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Department of  
Agriculture  
**Forest Service**  
Alaska  
Region  
Chugach  
National Forest



March 2006

# **Draft Environmental Impact Statement**

## **Kenai Winter Access**

**Chugach National Forest  
Seward Ranger District**



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# **Kenai Winter Access Draft Environmental Impact Statement**

## **Chugach National Forest Seward Ranger District**

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### **Abstract**

The Chugach National Forest proposes to develop a winter access management plan for the Seward Ranger District by the 2006/2007 winter season. This plan is needed to respond to the withdrawal of the 2002 Forest Plan decision regarding winter motorized access for the Carter-Crescent Lakes unit. Once it is adopted, the Kenai Winter Access Plan will amend the Chugach Forest Plan. The proposed plan is specific to winter recreation use only. The proposed plan does not consider other uses or other seasons of use. The Proposed Action minimizes potential confusion with a simple Season A/Season B scenario that alternates winter motorized and non-motorized use in both the Resurrection and West Resurrection units on an annual basis (rather than midyear, as currently exists). All other units are either permanently motorized or non-motorized during the winter season. The Carter-Crescent unit would remain motorized during the winter at all times while the designated non-motorized area in Summit, Russian, and Tiehack/Mt Alice would increase. In one season, 140 miles of multi-use trails or routes would be available, and 98 miles would be available the alternating season. Two cabins would be in non-motorized units every year. In every other year, there would be 11 cabins in non-motorized units. The existing designated non-motorized area near Grayling Lake would be expanded slightly to the west to provide additional non-motorized opportunities. The Proposed Action suggests two non-motorized access corridors in the Lost Lake and Carter-Crescent units and one motorized along the south fork of Snow River. Significant to this alternative is a motorized corridor from Cooper Landing and Moose Pass, and from the Sterling Y to north of Summit Lake with the potential to tie in to Hope and Girdwood. This is the only alternative that could eventually provide a continuous motorized corridor connecting these communities.

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Reviewers have 45 days following publication of a Notice of Availability in the Federal Register to comment on this document. The Forest Service will analyze and respond to the comments received and will use the information to prepare the final environmental impact statement.

Reviewers have an obligation to structure their participation in the National Environmental Policy Act process so that it is meaningful and alerts the Agency to the reviewers' position and contentions. Vermont Yankee Nuclear Power Corp. v. NRDC, 435 U.S. 519, 553 (1978). Environmental objections that could have been raised at the draft stage may be waived if not raised until after completion of the final environmental impact statement. City of Angoon v. Hodel (9th Circuit, 1986) and Wisconsin Heritages, Inc. v. Harris, 490 F. Supp. 1334, 1338 (E.D. Wis. 1980). Comments on the draft environmental impact statement should be specific and should address the adequacy of the statement and the merits of the alternatives discussed (40 CFR 1503.3).



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# Chapter 1 – Purpose of and Need for Action

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## 1.1. PROJECT AREA LOCATION

The Kenai Winter Access project area encompasses the Seward Ranger District, Chugach National Forest, located on the Kenai Peninsula in Southcentral Alaska (see Map 1-1, Vicinity Map). The spectacular mountains and forested lands of the Kenai Peninsula attract recreationists who enjoy a range of winter recreation activities.

### 1.1.1. Unit Descriptions

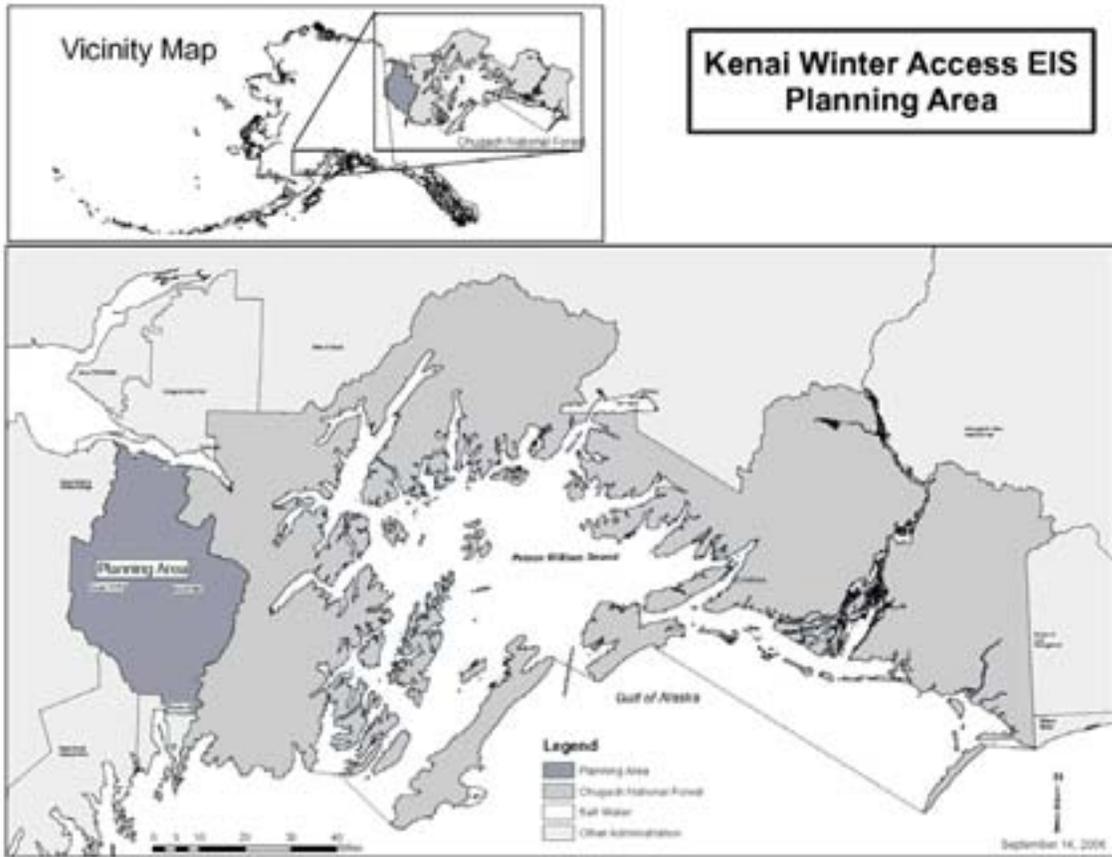
The project area is divided into 12 geographic units, listed below (see Map 1-2, Planning Area Geographic Units Map). These units will be used to guide the reader through a description of the alternatives.

Since many readers are familiar with the area known as Resurrection Pass, it should be noted that for all action alternatives in this document the **Resurrection geographic unit** boundary extends south to the Sterling Highway. This unit boundary change does not affect the existing boundary as it relates to the February 15 changeover date from motorized to non-motorized in the No Action Alternative.

The following are the 12 geographic units:

- |                      |                      |
|----------------------|----------------------|
| 1. Hope              | 7. Russian           |
| 2. Resurrection      | 8. Carter-Crescent   |
| 3. West Resurrection | 9. Ptarmigan/Grant   |
| 4. Summit            | 10. Lost Lake        |
| 5. Johnson Pass      | 11. Snow River       |
| 6. Tern Lake         | 12. Tiehack/Mt Alice |

### Map 1-1 Vicinity



### Map 1-2 Planning Area Geographic Units



## **1.2. PURPOSE AND NEED**

The following discussion provides the background information that the project team used to derive the purpose and need.

### **1.2.1. Conditions that Determined the Need for the Action**

On May 31, 2002, the Regional Forester for the Alaska Region of the Forest Service signed the Record of Decision (ROD) for the Chugach National Forest Revised Land and Resource Management Plan (USDA-FS, 2002d). A number of individuals and organizations appealed various parts of this decision, including the closure of the Carter-Crescent Lakes unit to winter motorized use.

In January 2003, after reviewing the appeals and the administrative record, the Regional Forester withdrew the part of the 2002 decision closing the Carter-Crescent Lakes area to winter motorized use. By doing this, the management direction for that area reverted to the direction provided in the 1984 Chugach National Forest Plan. Under the 1984 Forest Plan, this area is motorized from December 1 to April 30, once there is adequate snow to protect resources.

The Regional Forester also directed the Chugach National Forest to reconsider this portion of the decision at the local level, with involvement from all interested parties, to make sure the impacts of any closure were fully disclosed and that reasonable alternatives were considered.

As directed by the Regional Forester, the Chugach National Forest began a site-specific analysis for the Carter-Crescent Lakes Area in late February 2004. Several hundred scoping letters were mailed to individuals, government agencies, and groups. In addition, five listening sessions (Open Houses) specific to the Carter-Crescent Lakes area were held in Anchorage, Seward, Cooper Landing, Moose Pass, and Soldotna. Over 130 letters were received in response to these scoping efforts.

Many of the public comments received during the Carter-Crescent Lakes Area scoping period suggested that in order to find a workable long-term solution to winter recreation access, the Forest Service would need to expand the planning area. As stated in many of the comments, an expansion of the planning area would allow greater creative management options such as consideration of timing, shared-use, or alternating access across National Forest System lands on the Seward Ranger District.

After further consideration, the Chugach National Forest Supervisor asked for and received approval from the Regional Forester to expand the planning area to include the entire Seward Ranger District.

### **1.2.2. Forest Plan Direction**

The Chugach National Forest Land and Resource Management Plan (2002a) provides direction for all resource management programs on the Chugach National Forest. The Forest Plan consists of forestwide goals and standards as well as specific standards and guidelines that allow land uses and resource outputs. The Chugach National Forest Plan embodies the provisions of the National Forest Management Act (NFMA) of 1976

and its implementation regulations, as well as those of other guiding documents (see “Laws” section). Goals and standards specific to resources that could be affected by proposed activities are discussed in Chapter 3 in the affected environment and environmental consequences sections.

Specific Forest Plan goals that guided the development of the Purpose and Need are (USDA-FS, 2002a, p. 3-7 – 3-9 and 3-13 – 3-16):

- Use and Occupation: Heritage Resources, Recreational Opportunities, Access, and Facilities and Scenic Quality.
- Special Designation: Wild and Scenic Rivers emphasis applies.
- Desired Condition Forestwide and Kenai Peninsula Geographic Area for Recreation and Tourism, Special Designations,

There are many Forest Plan Standards and Guidelines that are applicable to the general design of the proposed action. Specific Forest Plan Standards (USDA-FS, 2002a, p. 3-35 – 3-42 and 3-47 – 3-48) that guided the development of the Purpose and Need are:

- Management activities will be designed to meet the Scenic Integrity Objective (SIO) as mapped.
- Management activities will be designed to meet the Recreation Opportunity Spectrum (ROS) class as mapped.
- The winter motorized season is from December 1 through April 30. The season may be extended or shortened by a Forest Order as snow conditions allow.
- Management activities should ensure that levels of use and development are consistent with the ROS class characteristics and recreation activity intensity levels by prescription.
- Where motorized access is permitted on one side of a ridge, but closed on the opposite side of the ridge, motorized uses may occur on the ridge top.
- Where motorized access and use is permitted, non-motorized access and use is also permitted.
- The maximum noise level for snowmachines is the level expected for factory standard equipment.
- On federal public lands within the Chugach National Forest, use of snowmobiles, motorboats, and other means of surface transportation traditionally employed for subsistence purposes by local residents shall continue as per ANILCA, Sec. 811.
- In Conservation System Units (CSU), access for traditional activities as defined by ANILCA, Section 1100 shall continue.

- For purposes of maintaining access to traditional activities consistent with ANILCA, the following areas on the Chugach National Forest shall be managed as if they were CSUs: ...rivers recommended for Wild, Scenic, and Recreational River designation, National Recreation Trails (including Resurrection Pass National Recreation Trail, and the Iditarod National Historic Trail) ...
- Follow the Seward Highway Corridor Partnership Plan, which provides the conceptual framework for managing the Seward Highway All-American Road corridor.
- The Seward Highway corridor is generally defined as the viewshed of the Seward Highway.
- Management activities, consistent with management area direction, may occur within the Seward Highway corridor.

### **1.2.3. Desired Change**

Due to the withdrawal of the Carter-Crescent Lakes Area from the ROD in the Revised Forest Plan, the Forest now needs to address how and where on the Seward Ranger District to manage for motorized and non-motorized winter access. The purpose is to have a clear and concise plan for winter access on the Seward Ranger District that addresses the need for forest management, public access, and recreation use (Federal Register, 2005, p. 21733).

## **1.3. PROPOSED ACTION**

The Chugach National Forest proposes to develop a winter access management plan for the Seward Ranger District by the 2006/2007 winter season in order to respond to the withdrawal of the 2002 Revised Forest Plan decision regarding winter motorized access for the Carter-Crescent Lakes area (Federal Register, 2005, p. 21733).

Since publication of the Notice of Intent in the Federal Register and two sets of public collaborative workshops, a Proposed Action has been developed. A summary of the Proposed Action follows and a detailed description can be found in Section 2.4. See Map A-2-2 for a visual description.

The current management of the Resurrection and West Resurrection allocates the first part of every winter to motorized use and after February 16, allocates the area to non-motorized use. The annual swap can be confusing and does not satisfy most users of the areas. The Proposed Action minimizes confusion with a scenario that alternates by season, winter motorized and non-motorized use, in both the Resurrection and West Resurrection units on an annual basis. Throughout this document, this scenario is referred to as Season A/Season B. All other units are either permanently motorized or non-motorized during the winter season.

The Carter-Crescent unit would remain open for motorized use during the winter at all times while the designated non-motorized area in Summit, Russian, and Tiehack/Mt Alice would increase (26%, 59%, and 64% respectively). The Proposed Action will

designate 65% of the Project Area open to snow machine use. In one season, 2 cabins would be accessible in designated non-motorized areas and 15 cabins in designated motorized areas. In the alternating season, there would be 6 cabins in designated motorized areas and 11 in non-motorized areas. The existing designated non-motorized area near Grayling Lake would be expanded slightly to the west to provide additional non-motorized opportunities. See Map 1-2, Planning Area Geographic Units, which displays the 12 named units used throughout this analysis.

The Proposed Action attempts to address the safety issues on multiple-use trails by designating two non-motorized access corridors, one in the Lost Lake unit and one in the Carter-Crescent unit. This alternative also designates a motorized access corridor along the South Fork of Snow River to provide access to the Nellie Juan area. No trail construction or other site specific improvements will be implemented for the proposed corridors by any decision made on the Kenai Winter Access EIS. Any site-specific improvements in the designated access corridors would require additional analysis before constructing improvements in these access corridors.

Access corridors will be defined in the Proposed Action and Alternative 2. These will be designated as either motorized or non-motorized corridors across non-motorized or motorized areas. No capital improvements (parking lots, trail heads, bridges, etc) will be implemented by this EIS or Record of Decision (ROD). Clearing of access corridors and signing of corridors will be permitted by this EIS and ROD.

The Proposed Action would leave available the East Ptarmigan and Snow River exploratory units for commercially guided helicopter skiing (USDA-FS, 2004f).

Two elements significant to this alternative include a motorized corridor from Cooper Landing and Moose Pass, to north of Summit Lake with the potential to tie in to Hope and Girdwood principally along established corridors. This is the only alternative that could eventually provide a continuous motorized corridor connecting these communities.

During the winter season, the Seward Ranger District land base would be designated 66% motorized, 15% non-motorized, and 18% Season A/Season B. The remaining 1% is the Kenai Lake – Black Mountain Research Natural Area, which remains non-motorized and is outside the scope of this analysis.

## **1.4. SCOPE OF OUR ANALYSIS**

The project area is the entire Seward Ranger District of the Chugach National Forest. The analysis will consider the direct, indirect, and cumulative effects of the proposed action and alternatives. The analysis is specific to winter recreation access only. The analysis does not consider other uses or other seasons of use.

## 1.4.1. Past Activities and Connected Actions

### 1.4.1.1. Commercially Guided Helicopter Skiing (CGHS) on the Kenai Peninsula Record of Decision, September 2004, Chugach National Forest

#### DEFERRED EXPLORATORY UNITS

The decision in CGHS deferred permitting commercially guided helicopter skiing for the Snow River and East Ptarmigan exploratory units (44,700 acres).

Although these exploratory areas are cleared by the CGHS, the Chugach National Forest did not issue a Special Use Permit (SUP) in the East Ptarmigan and Snow River exploratory units. The decision to permit these two areas will be analyzed during the Kenai Winter Access (KWA) EIS for the Kenai Forest Plan Amendment. This will ensure the CGHS SUP will be compatible with any new direction from the KWA EIS.

## 1.4.2. Past, Present, and Ongoing Activities

### 1.4.2.1. Past Activities

#### CABIN REPLACEMENT/RESTORATION

Juneau Lake Cabin Replacement – This cabin is one of nine Resurrection Pass cabins. Winter travel is relatively safe. In 1997, this cabin was replaced. Since its replacement, use has increased.

