adjacent to disturbed sites and prevent irreversible losses of the soil resource.

The development and use of temporary roads and logging facilities is considered an irretrievable loss of soil productivity until their functions have been served and disturbed sites are returned back to a productive capacity.

## Scenery

The project area for the Meissner EA is located approximately 10 miles southwest of Bend on the Bend/Fort Rock Ranger District of the Deschutes National Forest. Areas of concern for scenic views are along the Cascade Lakes Scenic Byway (Highway 46) that is the south boundary of the project area. The area adjacent to Highway 46 is within the Scenic Views Management Area and is classified as Partial Retention Foreground and Middleground classifications (Medium Integrity for Scenery Management System objectives).

The project area is located within the high intensity summer and winter recreation activity areas of the Cascade Lakes Recreation Area. There are numerous mountain biking, cross country skiing and snowmobile trails and trailheads located nearby. The Cascade Lakes National Scenic Byway is the scenic travel corridor that brings visitors to the area's recreational sites and scenic view areas. The intrinsic values to be protected along the scenic byway are natural, scenic, and recreational qualities. Other activities in this area include wildlife-viewing, native plants, hiking, road biking, and sight-seeing.

Currently, scenic views from this portion of the Cascade Lakes Scenic Byway are of a mixed conifer forest. Views to the existing Nordic skiing parking area and trailhead are screened by the existing vegetation.

## Scenic Values

Scenic values along the Cascade Lakes Scenic Byway are considered high. Scenic values are often based upon local knowledge of an area's unique characteristics and how people relate to a particular landscape or setting. Measuring these values is often subjective and communicated through the overall quality of the visitor experience. The key to realizing these values is to understand the traditions and connections visitors have developed over time with a certain place.

Visitors often have definite expectations of scenic views and other sensory experiences. These expectations are mainly based upon aesthetics and can be expressed through reactions to changes in the landscape or to patterns of land use. Visible and perceptible changes in noise levels, intensity of illumination, new building structures, surface changes such as paving or concrete, cut and fill grade changes, and removal of native vegetation are especially noticeable in developed areas surrounded by a forest setting.

Recent population changes and growth of development in Bend and Sunriver have brought more pressure and greater potential for disturbance to scenic quality and negative impacts to visitor recreation experiences in semi-primitive and primitive settings. Light pollution from adjacent urban areas and higher density recreation activities have all occurred in recent years to impact the visitor's recreation experience in other areas on the Forest.

### **Scenery management Objectives**

Scenery Management Objectives are defined in terms of Scenic Integrity Levels which describe existing conditions and whether the landscape is visually perceived to be “complete” or not. The most complete, or highest rating for Scenic Integrity Levels, means having little or no deviation from the landscape character that makes it appealing and attractive to visitors and local residents. In addition to describing existing conditions, Scenic Integrity Levels also describe the level of development allowed and ways to mitigate deviations from the area's landscape character.

Usually the most effective way to meet Scenic Integrity Levels is to repeat visual form, line, color, texture, pattern, and scale common to the scenic values of the landscape character being viewed. For example, in natural and natural appearing landscapes, deviations such as created openings can sometimes be visually enhanced through repetition of size, shape, spacing, surface color, edge effect, and pattern of natural openings common to the existing landscape character. When repetition is designed to be accurate and well placed, the deviation may blend so well that change is not evident.

### **Desired Future Condition**

The desired future condition is to provide high quality scenery representing the natural character of central Oregon. Parking facilities, structures, and other recreational facilities are to blend with the natural landscape and to remain subordinate to views from major travel corridors, especially scenic byways with national designations for scenic, natural, and recreational values. Effective natural screens and distances from roads are to be such that the view from the road appears natural.

### **Alternative 1 (No Action)**

*Direct and Indirect Effects:* There would be no change to existing use. The parking area would continue to provide parking for approximately 60 vehicles. During busy periods, overflow parking would continue on either side of Forest Road 4615 and along Highway 46, detracting from forest views. The Sparky Hazard Tree Reduction Project would remove hazard trees within the Scenic Views designation that is along Highway 46 that extends approximately 500 feet into the Forest. There is the possibility of open views of the parking area exposed to visitors traveling on the Cascade Lakes Scenic Byway adjacent to the project area.

### **Alternative 2 (Proposed Action)**

*Direct and Indirect Effects:* The resulting short-term effects of the project would not be significantly noticeable to the viewer from the Cascade Lakes Scenic Byway if the existing vegetation screen is maintained at least 200 feet from the road. The expansion of the parking area would occur toward the Scenic Byway and increase parking from 60 vehicles to 180 vehicles. The expansion area would occur to the south of the existing and be approximately 250 feet from the Cascade Lakes Scenic Byway. Existing stands between the highway and the expanded parking area would need to remain as a visual and audible buffer. Visitors to the Meissner Sno-Park are expecting a wilderness-like experience so the buffer from noise and views to the highway are as important from the sno-park as from the highway. With an effective vegetation screen and well-designed parking area, this alternative would meet the goal of M-9 (Scenic Views) of providing high quality scenery representing the natural character of Central Oregon.

*Cumulative Effects:* Along this part of the Cascade Lakes Scenic Byway, views to the parking area could potentially be more open in the future. Visitor safety would be improved with the removal of hazard trees and excess fuels. Removal of hazard trees from the existing vegetation screen which provides a buffer

between the Cascade Lakes Scenic Byway and the Meissner Sno-Park parking area would be noticeable over the short-term and become less noticeable over the long-term assuming existing trees would regenerate or additional new trees would be planted to fill in any gaps resulting from tree removal.