Lauriscent Cabin (Mills Creek) – This historic cabin was recently restored. Should the cabin become available for public use, increased use would be expected based on Seard Ranger District experience with similar projects. Cabins that have been replaced or rehabilitated tend to receive higher use.

#### WINTER TRAIL, TRAILHEAD CONSTRUCTION AND RECONSTRUCTION

Summit Creek Trailhead Construction and Trail Reconstruction – In 1998, a trailhead was constructed affecting approximately two acres. This area could provide additional parking for winter use if plowed by the State of Alaska Department of Transportation (ADOT). This would provide a total of three additional parking areas in the general Summit Trailhead area for winter vehicle parking.

#### CAMPGROUND RECONSTRUCTION

Trail River Campground Reconstruction – The campground was partially reconstructed in 2004 by changing some of the loop traffic patterns, shifting camping away from the lake shore to make room for day use sites, and updating the sites to accommodate modern recreational vehicles. The reconstruction did not address winter use or the lack of winter parking. The remaining part of the campground is scheduled to be reconstructed in 2006. In 2004, when the campground was closed during the winter season, it was utilized for cross-country skiing, skate skiing, dog mushing, and access to Kenai Lake. When the campground is closed, there is no managed parking and parking becomes concentrated along the access road. This has caused conflicts with local residents. In the past, when the area was open to snowmachine use, it was utilized as a

family destination for winter day use activities and Boy Scout overnight outings. The development of additional parking areas would greatly enhance winter day use activities. There are plans to add an additional loop of campsites for summer use but there are not plans for additional winter parking.

Seward Highway Reconstruction/Realignment – The State of Alaska Department of Transportation (ADOT) has been working on the Seward Highway for many years. Most of the work includes reconstruction and realignment of the highway. Milepost 8-18, Milepost 53-60, and Milepost 60-65 have been completed. Past highway reconstruction/realignment has provided an additional route for winter recreation use if the old alignment is abandoned, such as the old Sterling Highway.

## **VEGETATION TREATMENTS**

Vegetation treatments have occurred throughout the Seward Ranger District for hazardous fuel reduction, forest restoration, and wildlife habitat improvement (see project record for complete list).

### **1.4.2.2. Present Activities or Projects**

#### **EXISTING AND ON-GOING RECREATION USE**

The current areas utilized by recreationists and subsistence users have contributed to, and are part of, the discussion on the winter recreation existing condition. The majority of winter recreation occurs along travel corridors in the valley bottoms and utilizes a variety of terrain.

#### **WINTER TRAILS AND TRAILHEAD MAINTENANCE**

The following trails and routes are available for winter use:

- Johnson Pass Trail from the northeast end of Trail Lake
- Resurrection Pass Trail
- Lost Lake Winter Route
- Primrose Trail
- Russian Lakes Trail from the end of plowed section of the Snug Harbor Road to Aspen Flats Cabin
- Rainbow Lakes access from the Snug Harbor Road

#### **WINTER RECREATION AREAS IN PROXIMITY TO THE ANALYSIS AREA**

Turnagain Winter Use Area, managed by Glacier Ranger District, is directly adjacent to the analysis area. When Turnagain snow pack is low or it is crowded, users are known to disperse to the Summit unit due to its close proximity.

Chugach State Park primarily serves winter recreationists from Anchorage or in the proximity of Anchorage. It is unlikely that Kenai Peninsula residents would travel to the State Park for winter activities. However, it is possible that use would increase in the analysis area when snow conditions are poor or marginal in Chugach State Park or when use is considered excessive.

Kenai Wildlife Refuge is located adjacent to the west side of the analysis area. The Refuge allows for motorized use in the Caribou Hills Area and below 2,000 feet elevation. The Refuge restricts recreational motorized use within the areas adjacent to the Forest boundary at the Refuge/Forest boundary. The terrain in the Refuge is different from that in the analysis area because it is relatively gentle. Although the community of Soldotna can use the Refuge for motorized use, Seward Ranger District observation indicates they tend to trailer out and seek the more rugged and extreme terrain found in the analysis area.

Kenai Fjords National Park is located adjacent to the southwest of the analysis area. The Exit Glacier Road near Seward is a popular skiing spot with locals and an overnight cabin is available for reservation. Willow cabin is available after Exit Glacier Road is closed due to snow in the fall through the first week in April.

## **OUTFITTER AND GUIDES**

Six outfitter and guides provide winter services:

### Chugach Powder Guides

Guided helicopter skiing on the Kenai Peninsula was first permitted in 1997. Past use areas include the core and exploratory areas described in the existing condition.

### Glacier City Snowmobile Tours

Snowmobile – Johnson Pass, Russian Lakes, and Carter-Crescent trails

Skiing – Ptarmigan Creek Trail and Summit Lake

### Alaska Outdoor Adventures

Snowmobile Tours – Carter Lake Trail, Resurrection Pass Trail, and Cooper Lake to Lost Lake to Snug Harbor Road

### Alaska Snowmachine Safaris

Snowmobile Tours – Johnson Pass Trail

### Alaska Pacific University

Winter Camping/Avalanche Education/Skiing

### Wilkinson Expeditions

Skiing – Russian Lakes Trail, Ptarmigan Creek Trail and Johnson Pass Trail

## VEGETATION TREATMENTS

Vegetation treatments are occurring throughout the Seward Ranger District for hazardous fuel reduction, forest restoration, and wildlife habitat improvement (see project record for complete list).

### 1.4.3. Reasonably Foreseeable Actions

#### Seward to Girdwood Iditarod National Historic Trail (INHT)

The Forest Service signed a Decision Notice and Finding of No Significant Impact for this trail on January 23, 2004 (USDA, Forest Service 2003a). The decision includes approximately 186 miles to be managed as part of the INHT. The decision includes approximately 82 miles of trail reconstruction, 77 miles of new trail construction, 32 major trail bridges, and at least 50 minor bridges and walkways. Winter motorized is allowed on approximately 105 miles of the trail while 81 miles of trail are closed to winter motorized use. All routes follow the Forest Plan direction relative to winter motorized and non-motorized use. The project also includes construction of five new trailheads, reconstruction of three existing trailheads, and the construction up to six new cabins: Mills Creek, eastside of Ptarmigan Pass, Lost Lake Trail, and two in the Johnson Pass unit.

#### Sterling Highway Reroute (Cooper Landing Bypass)

The Alaska Department of Transportation (ADOT) has proposed to reroute the Sterling Highway to bypass Cooper Landing and to move the highway away from the river canyon. Three Alternatives have been proposed: Juneau Creek, G-South, and Cooper Creek. All of these alternatives involve National Forest land. An EIS is being prepared for this project by ADOT. If selected, the Juneau Creek Alternative has the potential of changing the backcountry setting found on the southern portion of the Resurrection Pass area to a highly used day-use setting for both summer and winter.

#### FERC Re-licensing of Cooper Lake Dam

As part of the re-licensing process, the permit holder may do the following activities:

- Cooper Lake Parking Area – new parking constructed in either 2009-2010.
- Water Diversion project to improve fish habitat in Cooper Lake. This will include adding approximately 11,000 feet of pipeline. There will also be an access road approximately 2 miles long. Implementation is scheduled for 2013.
- Approximately 12 miles of Snug Harbor Road will be reconstructed in 2013.

Parking is a serious safety issue on Snug Harbor Road in the winter months. This area is popular with snowmachiners from Soldotna and Kenai areas, as it is much closer than driving to the Lost Lake or Primrose trailheads. Lost Lake Trail is primarily used by Seward residents and some Anchorage residents. A new parking lot would accommodate winter users and provide a needed parking facility to access Russian and

Resurrection units. Reconstructing the 12 miles of Snug Harbor Road would improve access to winter opportunities in the Russian unit.

## Mills Creek-Iditarod Trail Hut-to-Hut System

This project is a proposal for a 34-mile hut-to-hut system utilizing new and existing trails. Approximately 16 miles of new, non-motorized trails would be constructed through the Mills Creek-Stormy Pass area and the Center Creek area. The existing trail (Johnson Pass) would continue to be motorized during the winter months. In addition, approximately four huts and associated facilities would be constructed to accommodate 20 overnight guests. Helicopters would be used to re-supply the huts and remove waste. There would also be on-site staff at various times throughout the year. Implementation is proposed for 2007. This proposal could potentially increase winter backcountry use by providing trail systems and high quality facilities to the public, affecting the Summit and Johnson Pass units. Potential winter trails may occur in the Johnson Pass, Mills Creek, and Center Creek areas.

## Public Cabin Replacement

Devil's Pass (Resurrection) – Cabin replacement and trail reconstruction is scheduled in 2006. More privacy to cabin users is expected. Experience with similar projects indicates that use increases once the cabin is replaced.

Romig (Resurrection) – Cabin replacement and trail reconstruction is scheduled in 2006. More privacy to cabin users is expected. Experience with similar projects indicates that use increases once the cabin is replaced.

Upper Russian (Russian) – The cabin is scheduled to be either rehabilitated or replaced in 2007. Experience with similar projects indicates that use increases once the cabin is replaced or rehabilitated.

Manitoba (Summit) – The cabin is scheduled to be rehabilitated in 2008. Experience with similar projects indicates that use increases once the cabin is replaced or rehabilitated.

## Seward Highway Reconstruction/Realignment Projects

The State of Alaska Department of Transportation (ADOT) has been working on the Seward Highway for many years. Most of the work includes reconstruction and realignment of the highway. Milepost 18-25 is scheduled next for reconstruction but no timeframe has been announced.

## Vegetation Treatments

Vegetation treatments will occur throughout the Seward Ranger District for hazardous fuel reduction, forest restoration, and wildlife habitat improvement (see project record for complete list).

### 1.4.4. Cumulative Effects

The No Action and action alternatives have in common providing areas where motorized use would be permitted and areas where motorized use would be prohibited. Large contiguous units that are either managed as open or closed for a winter season would cumulatively offer greater opportunities for quiet and solitude when considered at a District-wide scale. The effects of helicopter use on backcountry recreationists have been analyzed (in the Commercially Guided Helicopter Skiing Final EIS) and specific mitigation was applied to reduce or eliminate the impacts in the Johnson Pass unit (USDA-FS, 2004e).

The Johnson Pass and Summit units are foreseeable areas for backcountry hut development. Currently, the Johnson Pass unit is managed for a mix of motorized and non-motorized uses with core helicopter use. It is still possible to attain solitude by moving farther into and away from the main corridors. With the foreseeable future development of the Mills Creek-Iditarod Trail Hut-to-Hut System (with winter use potentially concentrated in the Johnson Pass and Center Creek areas), an additive effect may occur to the current level of snowmachine and helicopter use, making this unit less desirable for experiencing natural quiet. In the Snow River unit, the alternatives that restrict helicopter use and snowmachine use would cumulatively allow for the opportunity for quiet.

Along transportation corridors, foreseeable projects such as Sterling Highway realignment and the Cooper Lake Parking Area on the Snug Harbor Road may increase the noise associated with snowmachines and automobiles.

Implementation of the Seward to Girdwood Iditarod National Historic Trail actions such as establishing continuous parallel routes for non-motorized and motorized users and an increase in cabins (potentially six new cabins) may add more snowmachine-associated noise as new routes and amenities become developed and utilized. This project does not add any new motorized routes in the project area. It does add new non-motorized routes. The continuous route is what will pull more snow machiners to the area.

In all alternatives, cabin replacement has occurred or is reasonably foreseeable. Past cabin replacement in the Resurrection and Russian units resulted in increased visitation and use. Regardless of whether the unit is managed as motorized, non-motorized, or in a seasonal swap scenario, use is likely to increase with the foreseeable replacements of the Devil's Pass and Romig cabins in the Resurrection unit, the replacement of the Upper Russian Cabin in the Russian unit, and the restoration of the Manitoba Cabin in the Summit unit. Cumulatively, winter use is likely to increase from the existing level (particularly when the unit is motorized) as use begins to shift around and within the analysis area as favorite cabins become booked and other options have to be sought. Recreationists who typically use the Turnagain Winter Use Area would find a quality cabin opportunity and the quality terrain associated with the Summit unit. It is foreseeable that recreationists who typically use Chugach State Park would travel longer distances to have this experience. Without monitoring and some form of visitor survey, it is unknown how the development of the Mills Creek Iditarod Hut-to-Hut system would affect the public cabin system.

While access would still be provided, displacement from historical use areas and activities may increase in all alternatives (regardless of the user type) when future

actions such as the Mills Creek-Iditarod Hut-to-Hut System, and the Seward to Girdwood Iditarod National Historic Trail are implemented. If use increases, hunting and trapping activities may be further confined to remote areas to avoid conflict with other uses. They may be unable to participate safely in hunting with increased use on favorite trails and areas.

The Mills Creek-Iditarod Trail Hut-to-Hut System trailhead, which would connect to the Iditarod Trail, Johnson Pass Trail, and the Whistle Stop trail system, would be adjacent to heritage sites SEW-00035, SEW-00152 and SEW-01031. Combined with the designated motorized corridor near Summit Lake, the increase in public access and users would raise the potential for adverse effects to these three sites and possibly lead to additional trail maintenance if the proposed corridor crosses or connects to the historic Mills Creek Trail. If the proposed motorized corridor were constructed, it would require additional Section 106 review. If adverse effects were unavoidable, mitigation measures would be required.

There will be no direct, indirect, or cumulative effects to threatened, endangered, or proposed wildlife species because they do not occur within the project area during the winter recreation season.

Cumulative effects may occur to individual management indicator species (brown bears, moose, and mountain goats) due to recreation activity. Risks of affecting the populations of these species range from negligible to moderate.

Cumulative effects may occur to individual species of special interest (wolverine, wolves, lynx, marbled murrelet, northern goshawk, and bald eagle) due to recreation activity. Risks of affecting the populations is low-moderate for all species except wolverine, which is moderate.

The relatively small potential impacts to local economic activity from the proposed winter motorized closures in conjunction with past actions and reasonably foreseeable future actions would not cause any cumulative impacts.

The negligible impacts to soils, water, riparian, wetlands, air quality, vegetation, and fisheries from winter recreation activities in conjunction with past actions and reasonably foreseeable future actions would not cause any cumulative impacts.

## **1.5. DECISION TO BE MADE**

Given the purpose and need, the Responsible Official will review the Proposed Action, the other alternatives, the environmental consequences, and comments from the public and other agencies in order to make a decision. The Responsible Official may decide to: (1) select the Proposed Action, (2) select one of the alternatives, (3) select one of the alternatives after modifying the alternative with additional mitigation measures or combination of activities from other alternatives, or (4) select the No Action Alternative, choosing to take no action at this time. If the No Action Alternative were selected, winter use of the Carter-Crescent unit would remain motorized, as outlined in the 1984 Forest Plan. The analysis is specific to winter recreation use only. The analysis does not consider other uses or other seasons of use. The winter recreation season for the Chugach National Forest is December 1 through April 30.

### **1.5.1. Responsible Official**

The Forest Supervisor for the Chugach National Forest is the Responsible Official who will decide what actions are to be implemented. The Forest Supervisor will document decisions and rationale in a Record of Decision. The following goals and objectives will be considered when making the final decision:

1. Provide for a range of motorized and non-motorized opportunities and experiences.
2. Feasibility of closures or restrictions and enforcement.
3. Minimize disturbance or displacement of wildlife in winter habitats and risk of affecting populations.
4. Maintain or improve historically established winter travel connections between communities.
5. Accommodate historical winter use activities, such as collection of fire wood, hunting, community access, and family outings.
6. Provide settings that allow for a balance between natural quiet and recreation use.
7. Provide management strategies to reduce conflicts between user groups.

### **1.5.2. Project Implementation**

Once a decision has been made, project implementation could begin in the 2006/2007 winter season.

## **1.6. POLICY DIRECTION AND LEGAL GUIDANCE**

### **1.6.1. Laws**

Shown below is a partial list of federal laws and executive orders pertaining to project-specific planning and environmental analysis on federal lands. While most pertain to all federal lands, some of the laws are specific to Alaska. References to these laws and orders, as well as disclosures and findings required by them, can be found throughout this document and in the project file.

- The National Environmental Policy Act (NEPA) (1970)
- The National Forests Management Act (1976) as amended
- Endangered Species Act (ESA) of 1973 (as amended)
- Sustainable Fisheries Act (Public Law 104-297, October 11, 1996)
- The National Historic Preservation Act (1966) as amended
- Alaska Native Claims Settlement Act (Public Law 92-203, December 18, 1971)
- Archaeological Resources Protection Act of 1979

- Native American Graves Protection and Repatriation Act of 1990
- American Indian Religious Freedom Act of 1978 (as amended)
- Russian River Land Act: (Public Law: 107-362, Dec 19, 2002)
- Preserve America Executive Order, 2003

### 1.6.1.1. Alaska National Interest Lands Conservation Act (ANILCA) Sections 1110(a) and 811

Section 1110(a) of ANILCA requires that the Forest Service permit, on Conservation System Units (CSUs), the use of snowmachines, during periods of adequate snow cover, for traditional activities and for travel to and from villages and homesites. Consistent with the Alaska Regional Supplement to Forest Service Manual (FSM) Section 2326.1, traditional activities include, but are not limited to, recreation activities such as fishing, hunting, boating, sightseeing, and hiking. Such snowmachine use is, however, subject to reasonable regulation to protect the natural and other values of the CSUs and cannot be prohibited unless, after notice and hearing in the vicinity of the affected unit or area, the Forest Service finds that such use would be detrimental to the resource values of the unit or area.