### **Alternative 3**

*Direct, Indirect and Cumulative Effects:* Effects would be similar to Alternative 2 due to the planned developments for the Sno-Park parking area, trails, and facilities. The existing parking area would double in size with its expansion from 60 vehicles to 120 vehicles. The resulting parking area would be approximately 250 feet away from the Cascade Lakes Scenic Byway.

### **Cultural Resources**

The prefield review was conducted, including the review of historic inventory maps, cadastral survey notes, and previous cultural resource survey maps. Previous cultural resource survey reports were also reviewed. The field investigation involved survey of areas proposed for trails, parking expansion, shelter construction, and terrain park.

No cultural resources were located in areas that would be impacted by the project. There are no cultural properties within the project area that are eligible for National Register of Historic Places.

This project complies with Section 106 of the National Historic Preservation Act, under the terms of the 2004 Programmatic Agreement for the State of Oregon. No historic properties will be affected by implementation of either action alternative.

### **Other Disclosures**

#### **Wetlands and Floodplains**

Both action alternatives are consistent with Executive orders 11988 and 11990, as there would be no adverse effects to wetlands or floodplains.

#### **Civil Rights and Environmental Justice**

Civil Rights legislation and Executive Order 12898 (Environmental Justice) direct an analysis of the proposed alternatives as they relate to specific subsets of the American population. The subsets of the general population include ethnic minorities, people with disabilities, and low-income groups. The project is not located in a minority community and would not affect residents of low or moderate income.

This project will not affect any specific subset of the American population at a disproportionately higher rate than others.

In addition, the effects of this project on the social context of these protected groups are within those described in the Deschutes National Forest Plan. The benefits and risks associated with implementation of the proposed action are provided to all members of the public. Therefore, the project would not pose disproportionately high or adverse effects to minority communities or to low income groups.

#### **Prime Lands (Farm, Range, and Forest)**

There are no lands within the boundaries of the Deschutes National Forest that meet the definition of prime farmland, or are considered prime farmland as discussed in the Final Environmental Impact Statement, Deschutes National Forest Land and Resource Management Plan. National Forest Land is generally not considered "prime" forestland. This project, therefore, would not affect prime lands.

#### **Inventoried Roadless Areas and Wilderness**

The project area does not include any Inventoried Roadless Areas or Wilderness. There will be no effect to these designated areas outside of the Meissner winter trails area.

## **CHAPTER 4 PUBLIC INVOLVEMENT AND CONSULTATION WITH OTHERS**

### **Interdisciplinary Team (Preparers)**

Marv Lang – Interdisciplinary Team Leader & Recreation Specialist

David Frantz/Beth Peer – Writer/Editors

Shelly Borchert – Wildlife Biologist

Rod Jorgensen – Soils Scientist

Charmane Powers – Botanist

Janine McFarland – Archaeologist

Tom Walker – Fisheries Biologist

### **Public Participation**

During the initial scoping, 82 responses with comments and questions were received. Responses varied from those who wanted more clarification to specific suggestions for project implementation. Comments were used to help develop Alternative 3.

The environmental assessment was made available for a 30-day comment period, under the provisions of the National Environmental Policy Act (40 CFR 1500-1508) and Notice, Comment, and Appeal Procedures for National Forest System Projects and Activities (36 CFR 215). The comment period began January 25<sup>th</sup> with publication of a notice in *The Bulletin*, Bend, Oregon. Comments were received from about 100 individuals, organizations, and agencies (see Table A-1 in Appendix A). The letters are included in the project file, located at the Bend/Ft. Rock Ranger District.

Most commenters offered an opinion on which alternative they thought should be selected. The responses to substantive comments are attached to this environmental assessment as Appendix A. Also in response to some comments, parts of this environmental assessment have been improved by clarifying statements, fixing errors, and adding more information and maps.

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## Appendix A

### Response to Comments

**Table A-1. Respondents During the 30-day Comment Period.**

Chrisanne Ondrovic	Theresa Wadden	John Morris
John & Shirley Morrissey, TLC	Helenka Marcinek	Joel Myers
Tom Gibbons	Randy Riser	Joe K Bryant
Tom & Sandy Federspiel	Linda Andrus	Molly & Kevin Grove
Ken Roadman, Redmond HS	Scott & Amy McDonald	Don Kunz
John JD Downing	Mark Hanschka	Donald Girardi
Mathew Denney	Jean Harkin	Carla Pfund & Scott Seaton
Dagmar Eriksson	Diane Keith	Jim Davis
Karen Daniels	James R Jones	Tim Gibbons
Dave Hunt	Gary Kelley	Allan Polachowski
Ron Federspiel	Shannon Mara et al	Russ Barkman
Alice Long	Bill & Everett Kurtz	Max Foster
Ruth Williamson	Shari Hogshead & Paul Gauthier	Jay Bowerman
James Cagney, CONC	Tony Wahlberg	Ralph W. Emerson Jr
Lloyd Corliss	Jim & Joyce Baker	Dave Stensland, TLC
Bill Martin, High School Ski Race Team	Cassie Giddings, Oregon Nordic Club	Don Horton, Bend Metro Parks and Rec.
Tom Carroll	Eric Alexander	Barbara Schroeder
Dennis Krakow	Pat Creedican, ODOT, Dist. 10	Paul Dewey
Tina Pavelic	Dale Neubauer, Wild Wilderness	Judy Meredith
Mary Beth Hamilton, COCC Library	Michael Van Waas, Phd, User Driven Applications	Alan Huestis, Studio 404
Jim & Wendy Inkster	Joseph Barrett	Rob Davidson
Rich Gross	Linda Frost, CONC	Dr. Josh Cook
Corle Hull	Bentley Family	Bill & Everett Kurtz , TLC
Russ Hull	Linda Burgel	Linda Fava
Scott Silver, Wild Wilderness	Annette & John Gerard	Nadine Sims
Patty Cagney	Bill Burwell	Don Auxier, TLC
Tammy Paladeni	Chandra LeGue, Oregon Wild	Glen Ardt, ODFW
Frank Miller	Harvey & Arlyn Becker	Bruce Cunningham
Barbara Winters	Barbara McAusland	Jim Murphy/ Sharon Lewis
Peter Meyer	Fred Tanis	Rick Johnson
Rita Aulie	Jill Biely	Peggy Spieger, OSSA
Richard Spray	Vera Riser, OSSA	Joni Mogstad
Jennifer Severns	Marion Davidson	John Cain
Will Shannon / Ian Mara	Casey Gifford	

The 30-day public comment period began January 25, 2008. Responses were received from about 100 individuals, organizations, and agencies. The Responsible Official and the interdisciplinary team considered all of the comments received during the comment period. The comments are grouped by subject and summarized where appropriate, followed by the Forest Service response. Comments were addressed by improving or clarifying analysis in the EA, by

making editorial and factual corrections in the EA, or by providing a direct response in this appendix.

It is important to recognize that the consideration of public comment is not a vote counting process in which the outcome is determined by the majority opinion. Relative depth of feeling and interest among the public can serve to provide a general context for decision-making. However, it is the appropriateness, specificity, and factual accuracy of comment content that serves to provide the basis for modifications to planning documents and decisions.

Most comments expressed a preference for one alternative or the other. Most often, people were willing to accept the additional trails identified for alternative 3, but felt that alternative 2 was too much development and inappropriate for the area. On the other hand, those in favor of alternative 2 asked to see as much expansion as possible, particularly for parking.

### Another Alternative / Other Proposals

**Comment:** Given the recognized need for improving safety at the Meissner sno-park, an alternative should be considered that addresses the increasing amount of dead trees adjacent to trails. As these begin to fall, they will pose a hazard to skiers and increase trail maintenance cost. An alternative should be considered that includes removing dead trees within 100 to 150 feet of existing roads using the personal use firewood program.

**Response:** Regular trail maintenance routinely addresses trail safety along forest trails. However, any trail that travels through a forested area will likely experience trees that fall across the trails. Incidental maintenance will keep the trails open during the winter, when most of the blowdown occurs.

**Comment:** I also believe part of the problem is inadequate signage on Century drive regarding options for visitors to the area. ...This would help visitors that don't know the area, understand that when Meissner is full, there is another park just a mile or two up the road.

**Response:** This is a good idea and we have initiated conversations with ODOT to pursue.

**Comment:** I am against the large warming lodge and against a huge parking area as well. I would prefer to see plans for a bus to take groups to the area instead of continuing to promote one car-one person planning.

**Comment:** Rather than large parking lots, why not run a shuttle from the city the same way the city shuttles people for river rafting?

**Comment:** Regarding the parking issue, it seems inappropriate to triple the size when other alternatives have not been considered. Has the city been approached about creating a Saturday and Sunday shuttle service to Meissner? ...If a shuttle was possible, a small open shelter with a warming stove to keep people warm while they wait for shuttle would be nice. ...An expansion to 120 spots seems like it should be adequate if mass-transit options are also considered.

**Response:** Future plans for a shuttle would help with parking in the long term. Discussions with the City of Bend have started, exploring ideas. This would be in addition to the increased parking area and a good solution for long term.

**Comment:** Because this proposal is in sequence with the Kapka Snopark proposal, it is again strongly recommended that the motorized zone on the NW quadrant of Tumalo Mountain, and

snowmobile trail 7, which bisects Dutchman Flat, be eliminated. This action would provide the following:

- Complete the separation of mechanized recreational vehicles and pedestrians initially sought in the Dutchman Decision with defined and defensible zones: with managed recreation being the end result.
- Negate the need for high-volume signing and the required Forest Service man-hours associated with the sign maintenance.
- All but eliminate the common motorized infractions into the non-motorized zone.
- Provide replacement recreation opportunities for those displaced from the Meissner system- if development plans are approved and not challenged.

**Response:** These items are outside scope of this project, which is specific to expansions of the Meissner snopark and trails.

### Consistency with Deschutes LRMP

**Comments:** The draft EA describes a desired condition that appears to be based more on the Tumalo Langlauf Club's (TLC) vision statement and strategic plan than on the desired conditions, goals and objectives, and standards and guidelines described in the Deschutes LRMP.

The Draft EA does not present sufficient analysis for the Responsible Official to make a finding that Alternative 2 or 3 are consistent with the Deschutes LRMP.

**Response:** The Deschutes National Forest LRMP allocates lands within the project area to Winter Recreation, Scenic Views and General Forest. The proposed action is consistent with standards and guidelines for recreation in these Management Areas which are listed on pages 2-2 of the EA (EA pp. 28 and 78).

**Comment:** According to the Deschutes NF Plan Map for Alternative E, the majority of the area east of the 4615 Road in the Meissner permit boundary (Draft EA, Figure 7) is within the General Forest management area. The other allocation east of the 4615 Road and adjacent to Cascade Lakes Highway is scenic views. It is within these two allocations that most of the snopark enhancements would occur. ...The ROS categories [Recreation Opportunity Spectrum] associated with these two management allocations appear to describe a desired recreation setting that is much different than the desired condition described in the Meissner Draft EA.