Section 811 of ANILCA requires that the Forest Service permit the use of snowmachines by a rural Alaska resident for subsistence provided:

8. The individual is lawfully engaged in an authorized subsistence activity during permitted dates.
9. The individual can identify himself as a qualified subsistence user.
10. The individual is in compliance with all public safety regulations (USDA-FS, 2004d, p. 1-2).

### 1.6.2. Guidance

- Forest Service Region 10 Regional Forester's Sensitive Species List (USDA-FS, 2002i)
- Chugach National Forest, Invasive Species Management Plan (USDA-FS, 2004c)
- USDA Forest Service Soil and Water Conservation Handbook of Best Management Practices (USDA-FS, 1996)
- The Second Amended Programmatic Agreement #02MU-111001-076 "Among the USDA Forest Service, Alaska Region, the Advisory Council on Historic Preservation, and the Alaska State Historic Preservation Officer, Regarding Heritage Resource Management on National Forests in the State of Alaska"
- Seward to Girdwood Iditarod National Historic Trail Environmental Assessment, Finding of No Significant Impact, and Decision Notice (USDA-FS, 2003a)

- Commercially Guided Helicopter Skiing on the Kenai Peninsula Final Environmental Impact Statement and Record of Decision (USDA-FS, 2004e and 2004f)

## **1.7. WHAT TO EXPECT NEXT**

The publication of this DEIS begins a formal comment period of 45 days. At the end of the comment period, the Chugach National Forest will review all the comments and use them to modify the proposal or do additional analysis or provide additional information in developing a selected alternative for the Final EIS. Usually the responsible official will issue a Record of the Decision (ROD) when the Final EIS is published. The Record of Decision will document the selected alternative and provide the rationale for the decision.

## **1.8. PROJECT RECORD**

This DEIS incorporates by reference the Project Record (40 CFR 1502.21). The Project Record contains draft Specialist Reports and other technical documentation used to support the analysis and conclusions in this DEIS. Relying on Specialist Reports and the Project Record helps implement the CEQ Regulations' provision that agencies should reduce NEPA paperwork (40 CFR 1500.4), that EISs shall be analytic rather than encyclopedic, and that EISs shall be kept concise and no longer than absolutely necessary (40 CFR 1502.2). The objective is to furnish enough site-specific information to demonstrate a reasoned consideration of the environmental impacts of the alternatives and how these impacts can be mitigated, without repeating detailed analysis and background information available elsewhere.

## **1.9. PREVIEW OF REMAINING CHAPTERS**

The Forest Service has prepared this Draft Environmental Impact Statement (DEIS) in compliance with the National Environmental Policy Act (NEPA) and other relevant federal and state laws and regulations. This DEIS discloses the direct, indirect, and cumulative environmental impacts that would result from the Proposed Action and alternatives. The document is organized into four chapters:

Chapter 1 – Purpose and Need for Action: The chapter includes information on the history of the project proposal, the purpose of and need for the project, and the Agency's proposal for achieving that purpose and need.

Chapter 2 – Alternatives, Including the Proposed Action: This chapter provides a more detailed description of the Agency's proposed action, as well as alternative methods for achieving the stated purpose and need. These alternatives were developed based on relevant issues raised by the public and other agencies. This chapter also details how the Forest Service informed the public of the proposal and how the public responded. This discussion also includes mitigation measures. Finally, this section provides a summary table of the environmental consequences associated with each alternative.

Chapter 3 – Affected Environment and Environmental Consequences: This chapter describes the environmental effects of implementing the proposed action and other alternatives. This analysis is organized by resource.

Appendices – The appendices provide detailed information to support the analysis presented in the EIS. Maps provide a visual comparison between the alternatives.

## **Chapter 2 – Alternatives, Including the Proposed Action**

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### **2.1. INTRODUCTION**

This chapter describes and compares the alternatives considered for the allocation of winter recreation use across the Seward Ranger District. It includes the public input and the issues that drove the range of alternatives and a description of each alternative considered. The alternatives are also presented in comparative form, showing the differences between each alternative and providing a clear basis for choice among options by the decision maker and the public.

### **2.2. PUBLIC INVOLVEMENT**

In January 2003, the Regional Forester withdrew the part of the 2002 Chugach National Forest Revised Plan decision closing the Carter-Crescent Lakes area to winter motorized use. By doing this, the management direction for that area reverted to the direction provided in the 1984 Chugach National Forest Plan. Under the 1984 Forest Plan this area is motorized from December 1 to April 30, once there is adequate snow to protect resources.

The Regional Forester also directed the Chugach National Forest to reconsider this portion of the decision at the local level, with involvement from all interested parties, to make sure the impacts of any closure were fully disclosed and that reasonable alternatives were considered.

As directed by the Regional Forester, the Chugach National Forest began a site-specific analysis for the Carter-Crescent Lakes Area in late February 2004. Several hundred scoping letters were mailed to individuals, government agencies, and groups. In addition, five listening sessions (Open Houses) specific to the Carter-Crescent Lakes area were held in Anchorage, Seward, Cooper Landing, Moose Pass, and Soldotna. Over 130 letters were received in response to these scoping efforts.

Many of the public comments received during the Carter-Crescent Lakes Area scoping period suggested that in order to find a workable long-term solution to winter recreation access, the Forest Service would need to expand the planning area. As stated in many of the comments, an expansion of the planning area would allow greater creative management options such as consideration of timing, shared-use, or alternating access across National Forest System lands on the Seward Ranger District. The Regional Forester approved the expansion the planning area to include winter recreation access on the entire Seward Ranger District. This began a second round of scoping.

In an effort to have the public assist in the development of alternatives, including the Proposed Action, the Chugach National Forest hired independent consultants to host a series of collaborative learning workshops.

To announce the first round of collaborative workshops, approximately 565 letters were mailed to individuals, groups, and federal, state, and local agencies. In addition to the letters, public service announcements, news releases, and flyers were used to advertise these workshops. A series of 3-hour workshops were held in Moose Pass, Seward, Soldotna, and Anchorage February 23, 24 and 26, 2005.

On March 30 and 31, and April 2, 2005, a second series of 6-hour collaborative workshops were held in Soldotna, Anchorage, and Seward. To announce these workshops, the Forest used public service announcements, news releases, news advertisements, and flyers. In addition, about 82 letters were mailed to attendees of the first workshops. More than 150 citizens participated in one or several of the three workshops, developing 18 citizen-based scenarios for addressing winter recreation access across the Seward Ranger District. Maps of each scenario were also developed during these workshops.

The Notice of Intent (NOI) was published in the Federal Register on April 23, 2005. The NOI asked for public comment through May 25, 2005, although comments were accepted well beyond that date. In addition, six open houses were held May 23-25, 2005 in six communities to provide an update on the progress of the project. These communities were Anchorage, Seward, Girdwood, Moose Pass, Cooper Landing, and Soldotna.

This project was published in the Forest's Schedule of Proposed Actions (SOPA) in the third and fourth quarters of 2004 and the first quarter of 2005 as the Carter-Crescent EA and in all the subsequent issues as the Kenai Winter Access EIS.

Over 70 responses were received via email, telephone, and regular mail. Using the comments from the public and other agencies, as well as the comments from the Carter-Crescent EA scoping, the interdisciplinary team developed a list of issues that are addressed in the following section.

## **2.3. ISSUES**

Two levels of issues are used in this analysis. Key issues are those within the scope of the project of sufficient concern to drive the development of alternative actions. The key issues are specific to this geographic area and proposal, and provide a good comparison between alternatives during analysis. Analysis issues are those that are not critical in developing alternatives but are important for their value in designing specific protective measures and to measure the effects of the alternatives on different resources.

The interdisciplinary team identified "issue indicators" to measure how each analysis issue would be affected by the alternatives. Each issue may have more than one indicator, depending on its complexity. Issue indicators were selected for their ability to show the differences between alternatives.

Issues were not considered if they were:

1. Outside the scope of the proposed action
2. Already decided by law, regulation, or other higher-level decision

3. Irrelevant to the decision to be made
4. Conjectural and not supported by scientific or factual evidence
5. General comment

The Council for Environmental Quality NEPA regulations require this delineation in Section 1501.7 “Identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Section 1506.3)...” A list of non-relevant issues and reasons regarding their categorization as non-relevant may be found in the content analysis in the project record.

### **2.3.1. Key Issues**

Key issues that drove the development of the action alternatives including the proposed action are:

- The need to minimize potential confusion over shared use with a simple Season A/Season B scenario that alternates motorized and non-motorized use on an annual basis
- The need to reduce safety issues on trails with shared motorized and non-motorized use.
- The need to provide separate areas for both motorized and non-motorized users, while still providing a fair distribution of cabin access to both user groups.

### **2.3.2. Analysis Issues**

Five analysis issues were identified and are described below. Each issue has one or more issue indicators that will be used to evaluate the environmental consequences of each alternative.

#### **Issue 1. Range of Winter Recreation Opportunities**

Changing land allocations within the project area between motorized and non-motorized use could affect the range of opportunities available.

All groups want the ability to enjoy and have access to a variety of terrain and experiences. Users want areas that are large enough and allocated for a long enough period during the winter to encompass a full range of activities. With winter snowpack being uncertain, each user group needs a mix of both low and high elevation areas in order to recreate throughout the winter season.

No group wants to lose the ability to access the Forest as they have in the past. While some motorized users desire short duration day trips to the Carter-Crescent unit for snowplay, others may seek overnight family-oriented cabin experiences. Some prefer a more extreme backcountry experience or prefer long distance rides. Non-motorized users may want short duration cross-country ski experiences that are easily accessed from highways or roads, or they may be looking for a multi-day backcountry tour to the

cabins. Others may be seeking terrain that has steep slopes and ridges for an extreme backcountry telemarking experience.

All users want the ability to access cabins in the winter. Families and those users interested in recreating at cabins and the Carter-Crescent unit are concerned they may be displaced from an area they have historically used. Citizens who reside in the area have historically used both motorized and non-motorized means to access the Forest for a variety of activities (including using snow for access to gather firewood as well as for recreational use on the forest lands that surround their communities).

### **INDICATORS**

- Available terrain in acres and miles of trail or winter route for motorized and non-motorized uses
- Number of cabins available and season of use
- Change in the range of winter recreation opportunities

## **Issue 2. Recreation Experience**

Both motorized and non-motorized users want a quality experience when they recreate. Neither group wants their recreational experience impacted by conflict with others.

Both motorized and non-motorized users indicated that shared winter use on particular trails and in certain areas can be hazardous. This can diminish their experience. Steep terrain and winter trails located in constricted valley bottoms result in users sharing common corridors. Most trails providing access into the backcountry were originally designed for summer use and typically have a 20-foot corridor. In most cases, steep-sided slopes, gorges, and ravines limit options for separating use. Examples noted by the public include the Lost Lake Trail, the Primrose Trail to Lost Lake, and the Carter Lake Trail. To reduce conflict, some non-motorized users are avoiding areas where interactions are highest and seek out areas where concentrated motorized use is less likely. Likewise, motorized users are concerned with the safety of shared use and may avoid those trails where use is concentrated.

Some non-motorized users indicated their recreation experience is diminished when they hear motorized noise. This occurs most frequently at shared staging areas and shared use areas. Some feel they have had to make a trade-off between an acceptable amount of noise and utilizing their favored areas. Some recreationists are looking for areas where natural quiet can be expected.

Two issue elements have been identified to describe recreation experience environmental consequences. The elements are Shared Use and the Opportunity for Quiet.

The indicator for Shared Use is:

**INDICATOR**

- Change (increase, decrease, no change) in the potential for encounters between and within motorized and non-motorized users in key units including Lost Lake, Carter-Crescent, Resurrection, and Russian

The indicator for Opportunity for Quiet is:

**INDICATOR**

- Narrative on the ability to experience quiet (natural quiet)

### Issue 3. Disturbance to Wildlife

Winter recreation use increases human access into wildlife habitat, which may potentially affect an animal's use of the habitat for denning, nesting, cover, or foraging.

**INDICATORS**

- Percent of affected habitat that is motorized and non-motorized within a species habitat over time
- Level of effect/risk to species and its population

### Issue 4. Economics

Concerns were raised regarding the effects on local businesses of closing areas in the project area to motorized winter recreation use.

**INDICATOR**

- Potential effects of changes in winter motorized areas on local economic activity

### Issue 5. Disturbance to Heritage Resources

Cultural resources are non-renewable and disturbances can be irreparable, affecting the eligibility status for inclusion to the National Register of Historic Places (NRHP). Disturbance includes vandalism, theft, and unintentional disturbances caused by an increase in access and concentrated use.

**INDICATORS**

- Number of historic properties documented
- Historic properties monitored during winter
- Number of acres inventoried

## 2.4. ALTERNATIVES CONSIDERED IN DETAIL

The Forest Service has developed four alternatives, the No Action, the Proposed Action, and two other action alternatives in response to issues raised by the public. In describing the alternatives, four major headings are used. The headings are 1) General Overview, 2) Highlights, 3) Unit Descriptions, and 4) Cabin Availability. An explanation of each of these topics is provided below.

### 2.4.1. General Overview

This section provides a brief overview of the alternative.

### 2.4.2. Highlights

This section includes a description of the following:

1. **Non-Motorized Areas** – Percent increase or decrease of non-motorized areas compared to the No Action Alternative. This includes only those areas that would be permanently non-motorized.
2. **Motorized Areas** – Percent increase or decrease of motorized areas compared to the No Action Alternative. This includes only those areas that would be permanently motorized.
3. **Season A/Season B Scenarios** – This section describes which areas would be part of a scenario that alternates winter motorized and non-motorized use each season.
4. **Access Corridors** – This section will describe any access corridors being designated. No trail construction or other improvements will be implemented for the proposed corridors by any decision made on the Kenai Winter Access EIS. Any site-specific improvements in the designated access corridors would require additional analysis before constructing improvements in these access corridors.
5. **Trail River Campground** – Various proposals for winter recreation use are described in this section.
6. **Motorized Corridors** – The extent of motorized corridors between Cooper Landing, Moose Pass, the Sterling Y, and the Hope Y can be found in this section.
7. **Helicopter Skiing** – The decision was made to authorize commercially guided helicopter skiing in many areas of the Kenai Peninsula in 2004 (USDA-FS, 2004f). Both Ptarmigan/Grant and Snow River contain exploratory areas where issuing a Special Use Permit under the commercially-guided helicopter skiing special use authorization has been deferred until the decision on Kenai Winter Access EIS project is made. This section will show whether helicopter skiing activities could be permitted in these exploratory areas. This project does not include any proposed changes to core helicopter skiing areas.

### 2.4.3. Unit Descriptions

### 2.4.4. Cabin Availability

For each alternative, a table is provided to display the number of cabins located in the motorized and non-motorized units. Non-motorized users may access all of the cabins during the motorized seasons.

### 2.4.5. Guidelines and Basic Assumptions:

1. The Sterling Hwy/Seward Hwy intersection is referred to as the Sterling Y.
2. The Hope Hwy/Seward Hwy intersection is referred to as the Hope Y.
3. The Kenai Lake – Black Mountain Research Natural Area (RNA) in the Lost Lake geographic unit remains unchanged in all of the alternatives and throughout this analysis. Although it is non-motorized, this closure is related to its designation as an RNA and; therefore, the acres associated with it are not included in the percentages presented.
4. All of the alternatives, except the No Action Alternative, propose scenarios that alternate use between motorized and non-motorized user groups. These will be referred to as Season A/Season B scenarios.
5. The existing motorized closure dates, as described in the Forest Plan on page 3-35 (#4), will remain in effect for all alternatives. The February 15 swap between motorized and non-motorized use will remain in effect for the No Action Alternative only. The three action alternatives eliminate this mid-season swap.
6. There will be no change to any current regulations permitting access for subsistence, emergencies, administrative purposes, private lands, or legal mining claims, with this decision. When units are described as non-motorized, motorized access for subsistence use is not affected.
7. Tables are used throughout this document to display Season A/Season B situations across two years. If an alternative is selected with a Season A/Season B scenario, the decision maker will determine the corresponding designations and years in the Record of Decision.
8. Resurrection River Cabin is not included in this analysis, as it is not a part of the reservation system and is not used during the winter season.
9. Unless otherwise stated, all narratives are describing Federal lands only.
10. The total acreage within the project area (Seward Ranger District) is 885,730 acres. Non-National Forest lands total 50,030 acres and 430 acres are used as administrative sites such as the Kenai Work Center. Therefore, the total acreage of National Forest System lands used in all calculations is 835,270 acres.
11. When a unit is designated for motorized use, non-motorized uses are also permitted. Non-motorized travel is allowed in any unit or area during any winter season or alternative.
12. Even though a unit may be designated as non-motorized, the potential for encountering subsistence users with snowmachines is likely.