**Response:** All alternatives are consistent with Deschutes National Forest LRMP direction for recreation use in these allocations (EA pp. 28 & 78). The Recreation Opportunity Spectrum (ROS) is a management tool, or a guideline for recreation management decisions. A wide range of ROS classes would be suitable for the project area, ranging from maximum modification in the General Forest lands to roaded natural or semi-primitive classes in the Scenic Views and Winter Recreation allocations. Within the Scenic Views allocation along the Cascade Lakes Highway, the objective would be to manage developments so that they would not dominate the view for travelers along the highway. There are no actions proposed under the Alternatives at the Meissner Snow Park that are expected to dominate this view, particularly with the strip of forested land between the Highway and the proposed actions at Meissner. In the Winter Recreation allocation, ROS guidance would indicate that future developments for recreation would be appropriate in these areas.

**Comments:** ...the Deschutes LRMP may need to be amended to allow for a rural ROS within the Meissner sno-park. At most, the Deschutes LRMP may need to be amended to change the management allocations underlying the Meissner sno-park to “intensive recreation.” The activities and associated recreation opportunities being proposed for the sno-park appear to better match the stated goal of this management area.

...the construction of the lodge, the night lighting, and the tripling of the parking lot do not fit the Standards and Guidelines for this Management Area and would require a Plan Amendment.

**Response:** The Deschutes National Forest LRMP allocates lands within the project area to Winter Recreation, Scenic Views and General Forest. The proposed action is consistent with standards and guidelines for these Forest Plan Management areas (EA pp. 2, 3, 28, 78).

The Recreation Opportunity Spectrum (ROS) is a management tool, or a guideline for recreation management decisions. A wide range of ROS classes would be suitable for the project area, ranging from maximum modification in the General Forest lands to roaded natural or semi-primitive classes in the Scenic Views and Winter Recreation allocations.

**Comment:**...there is no analysis supporting the proposed “Desired Condition” on page 3 or any underlying planning document that justifies that description. ...It is not appropriate for an EA to invent out of thin air what the desired condition for a particular established recreation area is. I also strongly disagree that the desired condition for this historic site is a lodge with night lighting and group events.

**Response:** Developing a “Desired Condition” statement is a standard step in a project planning process and is developed, in part, by direction and recommendations in higher level planning and analysis documents that cover the area (such as the Forest Plan, or watershed analysis). It is intended to provide a vision of the future for the project area, and helps focus analysis efforts. The other part of the Desired Condition statement often is developed through the participation of the public. Thank you for your input; it will be considered in making the final decision for this project.

## Effects Analysis

**Comment:** The draft EA does not present sufficient analysis for the Responsible Official to make a decision of how each factor of the project purpose and need is met by each alternative.

**Response:** The EA describes the need for the project (pp. 3-4) as the difference between the desired condition and the current condition. Each of the actions described in Chapter 2 are proposed to meet the need for action (EA p. 13). In discussing the difference between the alternatives, the EA points out that

**Comment:** The Draft EA does not describe the actions associated with Alternatives 2 and 3 in sufficient detail to allow for an adequate analysis of effects.

**Response:** More detail has been added to the EA’s description of the activities proposed (p. 13).

**Comment:** ...[the] EA does not adequately address the impacts of on-going use of the Meissner Sno-park and Nordic trails under Alternative 1...On-going use of the Sno-Park and Nordic Trails



clearly would have environmental impacts. ...Analysis of Alternative 1 is necessary in order to fully understand and compare the resulting effects of all the “action” alternatives.

**Response:** The effects of No Action, Alternative 1, are addressed in the Environmental Consequences section of the EA. For many resources, the description of the current condition describes what resources are affected by the existing trail system.

**Comment:** The Draft EA does not document what direct, indirect, or cumulative effects Alternatives 2 or 3 would have on the recreational experience of individuals or families desiring to recreate at Meissner at the same time Nordic race events and other group events are being held. The boundary of the cumulative effects analysis should extend at least as far as Swampy sno-park, the next closest snow-park available to individuals or family recreationists displaced from Meissner by these group events.

**Response:** The Recreation Analysis has been updated in the EA to address this concern.

**Comments:** ...the discussion on fragmentation on pages 56-57 of the Draft EA is tantamount to a declaration of significant impacts, leading to the requirement for an EIS. (See page 57, fourth paragraph) ...it is impossible to conclude that implementation of either Alternative would [not] lead to significant environmental impacts, and thus the EA cannot support a FONSI.

**Response:** The fragmentation discussion is an effort to quantify the amount of road, trail, and past harvest that has impacted habitat, so that the current proposal can be assessed for cumulative effects. Some clarification of the assumptions used, and the context within which effects are assessed have been added to the EA. Effects to individual species and habitats are considered in light of the fragmentation analysis; no significant adverse effects to listed species are expected (EA pp. 39-40).

**Comment:** The EA’s reliance on outdated information of the recreation use in the area is not justified....the Draft EA fails to identify how many people would be dissatisfied by a developed recreation site at Meissner and two to three times the number of vehicles and people in the area. Not addressed by the Draft EA is the fact that a doubling or tripling of the parking lot could actually lead to four times or six times the number of people in the area. There is no analysis of impacts to the Swampy Lakes ski area.

**Response:** It is recognized that any change in the recreation site may negatively affect those current users who prefer the Meissner area as it is. The EA does include a “No Action Alternative” which addresses the effects of no changes to the area, and whether it adequately addresses the Purpose and Need for the project.

**Comment:** With the addition of more parking spaces and other improvements with the Proposed Action, it is reasonably foreseeable that within a few years the use of the Sno-Park will increase, generating more traffic to the Sno-Park, and perhaps lead to even more overflow along Highway 46....[right and] left turns from the area onto the Highway will be all the more hazardous. ...A traffic analysis is called for in the Final EA.

**Response:** With the rapid growth in Central Oregon, one can expect traffic on the Cascade Lakes Highway to increase, as people head to many destinations. With this growth, there would be expected incremental increases of traffic to Meissner under any alternative.

Use at Meissner constitutes approximately 5% of the use of the highway (100-150 vehicles per day with Meissner their destination, out of 1,800-2,000 per day using the highway on a weekend). Most traffic morning traffic can be attributed to people heading for Mt. Bachelor or the snoparks.

**Comment:** The focus of the discussion of effects in the EA is on the construction, use, and maintenance of the Nordic trails. Very little is said about the other proposed action components (building of the lodge, additional pit toilet, providing lighting, improving the pole barn, and expanding the parking area). Each of these will have their own unique impacts which should be acknowledged and need to be addressed separately.

**Response:** The predicted effects of each component of the proposed action are addressed under the Environmental Consequences section of the EA (pp. 26-30 for recreation experience). The wildlife section focuses on trails because that is the primary source of additional impacts to existing habitat.

**Comment:** The emphasis seems to be centered on the direct impacts of habitat loss and fragmentation to wildlife. The indirect impact analysis required by NEPA is thin. ... There is no real impact prediction. It is not enough to identify possible impacts. The impact's nature, area of impact, magnitude, timing, duration and permanence, whether it can be mitigated, the likelihood of its occurring (i.e. probable, possible, not know for certain), and its significance are not evaluated.

**Response:** Additional discussion has been added to the fragmentation discussion in the EA.

**Comment:** I ask that you specifically analyze the impacts this development will have upon the opportunities and experiences that will be lost if the Meissner area is developed as proposed by the TLC.

Although the proposed development of the Meissner system may benefit some, the EA failed to acknowledge that others would be displaced.

**Response:** It is recognized that any change in the recreation site may negatively affect those current users who prefer the Meissner area as it is. The EA does include a "No Action Alternative" which addresses the effects of no changes to the area, and whether it adequately addresses the Purpose and Need for the project.

**Comment:** There is but a finite amount of terrain available for winter recreation in this area. With the FS considering the building of a new motorized snopark at Kapka Butte and with the FS now engaged in a carrying capacity study, it is a mistake to consider the TLC proposal at this time. The Meissner area and the fate thereof must be analyzed within the larger context of all recreation opportunities available along Century Drive from the Inn of the Seventh Mountain to Mt. Bachelor resort.

**Response:** The proposed action at Meissner has been analyzed within the standards and guidelines of the Deschutes National Forest Land and Resource Management Plan, and is consistent with that direction. The winter recreation sustainability analysis is an ongoing assessment which will help guide future recreation developments on the Forest.

**Comment:** The cumulative effect upon recreationists seeking an undeveloped forest experience must be considered in both the Meissner and Kapka development proposals. Completing the spirit and intent of the Dutchman Decision will be essential if the courts are not asked to intervene.

**Response:** Winter recreation use has been ongoing and growing since the snoparks were originally constructed in the 1970s and 80s (EA p. 2 and Figure 1 p. 6). The trail density is highest near the snoparks and becomes less so the farther away one gets. The additional trails at Meissner will be concentrated within 2 miles of the snopark (EA p. 20). The improvements proposed for Meissner would not adversely impact those who seek to recreate in undeveloped forest, because the undeveloped areas outside of the snoparks are still available, such as Wilderness and the Bend Watershed.

### **Fees / Costs / Funding**

**Comment:** While a site free to the public is the desired condition, the draft EA does not indicate whether this will be the case at Meissner sno-park if Alternative 2 or 3 are implemented. I am concerned the costs of operating and maintaining these improvements may be passed along to individual recreationists or to the Forest Service at some point in the future. Is there any assurance use of Meissner sno-park will remain free to the public?

**Comment:** I am suspect that TLC has funds to expand the Meissner Sno-Park. I do not want the Meissner Sno-Park to require daily user fees.

**Comment:**...TLC proposes to operate this area free of charge to the public even though the club and its members will incur considerable expenses in the construction of the facilities and, more importantly, in the maintenance of the operations associated with a highly developed, groomed trail system. Can the USFS issue a guarantee that the Meissner Area will remain fee-free and that the only cost of using the area will be the cost of an ODOT-issued snopark permit?

**Response:** TLC and the Forest Service will develop and maintain the recreation facilities under an agreement. The intent is for the site to remain available to the public at a nominal fee (e.g the cost of a snopark permit).

**Comment:** The EA does not address whether TLC should be allowed to be or would qualify as a permittee for the substantial construction and maintenance. ...this EA addresses none of the economic needs of this development and its maintenance or if TLC has the financial ability to carry out this project.

**Comment:** With respect to the cost of construction, it is my understanding that the Meissner project will be paid by the TLC either in large measure for in part. I ask and request answers to these next ...questions:

1. Does the USFS have the money or expect to be able to obtain the money with which to build this project, or is the presumption that TLC will provide the required funding?
2. Would the USFS even be considering the proposals for Meissner if the agency was paying the bill?

**Comment:** ...how, exactly, will the maintenance and operation of an expanded Meissner area be funded?

1. Does the Deschutes National Forest intend to accept responsibility for the maintenance and operation of this area?
2. If the FS is relying upon their partners the TLC and if the TLC can't come up with adequate funding, what happens next?
3. Will the FS make a guarantee to this community that the Meissner Area will not be further commercialized, privatized and motorized?

**Response:** The Deschutes National Forest supports the selected Alternative for the future of Meissner Area and has the ultimate responsibility for the long-term maintenance of recreation developments on the forest. Choices and tradeoffs for which facilities may receive the priority for limited maintenance funds are made every year as fund availability fluctuates. However, winter recreation developments along the Cascade Lakes Highway are expected to continue to remain as priority locations for maintenance funds.

The Meissner Area recreation developments will remain available to the public, and current and future management is intended for non-motorized use.