## 2.5. NO ACTION ALTERNATIVE

### 2.5.1. General Overview (Map A-2-1)

This alternative is the existing direction in the Revised Forest Plan, except for the Carter-Crescent unit. Due to withdrawal of the decision for the Carter-Crescent from the Revised Forest Plan, current management direction for that unit reverts to the 1984 Forest Plan that leaves the unit open for motorized use.

The majority of the Resurrection and West Resurrection units are a part of the seasonal changeover from motorized use to non-motorized use on February 16 of each year.

The Seward Ranger District land base would be designated 71% motorized, 11% non-motorized, and 17% in the Resurrection and West Resurrection seasonal swap. The remaining 1% is the Kenai Lake – Black Mountain Research Natural Area.

### 2.5.2. Highlights - No Action Alternative

1. **Non-Motorized Areas** – The non-motorized areas in Summit, Johnson Pass, Tern Lake, Russian, Lost Lake, Snow River, and Tiehack/Mt Alice remain the same.
2. **Motorized Areas** – The motorized areas in all 12 geographic units remain the same.
3. **Season A/Season B Scenario** – There is no Season A/Season B scenario in this alternative. Resurrection and West Resurrection continue to be motorized until February 15. After February 15, they are non-motorized.
4. **Access Corridors** – No additional access corridors are designated.
5. **Trail River Campground** – The campground is non-motorized.
6. **Motorized Corridors** – There are no designated motorized routes in the non-motorized units along the highway corridors. Travel is allowed within the highway easement (100 feet on either side from the centerline); although in some cases, the terrain limits movement up and down the corridor.
7. **Helicopter Skiing** – There are currently two areas, one in Ptarmigan/Grant and one in Snow River, where the issuance of a special use permit for helicopter skiing has been deferred pending the completion of this analysis. These two areas would be available for special use permits.

### 2.5.3. Unit Descriptions - No Action Alternative

1. **Hope** – This unit is motorized.
2. **Resurrection** – This unit is motorized through February 15, after which it becomes a non-motorized use unit. A narrow strip of permanent winter motorized use is present across the southern boundary. This strip is located from the National Forest/State land boundary north of the Sterling Highway to the first ridge to the north (about 1½ miles north of Sterling Highway).

**Table 2-1 Percent of Designated Motorized and Non-Motorized Land by Area, No Action Alternative.** The Hope, Carter-Crescent, and Ptarmigan/Grant units would be 100% motorized, while 95% of Resurrection and 88% of West Resurrection would be involved in a February motorized/non-motorized swap. Russian, Johnson Pass, and Lost Lake would have more land motorized than non-motorized, and Summit and Tern Lake units would have slightly more non-motorized land than motorized.

Unit	Percent <sup>1</sup> Motorized	Percent Non-Motorized
Hope	100	0
Resurrection	5	95 swap <sup>2</sup> only
West Resurrection	12 <sup>3</sup>	88 swap <sup>2</sup> only
Summit	44	56
Johnson Pass	82	18 <sup>4</sup>
Tern Lake	46	54
Russian	79	21
Carter-Crescent	100	0
Ptarmigan/Grant	100	0
Lost Lake	92	2 <sup>5</sup>
Snow River	86	14
Tiehack/Mt Alice	94	6

3. **West Resurrection** – This unit is motorized through February 15, after which it becomes a non-motorized use unit. A narrow strip of permanent winter motorized use is present across the southern boundary. This strip is located from the Sterling Highway to a ridge approximately 2 miles to the north of the highway.
4. **Summit (west side and east side of the Seward Highway)** – The majority of this unit is designated non-motorized (56%).
  - The west side is non-motorized at the Fresno Creek drainage and the slopes between the Seward Highway and the adjacent ridge to the Pass Creek drainage. North of this non-motorized area is designated motorized. It includes all of the Pass Creek drainage and a narrow portion between the power line and the highway. To the south of the non-motorized area is a motorized area that includes all of the Colorado Creek drainage and the upper portion of Summit Creek drainage.

<sup>1</sup> Numbers are rounded to the nearest whole percent.

<sup>2</sup> Annual mid-season motorized closure after February 15 .

<sup>3</sup> The remaining 88% is part of the annual February 15 motorized closure.

<sup>4</sup> Nine percent of this area is open to helicopter skiing.

<sup>5</sup> The remaining 5% is the RNA.

- On the east side, the non-motorized area includes all of Mills Creek drainage and all of the Canyon Creek drainage to the State lands near the Hope Y. It also includes the upper portion of the Silvertip Creek drainage. Motorized use includes the Quartz Creek drainage and all the slopes draining towards Seward Highway to Lower Summit Lake.
5. **Johnson Pass** – This unit is motorized. The exception is the Center Creek drainage, in which the southeastern portion of the drainage is non-motorized except helicopters.
  6. **Tern Lake** – This unit contains both motorized and non-motorized use areas. The non-motorized area encompasses all of the John’s Creek drainage on the east side of the Seward Highway. On the west side of the Seward Highway, it includes the Slate Creek drainage and the Quartz Creek drainage. It also includes the area north of the Sterling Highway to the first ridge top from Tern Lake to non-National Forest lands near the Sunrise Inn. The motorized portion of this unit includes:
    - A corridor two miles wide along the Seward Highway from the northwest end of Upper Trail Lake to the Sterling Y
    - A ½-mile wide corridor on the south side of the Sterling Highway from Tern Lake to the Crescent Creek Campground. This encompasses the Old Sterling Highway
    - The slope north of Upper Trail Lake from the Seward Highway to where Trail Creek joins Upper Trail Lake
    - The upper portion of the Summit Creek drainage
    - A ¾ mile wide corridor on the east side of the Seward Highway from Quartz Creek to the next drainage north towards Summit Lake
  7. **Russian** – The western portion of this unit is non-motorized. This includes the Russian River drainage from the Aspen Flats Cabin north to the Sterling Highway. The rest of the Russian unit is motorized.
  8. **Carter-Crescent** – This entire unit is motorized. It includes the lands north of Kenai Lake to the southern boundary of the Tern Lake unit. The eastern boundary is the Seward Highway.
  9. **Ptarmigan/Grant** – This entire unit is motorized. It is bounded by the railroad on the north, the north boundary of the Snow River unit to the south, the District boundary on the east, and the Seward Highway and State lands to the west.
  10. **Lost Lake** – The majority of this unit is motorized. Two non-motorized areas include the existing RNA and a small section approximately 4 miles long in the Meridian, Grayling, and Long lakes area adjacent to the Seward Highway.
  11. **Snow River** – This unit contains a non-motorized area on the south and west slopes of Sheep Mountain, across the lower 1½ miles of the North Fork of the Snow River, including the northwest slopes of Paradise Peak. The remainder is motorized.
  12. **Tiehack/Mt Alice** – The western slopes of Tiehack Mountain are non-motorized. The rest of this unit, south of the non-motorized area, is motorized.

### 2.5.4. Cabin Availability - No Action Alternative

Motorized users would have access to 16 cabins, 7 of which are available all season and 9 in Resurrection during the shorter season. Non-motorized users may also access these cabins during the motorized season. There would be non-motorized access to 10 cabins, of which 1 is available all season and 9 in Resurrection during the shorter season.

**Table 2-2 Cabin Access (Motorized and Non-motorized), No Action Alternative.**

Motorized and non-motorized users would have access to nine cabins in Resurrection based on the February swap. Seven cabins in Russian, Carter-Crescent, Lost Lake, and Snow River units would be accessible by motorized users every season. Non-motorized users could access one cabin in Russian.

Unit Name	Cabin	Motorized	Non-Motorized
Resurrection	Caribou Creek	✓ <sup>1</sup>	✓ <sup>2</sup>
	Fox Creek	✓ <sup>1</sup>	✓ <sup>2</sup>
	East Creek	✓ <sup>1</sup>	✓ <sup>2</sup>
	Devils Pass	✓ <sup>1</sup>	✓ <sup>2</sup>
	Swan Lake	✓ <sup>1</sup>	✓ <sup>2</sup>
	West Swan Lake	✓ <sup>1</sup>	✓ <sup>2</sup>
	Juneau Lake	✓ <sup>1</sup>	✓ <sup>2</sup>
	Romig	✓ <sup>1</sup>	✓ <sup>2</sup>
	Trout Lake	✓ <sup>1</sup>	✓ <sup>2</sup>
Russian	Barber		✓
	Aspen Flats	✓	
	Upper Russian	✓	
C-C	Crescent	✓	
	Crescent Saddle	✓	
Lost Lake	Dale Clemens	✓	
Snow River	Lower Paradise	✓	
	Upper Paradise	✓	

<sup>1</sup> Open to motorized use until February 15.

<sup>2</sup> Closed to motorized use begins February 16.

## 2.6. PROPOSED ACTION

### 2.6.1. General Overview (Map A-2-2)

This alternative minimizes potential confusion with a simple Season A/Season B scenario that alternates motorized and non-motorized use in both the Resurrection and West Resurrection units on an annual basis (rather than midyear, as currently exists). All other units are either motorized or non-motorized during the winter season.

The Carter-Crescent unit would remain designated motorized at all times while the designated non-motorized areas in Summit, Russian, and Tiehack/Mt Alice would all increase in size. In years when Resurrection Pass is motorized, 15 cabins are available to motorized users. In the next year, 11 cabins are available to non-motorized users. The existing designated non-motorized area in Lost Lake would be expanded slightly to the west to provide additional non-motorized opportunities.

This alternative attempts to address the safety issues brought up by motorized and non-motorized users on multiple-use trails by proposing two non-motorized access corridors in the Lost Lake and Carter-Crescent units. This alternative also includes a designated motorized access corridor along the South Fork of the Snow River to provide access to the Nellie Juan area.

Two elements significant to this alternative include a motorized corridor from Cooper Landing and Moose Pass, to north of Summit Lake with the potential to tie in to Hope and Girdwood. This is the only alternative would that provide a continuous motorized corridor connecting these communities.

The Seward Ranger District land base would be designated 66% motorized, 15% non-motorized, and 18% Season A/Season B scenario. The remaining 1% is the Kenai Lake – Black Mountain Research Natural Area which is outside the scope of this analysis.

### 2.6.2. Highlights – Proposed Action

1. **Non-Motorized Areas** – This alternative would increase the non-motorized areas in the Summit, Russian, Lost Lake, and Tiehack/Mt Alice units and decrease non-motorized areas in the Tern Lake and Snow River units (Table 2-3).
2. **Motorized Areas** – This alternative would increase the motorized areas in the Tern Lake and Snow River units. There would be decreases in Summit, Russian, Lost Lake, and Tiehack/Mt Alice (Table 2-4).
3. **Season A/Season B Scenario** – Resurrection and West Resurrection would alternate (Season A/Season B) together on an annual basis. That is, one year Resurrection and West Resurrection would be motorized, the following year; they would both be non-motorized.

**Table 2-3 Percent of Designated Non-Motorized Land by Area, Proposed Action.** The percentage of non-motorized land would decrease in Tern Lake and Snow River units and increase in Summit, Russian, Lost Lake, and Tiehack/Mt Alice.

Unit	Percent <sup>1</sup> Non-Motorized	Percent Increase or Decrease
Summit	82	26 +
Russian	59	38 +
Lost Lake	4	2 +
Tiehack/Mt Alice	64	58 +
Tern Lake	16	38 -
Snow River	6	8 -

**Table 2-4 Percent of Designated Motorized Land by Area, Proposed Action.** The percentage of motorized land would increase in Tern Lake and Snow River units and decrease in Summit, Russian, Lost Lake, and Tiehack/Mt Alice.

Unit	Percent <sup>2</sup> Motorized	Percent Increase or Decrease
Tern	84	38 +
Snow River	94	8 +
Summit	18	26 -
Russian	41	38 -
Lost Lake	91	1 -
Tiehack/Mt Alice	36	58 -

4. **Access Corridors** – Two non-motorized access corridors are designated, one in Carter-Crescent and one in Lost Lake. The access corridor in Carter-Crescent would begin at the Trail River Campground Access Road and travel west along Kenai Lake and then north through Crescent Saddle. The Forest Service has an existing easement through State land adjacent to the Trail River Campground. The access corridor in Lost Lake would run along the east side of Lost Creek from the southern tip of the non-motorized area to the Grouse Lake area. An easement from the State would be required.

Two motorized access corridors are designated, one in the Summit unit along the motorized corridor and one along the south side of the South Fork of Snow River. The Summit unit marked route would run through a combination of State and federal lands north of Lower Summit Lake. An easement or permit from the State would be required.

<sup>1</sup> Numbers are rounded to the nearest whole percent.  
<sup>2</sup> Numbers are rounded to the nearest whole percent.

5. **Trail River Campground** – Trail River Campground would continue to be non-motorized, although grooming with motorized equipment would be permitted.
6. **Motorized Corridors** – This alternative would provide a motorized corridor from Cooper Landing to the Sterling Y to Moose Pass. The corridor would also extend from the Sterling Y to the Hope Y.
7. **Helicopter Skiing** – The exploratory areas Ptarmigan/Grant and Snow River would remain available for helicopter skiing permits.

### 2.6.3. Unit Descriptions – Proposed Action

1. **Hope** – This unit would be motorized.
2. **Resurrection** – This would be part of a Season A/Season B scenario. This unit and West Resurrection, together, would alternate between motorized and non-motorized use annually.
3. **West Resurrection** – This would be part of a Season A/Season B scenario. This unit and Resurrection, together, would alternate between motorized and non-motorized use annually.
4. **Summit (west side and east side of the Seward Highway)**
  - The entire west side would be non-motorized, except for narrow strips of land along the highway corridor between the power line and the Seward Highway.
  - The entire east side would be non-motorized except for a corridor adjacent to the Seward Highway from Upper Summit Lake to Lower Summit Lake.
5. **Johnson Pass** – The majority of this unit is motorized. The southeastern portion of the Center Creek drainage is designated non-motorized, with the exception of helicopter assisted skiing.
6. **Tern Lake**

The following areas would be motorized:

- The slope north of Upper Trail Lake from the Seward Highway to where Trail Creek joins Upper Trail Lake
- A corridor along the Seward Highway from the northwest end of Upper Trail Lake to the Sterling Y
- Both sides of the Sterling Highway from Tern Lake to the Crescent Creek Campground, which encompasses the Old Sterling Highway
- The narrow strip between the power line and the Seward Highway from Devil's Creek Trail to Slate Creek
- The entire east side of the Seward Highway from Tern Lake to Summit Lake

The following areas would be non-motorized:

- The area west of the Seward Highway and the power line from Devils Creek Trail through and including the Summit Creek drainage
7. **Russian** – The non-motorized area would include the Russian River drainage from the Upper Russian Cabin north to the Sterling Highway and all the land between the Russian River and Cooper Creek/Cooper Lake. Motorized use would be allowed between Cooper Creek/Cooper Lake and the State land along Kenai Lake and south of Russian Lakes Trail from Upper Russian Lake to Cooper Lake.
  8. **Carter-Crescent** – This entire unit is motorized. It includes the lands north of Kenai Lake to the southern boundary of the Tern Lake unit. The eastern boundary is the Seward Highway.
  9. **Ptarmigan/Grant** – This entire unit is motorized. It is bounded by the railroad on the north, the north boundary of the Snow River unit to the south, the Seward Ranger District boundary on the east, and the Seward Highway and State lands to the west.
  10. **Lost Lake** – The majority of this unit would remain motorized. The two non-motorized areas include the existing RNA and all the National Forest lands within the Grayling, Meridian, and Long Lake drainages west of the Seward Highway. The southern boundary starts at the northern quarter corner of Section 24, T 2 N, R 1 W, and traverses westerly to the steep side slopes at approximately the 1500 foot elevation. The western boundary then traverses along the steep side slopes, northerly at the 1500 foot location to Primrose Creek. Primrose Creek is the northern boundary. This closure would exclude the Primrose Trail, Primrose Road, Primrose Campground, and the Seward Power Line adjacent to the Seward Highway.
  11. **Snow River** – The southern slopes of the South Fork of the Snow River would be non-motorized. The rest of the Snow River unit would be motorized. This would allow motorized travel up the South Fork of the Snow River to the Nellie Juan area.
  12. **Tiehack/Mt Alice** – The existing non-motorized area (the western slopes of Tiehack Mountain) would be expanded south to include the northwest part of Mt Alice. The Godwin Glacier and icefields to the north of the South Fork of Snow River would be motorized.

## 2.6.4. Cabin Availability – Proposed Action

Motorized users would have access to 15 cabins (Season A) and 6 cabins (Season B). Non-motorized users may access all of the cabins during the motorized season. There would be exclusive non-motorized access to 2 cabins (Season A) and 11 cabins (Season B). Table 2-5 displays the cabins that would be available for motorized and non-motorized access in each geographic unit under the Proposed Action.