**Comments:** There is no legal authority for the Forest Service to be essentially transferring management responsibility and authority over this area to a private club.

...a formal permit process is required to allow TLC or any other group to take over this area as contemplated by the Forest Service.

Is this not another example of privatization? ...TLC has asked for the rights to develop a portion of the Deschutes National Forest. TLC is offering to put up the money in exchange for the agency's approval. I understand that the preferred word for this arrangement is partnership and yet I wonder how different is what I describe from simple bribery?

**Response:** The Forest Service retains all management rights and authorities over the National Forest lands in the project area. The current and intended future grooming of the trails at Meissner is conducted by TLC. The Forest Service monitors the work done, and on an annual basis will authorize the activities.

### Lighting

**Comment:** I do not find in the Draft EA or the LRMP a basis for providing lighted Nordic ski facilities in Meissner sno-park.

**Comment:** Several respondents expressed opposition to lighting, stating that it is inappropriate for the forest and because of potential effects to wildlife.

**Comments:** For individuals wanting to ski after dark, head lamps provide a viable alternative.

**Comments:** The opportunity for early evening skiing that can be provided with minimum lighting has the potential to spread out the peak periods of use and would afford local residents the close to home opportunity to ski after work hours on week days.

**Comment:** PDC#2 [Alternative 2] "If at any time, these lights are found to have a negative impact to wildlife, even with these measures, the Forest Service would revisit the issue." ODFW recommends adding a monitoring methodology to determine if the lights now or in the future would have negative impacts to wildlife. The methodology should include techniques used to determine wildlife impacts by lighting, specifying impact thresholds, along with frequency of

assessment (e.g. every three years). As written, this component of PDC #2 will have little bearing on the protection and conservation of wildlife species that could be impacted by the proposed lighting.

**Response:** One objective of the proposal was to provide lighting that “extends daily use and provides an element of safety for those skiing in the evening during the winter.” (EA p. 4). Resource protection measure was developed to protect wildlife if the lighting alternative were selected (EA p. 22), and the potential effects to wildlife are discussed in the EA. Alternative 3 does not include the lighting proposal, and the EA compares the difference in effects between the two alternatives on wildlife.

**Comment:** The draft EA (Page 10, Table 1) indicates low impact lighting would be installed. The draft EA does not describe which trails would be lighted. There is no description of how power would be supplied to the lights. Would wiring be above or below ground, or would the lights be solar powered? How can effects of lighting the trails be adequately analyzed without knowing some of these details?

**Response:** More detail has been added to the EA. The proposed lighting would be solar powered, facing downward, and within 6 feet above the snow level.

## Trails

**Comment:** The description of Alternative 3 (Table 2, page 13) indicates fewer miles of new trail would be constructed compared to Alternative 2. The reader is referred to Figures 6 and 7 (pages 16 and 17) for the location of the trails. It is not clear from these figures which trails would not be built with Alternative 3.

**Response:** More detailed maps were made available at the District office or on the Forest Service web site. The final EA has two additional maps to display the alternative trail systems separately (pp. 20-21).

**Comment:** I am against moving any existing snowshoe trails to accommodate the construction of new ski trails.

**Response:** It is necessary to avoid suitable owl habitat with the ski trail as well as keeping adequate distance between snowshoe and skit rails.

**Comment:** Existing trails should not be widened to accommodate skate skiing and grooming both of which detract from the overall Meissner experience. There are adequate skate skiing trails available at Mt. Bachelor and these are supplemented with existing now established skate trails at Meissner. It appears that TLC wants to turn Meissner into a skate skiing Sno-Park. I stand firmly against any such action.

**Response:** Skating provides an additional opportunity for those who skate ski, which is a growing group. Many traditional Nordic skiers also prefer groomed trails as opposed to having to break trail. Those opportunities are available off trail or on certain trails at Meissner and all trails at Swampy.

**Comment:** PDC#3 [Alternative 3] – ODFW recommends monitoring the constructed trails annually to determine if mountain bikes or motorized vehicles are using them. If any

mechanized use is occurring, ODFW recommends adding trees, rocks, or other obstacles to stop the use and resultant fragmentation.

**Response:** Project design requires leaving downed woody material in all trail construction or reconstruction, and to post signs to help control/restrict bike and motorized vehicle use. Additional measures that could be taken if necessary, include scarifying the trail where it takes off from an existing road.

**Comment:** The EA refers to an action to “relocate snow shoe trails.” I can find no discussion of this or display of the relocations on the maps. This should be spelled out in detail. Volunteers at great effort have put snowshoe trails in place. Any relocation of their work should be spelled out in detail and consultation noted.

**Response:** The volunteer efforts that have helped layout snow shoe trails at Meissner are greatly appreciated. However, to address wildlife concerns a portion of an existing trail will need to be re-located approximately 200-300 feet from its current location. The Forest Service would like to work with snowshoe volunteers on this proposed relocation.

**Comment:** I strongly support the increase in the number of trails. ...I support snowshoe trails. According to REI it is the fastest growing snow sport in Central Oregon. ...the more snow shoe trails, the less likely snowshoers will use the ski trails.

**Response:** There will be no net change to the miles of snow shoe trails available at Meissner, though there is a proposed minor relocation of a portion of a trail.

### Trail Grooming

**Comment:** Tables 1 and 2 (Page 10 and 13) indicate Alternatives 2 and 3 remove vegetation from along the sides of existing roads and trails to accommodate additional trail grooming. While these tables indicate roads would be widened to 18 feet, it is unclear how much of an increase this is over the existing condition. It is unclear where this treatment would occur. With just one map for three alternatives it is also unclear which trails are currently being groomed (Alternative 1) and which trails would be groomed with Alternatives 2 and 3.

**Response:** Existing trails on roads will not need widening, because roads are already wide enough. New trails will be cut to 18 feet wide. Existing trails not on roads will be widened to 18 feet. Two additional maps have been added to the EA, Chapter 2, to display the alternatives separately.

**Comment:** The TLC grooming permit should not be expanded and thus restricted to 20 kilometers of trail. If these [proposed] skating loops are developed, grooming elsewhere must be restricted so that the total has a maximum length of 20 kilometers. I am against the TLC proposed grooming of the lower portion of the Wednesdays Ski Trail.

**Response:** Maintaining the existing miles of groomed trails is addressed and evaluated under the No Action Alternative 1.

**Comment:** Will the area revert to being ungroomed, or will the agency look for a purely commercial business to come in and take over the Meissner Area?

**Comment:** Commenters expressed concern with the additional trail grooming because they thought TLC may not be able to keep up with it.

**Response:** IF TLC is not able to groom the trails, then the USFS may seek out another partner who could groom, or the trails may remain ungroomed. Eventually, the TLC plans to procure a newer groomer so that fewer breakdowns would occur.

**Comment:** Mt. Bachelor has a world class, fully groomed x-country ski area and I don't believe it is cost affective to create a second in the area...The bulk of the skiers at Meissner are not skate skiers and do not care if it is groomed.

**Response:** Maintaining the existing trail type and length is addressed and evaluated under the No Action Alternative 1.

### Parking, other than alternative preference

**Comment:** In comparing the parking lot capacity associated with the alternatives (Table 3, Draft EA page 21), as a point of reference I would find it helpful to know the current parking capacity at Swampy sno-park.

**Response:** The current parking lot was designed for 60 vehicles.

**Comment:** To alleviate congestion and overflow parking, multiple signs should be placed directing visitors to sno parks not far from Meissner, especially Swampy Lakes Sno-Park, which is approximately two miles to the west. Swampy Sno-Park's trails are attached to Meissner's and it has many more parking spaces, generally not filled to capacity.

**Response:** Good idea, we did do that this winter and groomed a connector route.

**Comment:** Removing snow from a larger parking lot could be a budget issue for ODOT.

**Response:** Additional plowing will be reviewed for approval through the Winter Recreation Advisory Committee.

### Facilities

**Comment:** There is simply no basis for building such a large lodge [Alt. 2] outside an Intensive Recreation Area. Additionally the proposed 1,370 square foot lodge under Alternative 3 is also more appropriate for an Intensive Recreation Area. The standard size of shelters in the area is only about 300 square feet.

Development of a lodge (changing house) near the Meissner parking lot is inappropriate for the character of Forest Service Sno-parks and one that only duplicates existing facilities in Bend and Mt. Bachelor...The lodge development provides no demonstrated benefits to the overall Nordic skiing community.

...the 1,370 SF proposed warming shelter may be sufficient in the near term, but will prove undersized as demand grows. The hut size should be maximized at this time...the opportunity to increase the hut size in the future will likely be an expensive and time consuming particularly if an additional approval process is necessary....The analysis for shelter/hut size should look

beyond what is customary in the area to what is desirable for this particular facility and its likely future growth.

Why build a shelter at Meissner when there is a warming shelter at Swampy which is never used?

**Response:** In order to address the issue surrounding the size of the shelter, the EA provides three different scenarios for a warming shelter at Meissner: no shelter, a 2,748 ft<sup>2</sup> shelter, or a 1,370 ft<sup>2</sup> shelter. The smaller shelter is comparable to others in the area which range from approximately 1000 to 1500 square feet.

### Terrain Park

**Comment:** The Draft EA (Page 13, Table 1 and Page 13, Table 2) indicates a terrain park would be provided. There is no description of what this would entail. It's in the soil effects section (Draft EA, pages 69 and 70) where I learn the terrain park will feature banked slopes and turns, small bumps, moguls and jumps. Apparently these features are not present on the site and will require earthwork using a tracked excavator to move soil and shape the terrain. It is unclear what other actions are needed to provide this terrain park.

What kind of user is the terrain park intended for? How is it used without a lift? Do we need a terrain park with the sledding area right across the highway? Would a terrain park be a better fit over there? Would the terrain park attract more traffic and will the new spaces be enough?

**Response:** More detail has been added to the EA. The terrain park, as part of the original proposal, was intended to provide the opportunity for developing and improving various ski skills.

### Timber Harvest

**Comment:** The descriptions in Chapter 2 fail to indicate whether or not trees would need to be felled to make the desired improvement to the sno-park. ... The mitigation measures also imply trees would be cut. Considering general forest and scenic view management allocations have a programmed timber harvest, it should be disclosed how much volume would be cut that could potentially be utilized for various wood products or biomass.

**Response:** The snopark expansion would require about 0.4 acres of tree removal; the shelter and toilet would require about 0.1 acres of tree removal; and about 1 acre for the staging area would have trees removed but with clumps of trees retained for landscape value. Trees in the area are mostly lodgepole with some fir.

### Group Events / Races

**Comment:** The proposed improvements at Meissner would likely increase the number of Nordic race events and group events (an identified need for action). The Draft EA does not disclose how many "events" are currently held at Meissner (Alternative 1) or the frequency at which they are held. There is no projection of how much of an increase would occur with the improvements proposed in Alternatives 2 and 3. Lacking these measures, it is difficult to access how significantly the increase in "events" would affect the recreational experience of individuals or families not participating in the event but desiring to use Meissner or Swampy sno-parks. Depending on the degree of the effect, a mitigation measure limiting the frequency and duration of Nordic races or group events may be appropriate.