**Table 2-5 Cabin Access (Motorized and Non-motorized), Proposed Action.** There are nine cabins in Resurrection, alternating motorized and non-motorized access annually. Every season, users would have motorized access to six cabins in Russian, Carter-Crescent, Lost Lake, and Snow River units and non-motorized access to two cabins in Russian.

Unit Name	Cabin	Season A		Season B	
		Motorized	Non-Motorized	Motorized	Non-Motorized
Resurrection	Caribou Creek	✓			✓
	Fox Creek	✓			✓
	East Creek	✓			✓
	Devils Pass	✓			✓
	Swan Lake	✓			✓
	West Swan Lake	✓			✓
	Juneau Lake	✓			✓
	Romig	✓			✓
	Trout Lake	✓			✓
Russian	Barber		✓		✓
	Aspen Flats		✓		✓
	Upper Russian	✓		✓	
C-C	Crescent	✓		✓	
	Crescent Saddle	✓		✓	
Lost Lake	Dale Clemens	✓		✓	
Snow River	Lower Paradise	✓		✓	
	Upper Paradise	✓		✓	

## 2.7. ALTERNATIVE 1

### 2.7.1. General Overview (Map A-2-3)

As with the Proposed Action, this alternative would create a straightforward alternating (Season A/Season B) scenario between Resurrection and Carter-Crescent, closing the Carter-Crescent unit to motorized use every other year. All other units would be either permanently motorized or non-motorized during the winter season.

The percentage of the Seward Ranger District that would be designated non-motorized is more than double what exists now, from 11% to 23%. The entire Russian and West Resurrection units would be non-motorized along with considerable increases in non-

motorized areas in several other units. Lost Lake would be mostly motorized, the same as the No Action Alternative.

The Seward Ranger District land base would be designated 55% motorized, 23% non-motorized, and 21% Season A/Season B scenario. The remaining 1% is the Kenai Lake – Black Mountain Research Natural Area.

### 2.7.2. Highlights – Alternative 1

1. **Non-Motorized Areas** – This alternative would increase the non-motorized areas in West Resurrection, Summit, Russian, Snow River, and Tiehack/Mt Alice units. There would be a decrease in the non-motorized area in the Tern Lake unit.

**Table 2-6 Percent of Designated Non-Motorized Land by Area, Alternative 1.**

The percentage of non-motorized acreage would increase in West Resurrection, Summit, Russian, Snow River, and Tiehack/Mt Alice, and decrease in Tern Lake unit.

Unit	Percent <sup>1</sup> Non-Motorized	Percent Increase Or Decrease
West Resurrection	100	N/A <sup>2</sup>
Summit	98	42 +
Russian	90	69 +
Snow River	32	18 +
Tiehack/Mt Alice	64	58 +
Tern Lake	3	51 -

2. **Motorized Areas** – This alternative would increase the motorized area in the Tern Lake unit. There would be decreases in West Resurrection, Summit, Russian, Snow River, Tiehack/Mt Alice.

**Table 2-7 Percent of Designated Motorized Land by Area, Alternative 1.** The percentage of motorized acreage would decrease in West Resurrection, Summit, Russian, Snow River, and increase in Tern Lake unit.

Unit	Percent <sup>3</sup> Motorized	Percent Increase or Decrease
Tern	95	49 +
West Resurrection	0	N/A <sup>2</sup>
Summit	2	42 -
Russian	10	69 -
Snow River	68	18 -
Tiehack/Mt Alice	36	18 -

<sup>1</sup> Numbers are rounded to the nearest whole percent.

<sup>2</sup> West Resurrection is part of the annual February 15 motorized/non-motorized swap.

<sup>3</sup> Numbers are rounded to the nearest whole percent.

3. **Season A/Season B Scenario** – the Resurrection unit would alternate (Season A/Season B) with the Carter-Crescent unit on an annual basis. This is different from the Proposed Action where Carter-Crescent was permanently motorized. In this alternative, when one unit is motorized, the other would be non-motorized.
4. **Access Corridors** – No additional access corridors are designated.
5. **Trail River Campground** – Trail River Campground would be non-motorized.
6. **Motorized Corridors** – This alternative would provide a motorized corridor from Cooper Landing to the Sterling Y to Moose Pass. The corridor would also extend (on both the east and west sides) from the Sterling Y to Lower Summit Lake.
7. **Helicopter Skiing** – Ptarmigan/Grant and Snow River would remain available to be permitted for helicopter skiing.

### 2.7.3. Unit Descriptions – Alternative 1

1. **Hope** – This unit is motorized.
2. **Resurrection** – This unit would alternate (Season A/Season B) with the Carter-Crescent unit on an annual basis. For example, when Resurrection is non-motorized, Carter-Crescent would be motorized and when Resurrection is motorized, Carter-Crescent would be non-motorized.
3. **West Resurrection** – This entire unit would be non-motorized.
4. **Summit (west side and east side of the Seward Highway)**
  - The entire west side would be non-motorized, except for a piece of land on the northern tip between the power line and the highway and a motorized corridor adjacent to the highway to Lower Summit Lake.
  - The entire east side would be non-motorized, except for a motorized corridor adjacent to the highway to Lower Summit Lake.
5. **Johnson Pass** – The majority of this unit is motorized. The exception is Center Creek drainage, in which the southeastern portion of the drainage is non-motorized except for helicopters assisted skiing.
6. **Tern Lake** – All of the Tern Lake unit would be motorized, except for two small areas. One area on the east side of the Seward Highway on the lower section of Summit Creek. It would not include the motorized corridor adjacent to the highway. The other area would be the slope immediately east of the motorized corridor adjacent to the highway on the east side of the Seward Highway south of Summit Lake.
7. **Russian** – The entire Russian unit would be non-motorized.
8. **Carter-Crescent** – This unit would alternate (Season A/Season B) with Resurrection unit on an annual basis. That is, when Carter-Crescent is non-motorized, Resurrection would be motorized and when Carter-Crescent is motorized, Resurrection would be non-motorized.
9. **Ptarmigan/Grant** – This entire unit is motorized. It is bounded by the railroad on the north, the north boundary of the Snow River unit to the south, the Seward

Ranger District boundary on the east, and the Seward Highway and State lands to the west.

10. **Lost Lake** – The majority of this unit is motorized. Two non-motorized areas include the existing RNA and a small section approximately 4 miles long in the Meridian, Grayling, and Long lakes area adjacent to the Seward Highway.
11. **Snow River** – The existing non-motorized area would be expanded to include the southwest and west slopes of Paradise Peak, as well as the entire lower half of the South Fork of the Snow River drainage. With the expanded non-motorized area, this alternative would not allow motorized travel up the South Fork of the Snow River to the Nellie Juan area.
12. **Tiehack/Mt Alice** – The existing non-motorized area (the western slopes of Tiehack Mountain) would be expanded south to include the northwest part of Mt Alice. The Godwin Glacier and icefields to the north of the South Fork of Snow River would be motorized.

### **2.7.4. Cabin Availability – Alternative 1**

Motorized users would have access to 5 cabins (Season A) and 12 cabins (Season B). Non-motorized users may access any of the cabins during the motorized season. There would be non-motorized access to 12 cabins (Season A) and 5 cabins (Season B). Table 2-8 displays the cabins that would be available for motorized and non-motorized access in each geographic unit under Alternative 1.

**Table 2-8 Cabin Access (Motorized and Non-motorized), Alternative 1.** There are 11 cabins in Resurrection and Carter-Crescent, alternating annually between motorized and non-motorized access. Every season, users would have motorized access to three cabins in Lost Lake and Snow River units and non-motorized access to three cabins in Russian.

Unit Name	Cabin	Season A		Season B	
		Motorized	Non-Motorized	Motorized	Non-Motorized
Resurrection	Caribou Creek		✓	✓	
	Fox Creek		✓	✓	
	East Creek		✓	✓	
	Devils Pass		✓	✓	
	Swan Lake		✓	✓	
	West Swan Lake		✓	✓	
	Juneau Lake		✓	✓	
	Romig		✓	✓	
	Trout Lake		✓	✓	
Russian	Barber		✓		✓
	Aspen Flats		✓		✓
	Upper Russian		✓		✓
C-C	Crescent	✓			✓
	Crescent Saddle	✓			✓
Lost Lake	Dale Clemens	✓		✓	
Snow River	Lower Paradise	✓		✓	
	Upper Paradise	✓		✓	

## 2.8. ALTERNATIVE 2

### 2.8.1. General Overview (Map A-2-4)

Alternative 2 proposes a more complex Season A/Season B scenario than the other alternatives. The Resurrection and West Resurrection units would alternate (Season A/Season B) with the Russian, Carter-Crescent, and a portion of Snow River units. The majority of Summit unit would be non-motorized, while the Tern Lake unit would have more motorized area than in other alternatives.

This alternative was designed to provide as much separation of users as would be reasonable, while still providing a fair distribution of cabin access to both user groups.

Russian would be completely motorized on alternating years.

The Seward Ranger District land base would be designated 53% motorized, 11% non-motorized, and 36% Season A/Season B scenario. The remaining 1% is the Kenai Lake – Black Mountain Research Natural Area.

### 2.8.2. Highlights – Alternative 2

1. **Non-Motorized Areas** – This alternative would increase the non-motorized area in Summit and decrease the non-motorized area in Tern Lake (Table 2-9).
2. **Motorized Areas** – This alternative would increase the motorized area in the Tern Lake unit. There would be decreases in Summit, Russian, and Snow River (Table 2-10).
3. **Season A/Season B Scenarios** – the Resurrection and West Resurrection units would alternate Season A/Season B with the Russian, Carter-Crescent, and a portion of Snow River units on an annual basis.

**Table 2-9 Percentage of Non-motorized Land by Area, Alternative 2.** The percentage of non-motorized acreage would increase in Summit, and decrease in Tern Lake unit.

Unit	Percent <sup>1</sup> Non-Motorized	Percent Increase or Decrease
Summit	94	38 +
Tern Lake	35	19 -

**Table 2-10 Percent of Designated Motorized Land by Area, Alternative 2.** The percentage of motorized acreage would increase in Tern, and decrease in Summit, Russian, and Snow River units.

Unit	Percent Motorized	Percent Increase or Decrease
Tern	63	17 +
Summit	6	38 -
Russian	10	69 -
Snow River	33	53 -

4. **Access corridors** – Two access corridors are designated in the Lost Lake unit. One motorized access corridor just south of the Mt. Adair area and one non-motorized access corridor on the southern end of the non-motorized area from the Graying Lake area into the alpine area of Lost Lake.
5. **Trail River Campground** – Trail River Campground would be motorized.

<sup>1</sup> Numbers are rounded to the nearest whole percent.

6. **Motorized Corridors** – This alternative would provide a motorized corridor from Cooper Landing to the Sterling Y to Moose Pass. The corridor would also extend (on the east side only) from the Sterling Y to Lower Summit Lake.
7. **Helicopter Skiing** – The area in Ptarmigan/Grant would remain available to be permitted for helicopter skiing. The area in Snow River would be closed to helicopter assisted skiing.

### 2.8.3. Unit Descriptions – Alternative 2

1. **Hope** – This unit is motorized.
2. **Resurrection** – This unit would be part of a Season A/Season B scenario as shown in Table 2-11.
3. **West Resurrection** – This unit would be part of a Season A/Season B scenario. See Table 2-11.

**Table 2-11 Motorized and Non-motorized Designations, Alternative 2.** In Season B, Resurrection and W. Resurrection would be motorized and Russian, Carter-Crescent, and Snow River would be non-motorized. In Season A, those units would switch.

Unit	Season B	Season A
Resurrection	Motorized	Non-motorized
W. Resurrection	Motorized	Non-motorized
Russian	Non-motorized	Motorized
Carter-Crescent	Non-motorized	Motorized
Snow River – North Fork of the Snow River east to the Paradise Lakes area	Non-motorized	Motorized

4. **Summit (west side and east side of the Seward Highway)**
  - The west side would be non-motorized from the southern boundary of this unit to the ridgeline between Frenchy and Pass creeks. The area from the ridgeline to Frenchy Creek would be motorized. An important difference between this alternative and the Proposed Action is that the boundary in the Proposed Action is the power line. In this alternative, the boundary extends to the highway.
  - The entire east side would be non-motorized, except for a motorized corridor adjacent to the highway to Lower Summit Lake.
5. **Johnson Pass** – The majority of this unit is motorized. The exception is the Center Creek drainage, in which the southeastern portion of the drainage is non-motorized except helicopter assisted skiing.
6. **Tern Lake** – The non-motorized area includes the area west of the Seward Highway and north of the Devils Creek Trail, as well as all of the Johns Creek Drainage, except the motorized corridor along the east side of the highway. The motorized areas include the south facing slopes from Jerome Lake to where Trail Creek joins Upper Trail Lake and on the south side of highway from the western end of Upper Trail Lake to the Crescent Creek Campground (this includes the

- Old Sterling Highway). There would also be motorized use on the north side of the Sterling Highway from Devils Creek Trail to the State land south of Langille Mountain.
7. **Russian** – This unit would be part of a Season A/Season B scenario. See Table 2-11.
  8. **Carter-Crescent** – This unit would be part of a Season A/Season B scenario. See Table 2-11.
  9. **Ptarmigan/Grant** – This entire unit is motorized. It is bounded by the railroad on the north, the north boundary of the Snow River unit to the south, the District boundary on the east, and the Seward Highway and State lands to the west.
  10. **Lost Lake** – This unit is motorized except for the existing RNA and a small section approximately 4 miles long in the Meridian, Grayling, and Long lakes area adjacent to the Seward Highway.
  11. **Snow River** – Most of the Snow River unit would be open for motorized use including the entire South Fork of the Snow River drainage. There is a portion of the Snow River unit that would be part of a Season A/Season B switch between motorized and non-motorized uses. See Table 2-11. The area that switches extends from the northern boundary of the Snow River unit, which includes the divide between the North Fork of the Snow River and Ptarmigan Creek drainage up through the ridgeline of the south facing slopes of Sheep Mountain to the highway south to the northwest slopes of Paradise Peak. The rest of the Snow River unit is motorized.
  12. **Tiehack/Mt Alice** – The western slopes of Tiehack Mountain are non-motorized. The rest of this unit is motorized.

## 2.8.4. Cabin Availability – Alternative 2

Motorized users would have access to 10 cabins in Season A and 8 cabins in Season B. Non-motorized users may access all of the cabins during the motorized season. There would be non-motorized access to seven cabins in Season A and nine cabins in Season B. See Table 2-12.

**Table 2-12 Cabin Access (Motorized and Non-motorized) by Year, Alternative 2.**

There are nine cabins in the Resurrection unit alternating motorized and non-motorized use annually with seven cabins in the Carter-Crescent, Snow River, and Russian units. Every season, users would have motorized access to one cabin in the Lost Lake unit.

Unit Name	Cabin	Season A		Season B	
		Motorized	Non-Motorized	Motorized	Non-Motorized
Resurrection	Caribou Creek	✓			✓
	Fox Creek	✓			✓
	East Creek	✓			✓
	Devils Pass	✓			✓
	Swan Lake	✓			✓
	West Swan Lake	✓			✓
	Juneau Lake	✓			✓
	Romig	✓			✓
	Trout Lake	✓			✓
Russian	Barber		✓	✓	
	Aspen Flats		✓	✓	
	Upper Russian		✓	✓	
C-C	Crescent		✓	✓	
	Crescent Saddle		✓	✓	
Lost Lake	Dale Clemens	✓		✓	
Snow River	Lower Paradise		✓	✓	
	Upper Paradise		✓	✓	

## 2.9. MITIGATION COMMON TO ALL ACTION ALTERNATIVES

Education of both user groups and other mitigation would be needed if future monitoring indicates impacts are occurring to heritage resources because of winter use on the Seward Ranger District. The type of mitigation addressing the specific impacts would be determined once the cause is identified.

## 2.9.1. Design Criteria

Motorized and non-motorized access corridors are defined in the Proposed Action and Alternative 2. No capital improvements (parking lots, trail heads, bridges, etc) will be implemented by this Environmental Impact Statement (EIS) or Record of Decision (ROD). Clearing of access corridors and signing of corridors will be permitted by this EIS and ROD. The following design criteria are adapted from State of Alaska standards for Concentrated Use Areas (CUA):

- Brush clearing for access corridors would average 5 feet in width. However, a corridor up to 12 feet in width may be needed depending on vegetation types or slopes.
- In general, no trees larger than 6 inches diameter will be removed.
- Hazard trees may be removed as needed.
- Trees may be pruned up to about 15 feet above ground to clear the corridor for over snow travel.
- Brush clearing will be done between September 1 and November 15.
- No ground disturbing activity will occur as part of these designations.
- Signing would be minimal but would include posting signs regarding the type of use on trees at the beginning and termini of the access corridor.
- Signing for access corridors could include reassurance markers, maps and narrative descriptions posted at the established trailhead.

The access corridors are described by narrative in the alternative descriptions and represented by lines on maps for the DEIS. The line will indicate that the travel route will be somewhere in or along the designated corridor but not at a specific place on the ground.

## 2.10. ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED STUDY

Federal agencies are required by NEPA to rigorously explore and objectively evaluate all reasonable alternatives and to briefly discuss the reasons for eliminating any alternatives that were not developed in detail (40 CFR 1502.14). Public comments provided suggestions for alternative methods of achieving the purpose and need. A number of alternatives were considered but dismissed from detailed consideration. In some cases, only portions of alternatives or concepts were considered and dismissed. These are discussed below.

### Divide Resurrection

Two variations of this alternative were considered. First, the Resurrection unit was divided into north and south sections with the dividing line just south of the Summit Creek Trail. The north portion contained half of the Resurrection unit and the south half contained all of West Resurrection and half of Resurrection. This was done because of

the popularity of the area for both motorized and non-motorized users and because many public comments stated the current February 15 annual swap was not satisfactory. This was an attempt to provide both user groups with access to the Resurrection/West Resurrection units each season.

**SEASONAL SWAP** – This variation was designed to allow both user groups access to both portions of the area in a single season. For example, the north half would be motorized and the south half non-motorized for the first half of the season. The second half of the season the north half would be non-motorized and the south half motorized. The second year, the north half would be non-motorized and the south motorized for the first half of the season and so forth. Of course, non-motorized users may access motorized areas any time.

**ANNUAL SWAP** – This variation attempted to simplify the seasonal swap alternative by keeping each portion motorized for a full season to each user and then swapping the second year. For example, the north half would be motorized and the south half non-motorized the first year, then the north half non-motorized and the south half motorized the second year. Of course, non-motorized users may access motorized areas any time.

Both variations of the Divide Resurrection Alternative were eliminated from further analysis for several reasons. The primary reason was the difficulty in finding a reasonable location to split the area to create a well-defined boundary. Without this, these alternatives would be too difficult to implement and enforce. Second, although public comment expressed a strong desire to provide both user groups access to these areas, these alternatives, in the end, created a situation similar to the existing situation. Lastly, the seasonal swap variation was more complicated than either the Forest Service or the public wanted.

## Various Season A/Season B Scenarios

Numerous variations of alternating season (Season A/Season B) scenarios were drafted and discussed. Three were carried forward as the Proposed Action, Alternative 1, and Alternative 2. Examples include:

1. Resurrection/West Resurrection Season A/Season B with Snow River
2. Resurrection/West Resurrection Season A/Season B with Carter-Crescent and Russian
3. Resurrection/West Resurrection Season A/Season B with Russian and Snow River

One of the factors in determining whether to carry an alternative with a Season A/Season B scenario forward was cabin availability for both user groups, particularly the balance of cabins across two years. The Season A/Season B scenario between Russian and Snow River would have provided 14 motorized and 2 non-motorized cabins one year and 7 motorized and 10 non-motorized the next. This was not felt to be a good balance. For both #2 and #3 above, there would have been 12 motorized/5 non-motorized one year and 8 motorized/9 non-motorized the following. Again, the balance was not very good, but by adding a portion of the Snow River unit to the mix with Carter-Crescent and Russian, the balance was improved and this became Alternative 2.

The Resurrection and West Resurrection units were always considered one-half of these Season A/Season B scenarios, as the public made their dissatisfaction with the existing seasonal swap well known. As displayed in Divide Resurrection, various alternatives were attempted that did not use the Season A/Season B scenario between these two units and other units.

## Expand Kenai Lake-Black Mountain RNA

Expanding the non-motorized area around the RNA in the Lost Lake unit was considered as a concept for an alternative. In the end, this concept was dismissed because it did not meet the purpose and need for action or standards and guidelines in the Revised Revised Forest Plan for Research Natural Area management. Specifically, the desired condition states, “Management for recreation uses are not emphasized. Recreation uses that interfere with the purpose of the RNA may be restricted (USDA-FS, 2002a, p. 4-30).” The Standards and Guidelines found on pages 4-32 and 4-33 emphasize that no activity should take place that interferes with the purpose and intent of the RNA.

Because no comments were received from the public specifically requesting this expansion, as well as the lack of existing access and avalanche terrain, this concept was dropped from further consideration.

## All Motorized

To reply to several respondents, the team considered an alternative that would leave the entire project area motorized. Although non-motorized users would have access, this alternative was dropped from further analysis because it did not provide the balance between uses the Agency desired or that many of the public requested.

The decision to drop this alternative was based on the Revised Forest Plan. The Plan contains specific Goals under Recreational Opportunities, Access, and Facilities to “Maintain quality settings for non-motorized recreation opportunities” with an “Objective to provide winter and summer trails and areas for non-motorized recreation where motorized recreation is prohibited (USDA-FS, 2002a, p. 3-8).” Another Goal is to “Maintain areas where natural quiet predominates consistent with the management area direction and Recreation Opportunity Spectrum Settings (USDA-FS, 2002a, p. 3-8).”

See also Desired Condition Forestwide – Recreation and Tourism, which states, “A mix of motorized and non-motorized recreational opportunities (primarily non-motorized in summer and motorized in winter) will exist across the Forest (USDA-FS, 2002a, p. 3-13).” For the Kenai Peninsula Geographic Area – Recreation and Tourism, the desired condition states, “However, a number of areas will be closed to winter motorized recreation. These areas will provide non-motorized opportunities near existing roads, and in a few situations, in basins or larger areas where motorized sounds are not present (USDA-FS, 2002a, p. 3-15).”

## Maximize Non-motorized Areas

One alternative was considered that closed the north half of Resurrection, all of Russian, and all of Carter-Crescent to motorized use, as well as keeping the existing areas in Summit, Tern Lake, Snow River, and Lost Lake non-motorized. This alternative was

dropped from further analysis because it did not provide the balance between uses the Agency desired or that many of the public requested.

The decision to drop this alternative was based on the Revised Forest Plan. The Plan contains a specific Goal under Recreational Opportunities, Access, and Facilities to “Maintain quality settings for motorized recreation opportunities (USDA-FS, 2002a, p. 3-8).”

As with the All Motorized Alternative, the Forest Plan describes a desired condition that provides a mix of motorized and non-motorized use. The Forestwide Desired Condition for Recreation and Tourism states, “A mix of motorized and non-motorized recreational opportunities (primarily non-motorized in summer and motorized in winter) will exist across the Forest (USDA-FS, 2002a, p. 3-13).” For the Kenai Peninsula Geographic Area – Recreation and Tourism, the desired condition includes, “During the winter season, snowmachine and other winter motorized recreation will occur over most of the Kenai Peninsula (USDA-FS, 2002a, p. 3-15).”

## Split Seasons

The concept of split seasons, including day-on/day-off, week-on/week-off, and month-on/month-off, was considered. Public comment made it clear that this was not a desired situation because of daylight length, snow conditions, ability to enforce, and being confusing. For example, the team discussed the possibility of having the Resurrection unit motorized and Carter-Crescent non-motorized the first half of the season and then switching in mid-season. This alternative was confusing and difficult to enforce.

## Speed Limits, Decibel Levels, Exhaust Systems, Types of Paddle

A number of respondents wanted the plan to provide limits and controls on various aspects of snowmachine use. These include posting and enforcing speed limits, limiting noise, and requiring snowmachines to meet certain specifications related to exhaust systems and types of paddles. The Revised Forest Plan provides one guideline that states, “The maximum noise level for snowmachines is the level expected for factory standard equipment (USDA-FS, 2002a, p. 3-35).” The Forest does not want to impose additional controls, largely because they are particularly difficult to enforce.

## Parallel Trails

Several respondents recommended developing parallel trails to separate users, while others were opposed to the concept. No parallel trails have been suggested in any of the alternatives because existing trails are already in the best location and enforcing this type of trail system is difficult.

## Hope, Johnson Pass, and Ptarmigan/Grant

These three units did not change across any of the alternatives. The Johnson Pass unit did not change, as it is considered outside the scope of the analysis, primarily because the Iditarod Trail runs through it as a motorized corridor. The Hope unit did not change because this unit is not used by many people except locals and there were no public

comments requesting a change or indicating a conflict. The Ptarmigan/Grant unit also receives very little use from any user group. Although there were a handful of requests to make this unit either motorized or non-motorized, there appeared to be little, if any, existing conflicts.

## Close Carter-Crescent Permanently

Although closing the Carter-Crescent unit was considered, this concept was not carried forward in any alternative because of the historical and traditional use by motorized users. Closing Carter-Crescent permanently would not provide a fair and balanced use of this unit.

## Season A/Season B or Close Lost Lake Permanently

Although closing the Lost Lake unit was considered, this concept was not carried forward in any alternative because of the historical and traditional use by motorized users. It is widely known that the Lost Lake unit is one of the most popular motorized areas in the project area. Closing this area permanently or even through a Season A/Season B scenario was not considered a reasonable alternative.

## Open Russian Permanently to Motorized Use

Some respondents wanted the Russian unit permanently motorized, primarily to access the Barber Cabin. Many respondents believe the Barber Cabin is the only ADA accessible cabin in the project area, although Juneau Lake cabin is also ADA accessible. There is also a belief among many respondents that the Forest Service is required to provide motorized access to the cabin even if it is in a non-motorized area. Forest Service correspondence stated in a letter dated February 21, 2002. "Areas, roads, and trails on National Forests and grasslands that restrict or prohibit OHV/ATV use under Forest Plan Management Area Prescriptions or under a Forest Travel Plan/Transportation Plan are therefore restricted or prohibited to all people, including people with disabilities. An exception is the use of a wheelchair . . . , which may be used wherever foot travel is permitted."

Russian receives the least amount of snowfall of all units and does not have high demand for motorized use. There are not many areas for snowmachiners to recreate and no real opportunities to get up on the mountains for either user group. Cabin allocation was another major consideration in whether to open Russian permanently to motorized use (see 2.10.2.).

Although no alternative allocates this unit winter motorized permanently, Alternative 2 does open the unit every other year through a Season A/Season B scenario.

## Restricting Use at High Elevations for Wildlife

Public comments and internal concerns regarding biological issues, several methods were considered to address wildlife concerns. One of these was to limit use, motorized and non-motorized, to a pre-determined elevation level (e.g. 2,000 feet). This was not

carried forward in any alternative, as the implementation and enforcement of a boundary line with no topographic features would be nearly impossible.

## Shorten Season for Wildlife

Several versions of a shortened winter recreation season were considered for the purposes of limiting impacts to wildlife, particularly post-den emergence of bears. In the end, existing Revised Forest Plan Standards and Guidelines were considered adequate (USDA-FS, 2002a, p. 3-35, #4).

## **2.11. COMPARISON OF ALTERNATIVES**

Tables 2-13 and 2-14 provide summaries of the No Action Alternative and the three action alternatives.

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Table 2-13 Alternative Summaries

	No Action Alternative	Proposed Action	Alternative 1	Alternative 2
<b>Seasonal Swap</b> Resurrection and West Resurrection	Yes	None	None	None
<b>Season A/Season B Scenario</b>	None	Resurrection and W. Res. Season A/Season B annually between motorized and non-motorized	Resurrection alternates (Season A/Season B) with Carter-Crescent	Resurrection and W. Res. Season A/Season B with Russian, Carter-Crescent, and a portion of Snow River
<b>Designated Access Corridors</b>	None	<ul style="list-style-type: none"> <li>• 2 non-motorized (1 in Lost Lake and 1 in Carter-Crescent)</li> <li>• 1 motorized in the Snow River unit</li> </ul>	None	2 in Lost Lake (1 motorized and 1 non-motorized)
<b>Trail River Campground</b>	Non-motorized	Non-motorized, but allow grooming	Non-motorized	Motorized
<b>Motorized Corridors</b>	No designated corridors	Cooper Landing to Sterling Y to Moose Pass. Also Sterling Y to Hope Y	Cooper Landing to Sterling Y to Moose Pass. Also Sterling Y to Lower Summit Lake (east and west side of hwy).	Cooper Landing to Sterling Y to Moose Pass. Also Sterling Y to Lower Summit Lake (east side of hwy only).
<b>Helicopter skiing</b> Ptarmigan/ Grant and Snow River	Yes – Pt/Grant Yes – Snow River	Yes – Pt/Grant Yes – Snow River	Yes – Pt/Grant Yes – Snow River	Yes – Pt/Grant No – Snow River

	<b>No Action Alternative</b>	<b>Proposed Action</b>	<b>Alternative 1</b>	<b>Alternative 2</b>
<b>Cabins</b>	<u>Motorized:</u> • 7 all season • 9 during short season (Resurrection)	<u>Motorized:</u> • 15 Season A • 6 Season B	<u>Motorized:</u> • 5 Season A • 12 Season B	<u>Motorized:</u> • 10 Season A • 8 Season B
	<u>Non-Motorized:</u> • 1 all season • 9 during short season (Resurrection)	<u>Non-Motorized:</u> • 2 Season A • 11 Season B	<u>Non-Motorized:</u> • 12 Season A • 5 Season B	<u>Non-Motorized:</u> • 7 Season A • 9 Season B

**Table 2-14 Acreage Designated Motorized and Non-motorized, by Alternative.** This table outlines the actual acreage and percentage of designated motorized and non-motorized area in all geographic units, by alternative and the percent change from the No Action Alternative.

	No Action			Proposed Action				Alternative 1				Alternative 2			
	Acres	%	Motorized or Non-Motorized	Acres	%	Motorized or Non-Motorized	% Change	Acres	%	Motorized or Non-Motorized	% Change	Acres	%	Motorized or Non-Motorized	% Change
<b>Hope</b>	80330	100	Motorized	60	0	Season A/Season B		60	0	Season A/Season B <sup>1</sup>		60	0	Season A/Season B <sup>2</sup>	
	160	0	Feb. 15 Swap	120	0	Non-Motorized		120	0	Non-Motorized		120	0	Non-Motorized	
				80310	100	Motorized	0	80310	100	Motorized	0	80310	100	Motorized	0
<b>Resurrection</b>	124020	95	Feb. 15 Swap	129510	99	Season A/Season B		129510	99	Season A/Season B <sup>1</sup>		129510	99	Season A/Season B <sup>2</sup>	
	6770	5	Motorized	1280	1	Motorized	-4	1280	1	Motorized	-4	1280	1	Motorized	-4
<b>West Resurrection</b>	21680	88	Feb. 15 Swap	24570	100	Season A/Season B		24570	100	Non-Motorized		24570	100	Season A/Season B <sup>2</sup>	
	2890	12	Motorized												
<b>Summit</b>	30000	44	Motorized	12460	18	Motorized	-26	1330	2	Motorized	-42	4280	6	Motorized	-38
	38380	56	Non-Motorized	55920	82	Non-Motorized	26	67050	98	Non-Motorized	42	64100	94	Non-Motorized	38
<b>Johnson Pass</b>	5570	9	Non-Motorized <sup>3</sup>	5570	9	Non-Motorized <sup>3</sup>	0	5570	9	Non-Motorized <sup>3</sup>	0	5570	9	Non-Motorized <sup>3</sup>	0
	48090	82	Motorized	47960	81	Motorized	-1	47960	81	Motorized	-1	47960	81	Motorized	-1
	5380	9	Non-Motorized	5510	9	Non-Motorized	0	5510	9	Non-Motorized	0	5510	9	Non-Motorized	0
<b>Tern Lake</b>								25240	95	Motorized	49	16650	63	Motorized	17
	12280	46	Motorized	22210	84	Motorized	38	630	2	Season A/Season B <sup>4</sup>		630	2	Season A/Season B <sup>4</sup>	
	14300	54	Non-Motorized	4370	16	Non-Motorized	-38					90	0	Season A/Season B <sup>2</sup>	