**Response:** There are currently 1-3 events per year at Meissner. The future will anticipate 5-10 events per winter, which could cause some disruption/displacement for those days or parts of days.

**Comment:** A staging area is already provided for public users at Mount Bachelor Nordic Center. If groups are looking for a site to hold races on non-fee forest service trails, the area around Dutchman Flat Sno-Park would be a more appropriate choice, as it is already impacted by noise and increased activity. ...though Meissner Sno-Park also had groomed trails, it is not an appropriate sight for racing.

**Response:** Meissner would provide the only skate ski venue outside of Mt. Bachelor. The purpose and need section (p. 4) discusses the need to facilitate group events and public input has expressed a desire to locate closer to town, particularly for the schools.

### Climate Change

**Comment:** There is no analysis in the draft EA projecting if, or how long, Meissner sno-park would meet this desired condition against the backdrop of a changing climate. A discussion of past and projected snow fall amounts would seem an important consideration in deciding how much development should occur in a sno-park that already has a relatively short season.

**Comment:** Global warming is a reality. The site may be unusable in the future for skiing.

**Response:** The EA describes how recreational use of the area has increased since the 1980s, and specifically at Meissner in the last five years (p. 26). The proposed developments would meet the current need and it is estimated that it would be sufficient for about the next 10 years (p. 23). Neither action alternative involves an irreversible commitment of resources that would prevent adapting to changes in the long term, whether the changes result from a warmer climate or other factors, such as changing public interest.

### Edits

**Comment:** Page 57, paragraph 2, line 5 – Care should be taken to ensure that statements such as this are, in fact, accurate.

**Response:** The numbers have been verified.

**Comment:** Page 62, Prefield Review section, line 5 – The precipitation range of 15 or 30 inches does not agree with the 12 to 15 inches stated on page 67, third paragraph, line 6. Nor do the elevation ranges cited in these two different sections.

**Response:** The precipitation range has been corrected.

**Comment:** The draft EA (Page 4) indicates the staging area to be developed would include a bypass bridge. There is no description of where this bridge would be constructed, what this bridge would look like, or what it would be crossing. Chapter 2 of the draft EA makes no mention of the bypass bridge.

**Response:** The EA has been corrected to remove reference to the bypass bridge, as it is no longer part of the alternatives.

### Position Statements / Opinions not requiring a response

#### **Alternative #1 – Do Nothing**

**Comment:** I recommend Alternative 1 for the proposal. The Forest Service recommended Alternative 3 has some compromises that I do not think serve the public that chooses to have outdoor experiences that are natural and I do not think it serves the wildlife in the area that are also precious.

**Comment:** I am writing to request that the Forest Service maintains Alternative 1, ...Alternatives 2 and 3 of the Meissner Project reflect an inappropriate private takeover of a public area, particularly by small interest groups. Meissner has historically been a low development area and should remain that way.

**Response:** Thank you for your comments; they will be considered in the final decision.

#### **Alternative #2**

**Comment:** ...the District (Bend Metro Parks and Rec) remains in support of Alternative #2 as we are concerned that the increasing popularity of the Meissner ski trails will inevitably lead to periods of inadequate user parking, and eventually drive the need for more parking and a larger warming hut, if the improvements are limited to the size and scale included with Alternative #3.

**Comment:** If Alternative #2's 120 additional parking spaces are not approved, then at a minimum, Alternative #3's additional 60 parking spaces are critical to ensure continued availability of the site for District and other local skiing programs. However, the District recommends that the additional 120 spaces in Alternative #2 be approved.

**Comment:** There are 60 parking spaces, but in reality, fewer vehicles fit during winter when there are many SUVs and trucks and the snow conditions do not allow cars to be parked as close to each other. Additional parking should be provided to allow a "real" 60 or 120 spaces.

**Response:** Thank you for your comments; they will be considered in the final decision.

#### **Either Action Alternative**

**Comment:** Many wrote in support of improvements at the sno-park without showing a preference for one alternative over the other. Others supported a mix of the two, such as preferring alternative 3, but with the larger parking as designed for alternative 2.

**Comment:** Some commenters expressed support for alternative 3 because they wanted to see improvements, but thought that Alternative 2 was too much; and some even thought that Alternative 3 should be "toned down."

**Response:** Thank you for your comments; they will be considered in the final decision.

#### **Other Statements**

**Comment:** While it is desirable to create more room for vehicles, ODOT is concerned that increased funding may not be available to keep the lots clear of snow so they can be used to their full extent. Allocations to ODOT Districts must be approved by the Winter Recreation Advisory Committee. The fee for snow park passes are not likely to be increased in the next several years so funding for the expanded park is not guaranteed. Without extra snow park funding allocated

to this district, ODOT could not remove snow from the addition. In the event the US Forest Service approves the expansion, they will also need to obtain approval for the extra funding if ODOT is to maintain the park for snow removal.

**Comment:** The grooming is primarily necessary to support skate-skiing at Meissner. Classic skiers self-groom and, for the most part, are happy with that. TLC could spend the money on grooming Meissner to pay for annual Mt. Bachelor Nordic passes for the people who want to skate ski at Meissner.

**Comment:** The District [Bend Parks and Rec] supports the proposal for additional kilometers of groomed ski trails at Meissner. ...additional groomed kilometers of trail will enhance the user experience for the overwhelming percentage of Meissner Sno-Park users that come specifically to use them.

**Response:** Thank you for your comments; they will be considered in the final decision.

### **Name Change**

**Comments:** Several commenters expressed concern about the proposed change to the name of the snopark.

**Response:** The original proposal from the TLC included changing the name of the snopark. The Forest Service is not considering that part of the proposal at this time, and the EA has been edited to clarify that.