1 Season A/Season B alternating use with Carter-Crescent area.

2 Season A/Season B alternating use with Carter-Crescent, Russian, and Snow areas.

3 Open to helicopters, but closed to snowmachines.

4 Season A/Season B alternating use with Resurrection area.

	No Action			Proposed Action				Alternative 1				Alternative 2			
	Acres	%	Motorized or Non-Motorized	Acres	%	Motorized or Non-Motorized	% Change	Acres	%	Motorized or Non-Motorized	% Change	Acres	%	Motorized or Non-Motorized	% Change
								710	3	Non-Motorized	-51	9210	35	Non-Motorized	-19
<b>Russian</b>	46390	79	Motorized	23910	41	Motorized	-38	5680	10	Motorized	-69	5680	10	Motorized	-69
	12320	21	Non-Motorized	34800	59	Non-Motorized	38	53030	90	Non-Motorized	69	53030	90	Season A/Season B <sup>4</sup>	69
<b>Carter-Crescent</b>	48540	100	Motorized	48540	100	Motorized	0	48540	100	Season A/Season B <sup>4</sup>		48540	100	Season A/Season B <sup>4</sup>	
<b>Ptarmigan/Grant</b>	145630	100	Motorized	145630	100	Motorized	0	145630	100	Motorized	0	145630	100	Motorized	0
<b>Lost Lake</b>	5900	5	RNA	5900	5	RNA	0	5900	5	RNA	0	5900	5	RNA	0
	100180	92	Motorized	98580	91	Motorized	-1	98310	91	Motorized	-1	98530	91	Motorized	-1
	2520	2	Non-Motorized	4120	4	Non-Motorized	2	4390	4	Non-Motorized	2	1630	2	Season A/Season B <sup>4</sup>	
												2540	2	Non-Motorized	2
<b>Snow River</b>	55780	86	Motorized	60980	94	Motorized	8	44370	68	Motorized	-18	21320	33	Motorized	-53
	9340	14	Non-Motorized	4140	6	Non-Motorized	-8	20750	32	Non-Motorized	18	43800	67	Season A/Season B <sup>4</sup>	53
<b>Tiehack/Mt Alice</b>	17620	94	Motorized	6810	36	Motorized	-58	6810	36	Motorized	-58	17620	94	Motorized	0
	1200	6	Non-Motorized	12010	64	Non-Motorized	58	12010	64	Non-Motorized	58	1200	6	Non-Motorized	0
<b>Totals</b>	145860	17	Feb. 15 Swap	154140	18	Season A/Season B		178740	21	Season A/Season B		301860	36	Season A/Season B	
	594500	71	Motorized	548670	66	Motorized	-5	456920	55	Motorized	-16	439260	53	Motorized	-18
	89010	11	Non-Motorized	126560	15	Non-Motorized	4	193710	23	Non-Motorized	12	88250	11	Non-Motorized	0
	5900	1	RNA	5900	1	RNA	0	5900	1	RNA	0	5900	1	RNA	0

## 2.12. COMPARISON OF EFFECTS

Table 2-15 Summary of Effects by Alternative and Issue Indicator

	No Action Alternative	Proposed Action	Alternative 1	Alternative 2
<b>Recreation:</b>		<u>Available Terrain</u>	<u>Available Terrain</u>	<u>Available Terrain</u>
<b>Range of Opportunities</b>	No Change	65% motorized 15% non-motorized 19% ALTERNATE SEASON	55% motorized 23% non-motorized 21% ALTERNATE SEASON	53% motorized 11% non-motorized 36% ALTERNATE SEASON
(1) Available Terrain				
(2) Miles of winter trails/routes motorized and non-motorized	Non-motorized – 16 miles until 2/15  Non-motorized – 54 miles after 2/15  Motorized (multi-use)– 146 miles until 2/15  Motorized (multi-use) – 107 miles after 2/15	<u>Miles of Winter Trails or Routes</u>  <b>Season A</b> Non-motorized – 22 miles Motorized (multi use) - 140  <b>Season B</b> Non-motorized – 64 miles Motorized (multi use) - 98	<u>Miles of Winter Trails or Routes</u>  <b>Season A</b> Non-motorized – 68 miles Motorized (multi use) - 94  <b>Season B</b> Non-motorized – 32 miles Motorized (multi use) - 132	<u>Miles of Winter Trails or Routes</u>  <b>Season A</b> Non-motorized – 37 miles Motorized (multi use) - 132  <b>Season B</b> Non-motorized – 62 miles Motorized (multi use) - 107
(3) Change in the range of winter opportunities	No Change	Most opportunities would be available. Some historical trapping and hunting opportunities (those who do not qualify for subsistence) would be affected.	Same as the Proposed Action	Same as the Proposed Action
Cabins <sup>1</sup> (4) Number of Cabins and Season of use	<u>Motorized:</u> • 7 (12/1-4/30) • 9 (12/1-2/15 Res., W. Res.) <u>Non-Motorized:</u> • 1 (12/1 – 4/30) • 9 (12/1 – 2/15 Res.,W. Res.)	<u>Motorized:</u> • 15 Season A • 6 Season B  <u>Non-Motorized:</u> • 2 Season A • 11 Season B	<u>Motorized:</u> • 5 Season A • 12 Season B  <u>Non-Motorized:</u> • 12 Season A • 5 Season B	<u>Motorized:</u> • 10 Season A • 8 Season B  <u>Non-Motorized:</u> • 7 Season A • 9 Season B

<sup>1</sup> Non-motorized users may use cabins during the motorized season. That is, 17 cabins are available to non-motorized users in all alternatives. This table displays cabins available to non-motorized users only.

	No Action Alternative	Proposed Action	Alternative 1	Alternative 2
<p><b>Range of Opportunities</b></p> <p>(5) Effects to both motorized and non-motorized users</p>	<p>No Change</p>	<p><b>Season A</b>                      Non-motorized users would benefit most from the increased non-motorized acreage in the Summit and Tiehack/Mt. Alice units. Motorized users benefit most from the extended season and the increased cabin availability in the Resurrection unit and the motorized Carter-Crescent and Lost Lake units.</p> <p><b>Season B</b>                      Non-motorized users would benefit most with the increased acreage in Resurrection, Summit and Tiehack/Mt. Alice.</p> <p>Motorized users would be most affected by the inability to use the Resurrection unit for the entire season. There is likely to be displacement of some well-established community and local uses into other units such as Carter-Crescent and Lost Lake.</p>	<p><b>Season A</b>                      Non-motorized users would benefit most from having all or most of the Resurrection, Summit, Russian, Tiehack/Mt. Alice and Snow River units designated as non-motorized. Motorized users would be most affected by the inability to use the Resurrection unit and its associated cabins. Motorized users would benefit most with the ability to use the Carter-Crescent and Lost unit.</p> <p><b>Season B</b>                      Non-motorized users would benefit most from the additional acreage in the Summit, Snow River, Tiehack/Mt. Alice, and Carter-Crescent units. The most benefit to motorized users would be from the ability to use the Resurrection unit (and its nine cabins) for the entire 151-day season.</p>	<p><b>Season A</b>                      Non-motorized users benefit most from having the Summit, Carter-Crescent, North Fork of Snow River and the Russian units designated as non-motorized.</p> <p>The ability to utilize the Resurrection units and the South Fork of Snow River (access to Nellie Juan) would have the most positive effect on motorized opportunities. The motorized opportunity would be reduced most by the inability to use Carter-Crescent.</p> <p><b>Season B</b>                      Non-motorized users benefit most from the non-motorized designation of the Resurrection unit and the expanded terrain in Summit. Motorized users would benefit most from the ability to use Carter-Crescent and would continue to utilize Lost Lake, Ptarmigan/Grant, Johnson Pass and Snow River (when conditions are favorable). A new cabin opportunity would be available in the Russian unit.</p>

	No Action Alternative	Proposed Action	Alternative 1	Alternative 2
<p><b>Shared Use</b> (1) Number of key units where the potential for encounters between motorized and non-motorized users are decreased or eliminated</p> <p>(2) Number of units where the potential for encounters is moderate to high</p>	No Change	<p><b>Season A</b> Decrease - 3 units (Summit, Russian, Tiehack/Mt. Alice)</p> <p>Moderate to High Potential – 2 units (Resurrection and Carter-Crescent)</p> <p><b>Season B</b> Decrease - 3 units (Resurrection, West Resurrection, Summit)</p> <p>Moderate to High Potential – 2 units (Lost Lake and Carter-Crescent)</p>	<p><b>Season A</b> Decrease - 6 units (Resurrection, West Resurrection, majority of Summit, Russian, Tiehack/Mt. Alice, Snow River)</p> <p>Moderate to High Potential – 2 units (Lost Lake and Carter-Crescent)</p> <p><b>Season B</b> Decrease - 5 units (Russian, Carter-Crescent, Summit, Tiehack/Mt. Alice, Snow River)</p> <p>Moderate to High Potential – 4 units (Resurrection, Lost Lake, Carter-Crescent, Johnson Pass )</p>	<p><b>Season A</b> Decrease - 4 units (Russian, Carter-Crescent, Summit, North Fork of Snow River)</p> <p>Moderate to High Potential – 3 units (Lost Lake, Resurrection, Carter-Crescent)</p> <p><b>Season B</b> Decrease - 3 units (Resurrection, West Resurrection, Summit)</p> <p>Moderate to High Potential – 5 units (Russian, South Fork of Snow River, Lost Lake, Carter-Crescent, Johnson Pass)</p>
(3) Change in safety-related conflicts as a result of encounters in Lost Lake and Carter-Crescent	No Change	Reduced in both Lost Lake and Carter-Crescent	No Change	Reduced in Lost Lake No change in Carter-Crescent
<p><b>Opportunity for Quiet:</b></p> <p>Number of units where natural quiet would be most attainable by Season (Season A and Season B)</p>	No Change – most attainable in portions of 2 units (Summit and Russian) and in Resurrection after February 15 <sup>th</sup>	<p><b>Season A</b> – 1 unit (Russian)</p> <p><b>Season B</b> – 3 units (Russian, Resurrection and West Resurrection)</p>	<p><b>Season A</b> – 4 units (Resurrection, West Resurrection, Russian and Tiehack/Mt. Alice)</p> <p><b>Season B</b> – 3 units (Russian, Tiehack, Carter-Crescent)</p>	<p><b>Season A</b> – 4 units (Russian, Carter-Crescent, Snow River, Tiehack/Mt. Alice)</p> <p><b>Season B</b> – 3 units (Resurrection, West Resurrection, Tiehack/Mt. Alice)</p>

<b>Wildlife</b>	<b>No Action Alternative</b>	<b>Proposed Action</b>	<b>Alternative 1</b>	<b>Alternative 2</b>
Brown Bear	No Change	low-moderate impacts	low-moderate impacts	low-moderate impacts
Moose	No Change	low-moderate impacts	low-moderate impacts	low-moderate impacts
Mountain Goat	No Change	negligible impacts	negligible impacts	negligible impacts
Gray Wolf	No Change	low-moderate impacts	low-moderate impacts	low-moderate impacts
Lynx	No Change	low-moderate impacts	low-moderate impacts	low-moderate impacts
Marbled Murrelet	No Change	low-moderate impacts	low-moderate impacts	low-moderate impacts
River Otter	No Change	low-moderate impacts	low-moderate impacts	low-moderate impacts
Wolverine	No Change	moderate impacts	moderate impacts	moderate impacts
Bald Eagle	No Change	low-moderate impacts	low-moderate impacts	low-moderate impacts
Northern Goshawk	No Change	low-moderate impacts	low-moderate impacts	low-moderate impacts
Dall's Sheep	No Change	negligible impacts	negligible impacts	negligible impacts
Barren Ground Caribou	No Change	negligible impacts	negligible impacts	negligible impacts
Black Bear	No Change	low-moderate impacts.	low-moderate impacts	low-moderate impacts
Small Mammals	No Change	low impacts	low impacts	low impacts
Migratory Birds	No Change	low impacts	low impacts	low impacts

	<b>No Action Alternative</b>	<b>Proposed Action</b>	<b>Alternative 1</b>	<b>Alternative 2</b>
<b>Economics</b>	No Change	Minimal effects The impact of the proposed winter motorized closures will be fairly small.	Same as the Proposed Action	Same as the Proposed Action
<b>Heritage Resources</b>	No Change	Less vandalism/looting of historic buildings in Resurrection during Season B  Increased vandalism/looting of historic buildings in Resurrection during Season A  Increased damage to historic Resurrection Trail from spring motorized use; mitigation may require an early closure.	Same as the Proposed Action	Same as the Proposed Action



## **Chapter 3 – Affected Environment/Environmental Consequences**

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### **Purpose and Organization of this Chapter**

This chapter presents two levels of analysis for each resource issue described: the existing conditions within each resource's affected environment, and the potential effects of the alternatives on each resource. The Affected Environment section provides general information about the resource described and establishes a baseline against which effects of the alternatives may be compared. The Environmental Consequences section discloses the potential direct, indirect, and cumulative effects of the alternatives on each resource.

In this analysis, direct and indirect effects are described for those activities that are proposed to occur on National Forest lands. Cumulative effects consider the effects of past, present and reasonably foreseeable activities on both Federal and non-Federal lands, in addition to the direct and indirect effects of proposed project activities. Each resource analyzed has a defined cumulative effects analysis area, which may be different for each resource.

An existing winter recreation use map (Map A-3-3) was developed by the interdisciplinary team as a baseline for the affected environment and cumulative effects. This map displays how and where people are currently recreating on the Seward Ranger District. The map and its data were used to focus the analysis on areas that are accessible and preferred by users. The map was based on recreation use maps developed for the Commercially Guided Helicopter Skiing on the Kenai Peninsula Final EIS (USDA 2004e), knowledge of recreation use by USFS recreation specialists, maps of local ski areas from public input, and aerial locations of recreation use (Poe et al. 2005).

### **3.1. RECREATION**

#### **3.1.1. Forest Plan Direction**

##### **Goals and Objectives**

The Goals and Objectives most significant to the recreation analysis are found in the Use and Occupation section of the Revised Forest Plan. One area of emphasis that applies is the Recreational Opportunities, Access and Facilities section. Detailed descriptions of these issues may be found in the Revised Forest Plan, pages 3-7 to 3-9 and 3-11 (USDA-FS, 2002a). The Forest Plan Recreation and Tourism standards and guidelines are found on pages 3-35 – 3-40 and 3-48. Map A-3-1 displays the Forest Plan management prescriptions that apply to the analysis area.

## Desired Conditions

The Revised Forest Plan describes the Desired Condition Forestwide for Recreation and Tourism on pages 3-13 to 3-15. The Desired Conditions specific to the recreation portion of this analysis are:

- During the winter season, snowmachine and other winter motorized recreation will occur over most of the Kenai Peninsula. However, a number of areas will be closed to winter motorized recreation (p. 3-15).
- Non-motorized opportunities will exist near existing roads, and in a few situations, in basins or larger areas where motorized sounds are not present (p. 3-15).
- Scenery along the Seward Highway All-American Road and other major travel corridors will be managed to maintain the natural appearance of the landscape (p. 3-15).

### RECREATION SETTING

All management areas have been assigned a Recreation Opportunity Spectrum (ROS) classification. ROS is the framework that has been developed for describing the relationships between different recreation opportunities and their desired settings (USDA-FS, 2002j). The ROS classifications that apply to the project area include primitive (P), semi-primitive non-motorized (SPNM), semi-primitive motorized (SPM), roaded natural (RN), roaded modified (RM), and rural (R). Winter motorized use is allowed in SPNM and is specifically addressed in the Revised Forest Plan Winter Motorized Recreation Access Map. There are no urban settings related to this project. Please refer to Map A-3-2. In addition, a complete description of these classifications is located in Appendix B of the Revised Forest Plan, p. B29-B31 and in the recreation specialist report in the project record.

### 3.1.2. Analysis Area and Recreation Assumptions

The Seward Ranger District of the Chugach National Forest is the bounds of recreation analysis for the Kenai Winter Access project.

The Kenai Peninsula offers a wide variety of terrain for winter recreation activities. For the purposes of this analysis, recreationists are considered either motorized or non-motorized. Several assumptions were utilized to display variations in recreation use and patterns of use. While there are likely to be exceptions and deviations based on individual experiences and skill level, assumptions provide a baseline for evaluation and analysis. Key assumptions are:

- Most non-motorized users do not travel more than 3.5 miles from a plowed road for day use. Skate skiers and dog mushers may travel over 5 miles a day. Most snowmachiners travel at least 10 miles a day.
- Areas around communities receive more use.
- Severe weather conditions can limit and restrict all types of winter activities.

- Winter use generally increases after mid-February when there are over 8 hours of daylight and the snowpack firms up.
- Most recreation facilities are located along road corridors. The Seward Highway is the only road south from Anchorage. It provides some level of access (a mix of trailheads or pullouts) to most units with the exception of the Russian unit. The highway also provides key access to the communities of Moose Pass and Seward.
- The Sterling Highway accesses the Resurrection Russian, Carter-Crescent and Tern Lake units. It provides access to the community of Cooper Landing.
- The Hope Highway provides access to the Hope Unit and to the northern portion of the Resurrection unit.
- The State of Alaska Department of Transportation (ADOT) allows for motorized use along highways (100 feet on either side from the centerline) and snowmachine use is expected to occur in the highway corridors.
- Abandoned highway corridors (such as the Old Sterling Highway) and power line corridors are routinely used by local residents to travel to adjacent communities such as Cooper Landing, Moose Pass, and Hope. The companies that maintain the power lines do not recommend their use for travel but motorized use of these corridors is authorized as long as the surrounding area is open for motorized use.
- Access to some winter use areas occurs through private lands. For example, access to the Lost Lake Trailhead, which is located on National Forest, occurs through a private subdivision.
- State lands provide key access to the National Forest. Snowmachine use is provided via state lands in areas such as Upper and Lower Summit, the Hope Y, Cooper Landing, Tiehack/Mt Alice, Tern Lake, and Moose Pass. State lands without special designations are open to motorized use. See Map A-2-1 for the location of lands in non-National Forest ownership.

### 3.1.2.1. Recreation Analysis Issues

Changing land use allocations within the project area between motorized and non-motorized use could affect a range of recreation opportunities and experiences. The two analysis issues are:

1. Range of Opportunities - Changing land allocations within the project area between motorized and non-motorized use could affect the range of opportunities available.
2. Recreation Experience - Both motorized and non-motorized users want a quality experience when they recreate. Neither group wants their recreational experience impacted by conflict with others.

Refer to Section 2.3.2. for detailed descriptions of the recreation issues. Sections 3.1.2.2. through 3.1.2.4. display the existing condition and environmental consequences for each issue.

### 3.1.2.2. Affected Environment for the Range of Winter Recreation Opportunities

#### **NON-MOTORIZED WINTER RECREATION**

For this analysis, the term non-motorized recreationist includes:

- Backcountry, Touring, Skate Skiers, and Snowboarders – Some skiers and snowboarders travel away from the highway system seeking steeper terrain. Also individuals skiing to public use cabins and those utilizing skate skis and traditional Nordic skis travel away from the highway system but seek flatter terrain (i.e. valley bottoms, trails, etc).
- Snowshoers – People utilizing snowshoes to access backcountry areas.
- Dog Musers – People utilizing sled dogs to access backcountry areas.
- Hunting, trapping and fishing recreationists – People who use non-motorized means for access.

#### **MOTORIZED WINTER RECREATION**

For this analysis, motorized recreationist includes:

Snowmachine Users: This group includes recreationists using over-the-snow machines for access. There are three types of snowmachine user groups:

- 1) Day users who are using the snowmachine as an access tool
- 2) Cabin users who travel in, stay overnight, and participate in various activities
- 3) Extreme riders, including snow play and long distance riders

Currently, the Forest Plan allows for snowmachine use in all geographic units with the exception of the 1) Resurrection and West Resurrection units after February 15 and 2) within a portion of the Russian, Lost Lake, Tiehack/Mt Alice, Snow River, Tern Lake, and Summit units. Table 2-14 displays the percentage of each alternative open and closed to motorized use compared to the existing condition. See also Map A-2-2, No Action Alternative.

Helicopter Assisted Skiers – Helicopter skiers are delivered to drop-off points on ridges or peaks by helicopters, gathered at pickup points after skiing down, and ferried back to drop-off points. Most use alpine equipment, but telemark, touring, and snowboard gear is also used.

Since 1997, a commercially guided helicopter skiing special use permit for 800 – 1,200 days has been authorized. In September 2004, the decision was made to authorize

2,200 client days in core and exploratory areas in the Record of Decision, Commercially Guided Helicopter Skiing (CGHS) on the Kenai Peninsula Final EIS (USDA-FS, 2004f, p. 1-19). Although these exploratory areas are cleared by the CGHS decision, the Chugach National Forest did not issue a Special Use Permit (SUP) in the East Ptarmigan and Snow River exploratory units. The decision to permit these two areas will be analyzed during the Kenai Winter Access (KWA) EIS for the Kenai Forest Plan Amendment. This will ensure the CGHS SUP will be compatible with any new direction from the KWA EIS. The un-permitted exploratory units subject to this analysis decision are located in the Ptarmigan/Grant and Snow River units (Map A-2-1, No Action Alternative).

## **WINTER RECREATION USE PATTERNS**

District observations indicate recreationists are primarily from the south-central areas of Alaska. This includes the communities of Moose Pass, Seward, Soldotna, Cooper Landing, Sterling, Hope and Anchorage.

By February each year, winter use increases throughout the analysis area due to increased daylight. Most use is day use and occurs on weekends. Due to the annual uncertainty of the snowpack, use will vary by year. However, some units provide more consistent snow conditions. For example, Carter Lake is favored because it provides easier access into the higher elevations. The Lost Lake unit is valued because of its deep snowpack and large contiguous acreage. This analysis uses data from cabin registrations, guided helicopter skiing special use permit allocations, and Seward Ranger District trailhead use figures from 2000 to 2005 (USDA-FS, 2002-2005, p. 1-50).

The following trails receive the most motorized use: Lost Lake (Lost Lake unit), Snug Harbor Road (serves the Lost/Russian unit), Primrose (Lost Lake unit), and Carter Lake (Carter-Crescent unit). The Manitoba Cabin Winter Route (Summit unit), Bean Creek Trail (Resurrection unit), Summit Creek Trail (Summit unit), and Snow River Winter Route (Snow River unit) appear to receive the most non-motorized use. This information is consistent with the values expressed by the public during the scoping period and collaborative workshops, and is consistent with district observations.

## **TRAILHEADS, CAMPGROUNDS, AND TRAILS**

Although several trailheads and campgrounds exist throughout the project area, some roads are not plowed during the winter which reduces parking (that could be available) for winter recreation (Map A-3-3). Overall, there are approximately 162 miles of trail, winter routes, and gated or abandoned roads that provide winter access and recreation opportunities. In some cases, winter travel may occur via summer trail corridors; however, the majority of trails on the Seward Ranger District were designed and built for summer use only. It is common for summer trails to close in with snow, rendering them impassible. Given the nature of the terrain, which is often a narrow corridor with steep side slopes, most users have to share the valley bottoms to access the backcountry. Six trails/routes are specifically managed for winter use: 1) Johnson Pass Trail (from the northeast end of Trail Lake), 2) Resurrection Pass Trail, 3) Lost Lake Winter Route, 4) Primrose Trail, 5) Russian Lakes Trail (from the plowed section of the Snug Harbor Road to the Aspen Flats Cabin), and 6) Rainbow Lakes access. On these trails and routes, reassurance markers (posts placed in the snow with orange rectangular diamonds) are placed along the route in key locations to delineate the route or corridor.

Trails and routes with a history of avalanches or numerous slide paths are not recommended for winter use.

## **CABINS**

There are 17 public use cabins available for rental. Comments received during the public comment period and during the collaborative workshops indicated the cabins are an important winter recreation opportunity that has become a traditional use for many local residents.

The distance from the trailheads and parking areas typically correlates to the amount of use each cabin receives. In addition, cabin use correlates to travel conditions. Low winter use is generally attributed to difficult access. Use increases to a more moderate level when access improves. Occupancy and revenue figures from the winter of 2004-2005 indicate that popular cabin rentals included Barber, Juneau, and Trout Lake (not an all inclusive list) (USDA-FS, 2005a). The Barber Cabin is easily accessed, being 3 miles from the Russian River Campground. The Juneau Cabin, although it is 9 miles from the access points, is considered to have relatively easy access due to travel being on the Resurrection Trail. In addition, the cabin was recently rehabilitated. Once this occurred, the Seward Ranger District noticed a marked increase in use. The Trout Lake Cabin is the first cabin in the Resurrection unit that can be reached from three access points. The cabin location allows for a full range of activities including ice fishing and hunting. This cabin also provides more privacy than others do. Regardless of location, avalanche conditions exist. It is common for travel to certain cabins to be discouraged and particular routes avoided. A more detailed description of cabin attributes can be found in the recreation specialist report located in the project record.

## **FISHING, HUNTING, AND TRAPPING OPPORTUNITIES**

Fishing is an important recreation activity in the winter season. It is considered a historical activity for communities such as Cooper Landing and Moose Pass. Families typically leave their communities via snowmachine and travel to their favorite lakes. The following lakes, which are stocked by Alaska Department of Fish and Game (ADF&G), are used for winter fishing:

- Rainbow Lake (Russian unit)
- Carter and Crescent Lake (Carter-Crescent unit)
- Meridian Lake (Lost Lake unit)
- Long Lake (Lost Lake unit)
- Upper Summit (Summit unit)
- Jerome Lake (Tern Lake unit)

Other lakes, which are local favorites but are not stocked, include Trout Lake, Juneau Lake, Johnson Lake, and Upper Russian Lake. Two other lakes, which are stocked, but were not mentioned by the public as important for winter recreation are Troop (Tiehack/Mt Alice Unit) and Vagt (Ptarmigan/Grant Unit) lakes.

Hunting and recreational trapping (those users who do not qualify for subsistence) is a historical activity on the Seward Ranger District. The district is within the ADF&G hunting and trapping unit 7. Trapping is common in the Russian, Resurrection, Snow River, and Johnson Pass units. Abandoned roadways and power line corridors adjacent to highways and roads provide access to trapping areas. In relation to statewide harvest numbers, the Kenai Peninsula provides a relatively small portion of the take (ADF&G, 2004, p. 1-7). However, the Resurrection unit is a prime ptarmigan hunting area. It is not unusual for hunters and trappers, who often use snowmachines to access areas, to have encounters with non-motorized users. This is particularly true for trapping activities. Comments received from trappers during the scoping period indicated areas that used to be primarily accessed with snowmachines are now used by non-motorized users accompanied by their pets.

### **DESIRABLE AND USABLE TERRAIN**

Regardless of user “type,” there is the desire for large contiguous areas with a variety of low and high elevation terrain. This allows the recreationist to select different routes or terrain when there is uncertain snowpack. Being able to quickly access desirable terrain off highways and roadways is important. Recreationists want a variety of terrain that includes slopes that are gentle to moderate for day use purposes, as well as steeper terrain where challenges are found and more skills are necessary.

The ability to access the terrain is important. For example, thousands of acres of potentially desirable terrain exist for both motorized and non-motorized users within the Seward Ranger District. However, a lack of bridges, trailheads, and plowed areas to park often prevents access into the area. An example of this is the terrain north of Manitoba Mountain (in the Summit unit). Many ridges would be desirable, but crossing Canyon Creek into this area is not yet possible.

In 2004, the Seward and Glacier Ranger Districts reviewed and mapped terrain that is used by both motorized and non-motorized based on their common knowledge of the area and field observations. The 2004 Commercially Guided Helicopter Skiing Analysis also considered areas known to be used for winter recreation. The best available information indicates that winter recreation use occurs primarily along travel corridors in the valley bottoms. Some of the more heavily traveled areas for both motorized and non-motorized use included the Resurrection Pass Trail, Russian Lakes Trail, Johnson Pass Trail (North and South), the Summit corridor, Lost Lake and Primrose Trail (to Cooper Lake) (USDA-FS, 2004e, p. 3-18, Map 3-5A, 3-5B).

Due to the coarse scale of the mapping, precise acreage figures are not available. However, some broad generalizations can be made:

- Of the 885,901 acres that encompass the Seward Ranger District, approximately 300,000 acres occur on slopes greater than 51%. Due to the excessive slope gradient, these areas would not be used for general winter recreation.
- Over 300,000 acres occur on slopes greater than 21%. On this slope gradient, many opportunities for a moderate to extreme type of winter recreation experience should exist, but only if sufficient access is available.

- Over 250,000 acres occur on slopes up to 20%. It is within this category that the trailheads, parking lots, and pullouts are found.

When the existing recreation use data (noted above) and the associated map is compared to the 885,901 acre Seward Ranger District, the limitations for usable terrain become more apparent. The Existing Winter Recreation Use Map (Map A-3-3) displays the areas currently known to be used by snowmachines, non-motorized, helicopters, and aircrafts. Of the total acreage, winter recreationists currently use approximately 131,833 acres of terrain – under 15% of the total district. Of the total acreage, recreationists share approximately 13,618 acres of terrain and the units with the most shared use include Resurrection, Tern Lake, and Summit. For more information, please refer to the Recreation Specialist Report located in the Project Record.

### **Motorized Preferences**

Popular areas for motorized use include the Resurrection, West Resurrection, Carter Crescent, Lost Lake, Ptarmigan-Grant and Johnson Pass units.

- The Resurrection unit offers a long distance (39 mile) route with cabins and snowplay areas. The Carter-Crescent unit (and Carter Lake Trail) is popular because it has easier access into the higher elevations. The Lost Lake unit is valued because of its deep snowpack and large contiguous acreage. Tern Lake and Ptarmigan-Grant units offer easy access from the local Moose Pass community. The Johnson Pass unit offers a long-distance (23-mile) route. The Summit unit is also desirable to motorized users because of the easy access from the Seward Highway and the variety of slopes it provides.
- Challenging terrain and steep slopes are found throughout the project area, Carter-Crescent and Lost Lake are favorites for snowmachine snowplay. The south fork of the Snow River (Snow River unit) offers moderate to extreme opportunities when conditions are favorable.

### **Non-Motorized Preferences**

- Popular areas for non-motorized use include the Summit, Tiehack/Mt Alice, Resurrection, West Resurrection, Russian, and Carter-Crescent units. Short duration and easy to moderate ski, snowshoe, and cross country touring opportunities exist in all units. Summit unit is popular because of its variety of terrain and ease of access from the Seward Highway. The Tiehack/Mt. Alice unit is popular because it is close to Seward and has relatively easy access to moderate and extreme terrain.
- All units provide the ability to have multi-day trips. However, multi-day trips are particularly favorable in the Resurrection, West Resurrection, Russian, and Carter-Crescent units due to the public use cabins.

### **Preferences Common to Both Motorized and Non-Motorized Recreation**

- Carter Crescent is popular because it has easier access into the higher elevations. The Lost Lake unit is valued because of its deep snowpack and large contiguous acreage. The Summit unit is desirable due to the ease of access from the Seward Highway and the variety of slopes.

- Core community use areas for both motorized and non-motorized are the Carter-Crescent, Tern Lake, Lost Lake, Resurrection, and Ptarmigan/Grant units due to their proximity to the communities. The Russian unit is not included as it has more challenging terrain and access. The Tern Lake unit is important because it provides the connectivity from Cooper Landing to Moose Pass.
- Access to the public use cabins is primarily provided in six units: Resurrection, West Resurrection, Carter-Crescent, Lost Lake, Hope, and Russian.
- Hunting and trapping using both motorized and non-motorized means for access is most prevalent in the Resurrection, West Resurrection, Russian and Snow River units.

### 3.1.2.3. Environmental Consequences by Alternative for the Range of Winter Recreation Opportunities

Three indicators are used in the analysis of this issue. They are:

- Available terrain in acres and miles of trail or winter route for motorized and non-motorized uses
- Number of cabins available and season of use
- Change in the range of winter recreation opportunities

#### **Methods**

To display the environmental consequences, the percentage of terrain that is open or closed to motorized use to determine how land use allocations would vary for each group by season and alternative on a large, unit-wide scale. At a smaller scale, the miles of trail or winter route is used to display how access would vary for both groups by season and alternative. Because cabin availability is an important opportunity for both motorized and non-motorized users, this indicator is used to display how access to important public use cabins varies for each group by season and alternative. Finally, a summary is provided on how the range of winter opportunities changes for both motorized and non-motorized by season and alternative.

#### **NO ACTION ALTERNATIVE**

##### **Direct and Indirect Effects**

In the No Action Alternative, approximately 71% of the project area would be open to motorized access, 11% would be closed to motorized access, and 17% would be managed by splitting the winter season between motorized and non-motorized use in the Resurrection and West Resurrection units (see Table 2-14).

Of the 162 miles of available winter trails and routes, approximately 16 miles would continue to be solely available as non-motorized access until February 16th. After this date, non-motorized trails/routes would increase to approximately 54 miles. Overall, the majority of routes would continue to provide multiple use access with 146 miles of

trails/routes available to motorized uses for an entire winter season (151 days) and 107 miles available for a shorter 77-day season.

Non-motorized access to two cabins would be available for the entire season. The number would increase to 11 when the Resurrection unit closes to motorized use on February 15th. For motorized uses, access to six cabins would be available for the entire winter season and nine additional cabins available for the shorter (77-day) season due to the Resurrection unit management (Table 3-1).

The existing range of opportunities (snowmachining, skiing, snowshoeing, mushing, fishing, hunting, and trapping) would not change and would continue to be a mix of motorized and non-motorized uses.

**Table 3-1 Cabin Access (Motorized and Non-motorized), No Action Alternative.**

Unit Name	Cabin	Motorized	Non-Motorized
Resurrection	Caribou Creek	✓ <sup>1</sup>	✓ <sup>2</sup>
	Fox Creek	✓ <sup>1</sup>	✓ <sup>2</sup>
	East Creek	✓ <sup>1</sup>	✓ <sup>2</sup>
	Devils Pass	✓ <sup>1</sup>	✓ <sup>2</sup>
	Swan Lake	✓ <sup>1</sup>	✓ <sup>2</sup>
	West Swan Lake	✓ <sup>1</sup>	✓ <sup>2</sup>
	Juneau Lake	✓ <sup>1</sup>	✓ <sup>2</sup>
	Romig	✓ <sup>1</sup>	✓ <sup>2</sup>
	Trout Lake	✓ <sup>1</sup>	✓ <sup>2</sup>
Russian	Barber		✓
	Aspen Flats	✓	
	Upper Russian	✓	
C-C	Crescent	✓	
	Crescent Saddle	✓	
Lost Lake	Dale Clemens	✓	
Snow River	Lower Paradise	✓	
	Upper Paradise	✓	

<sup>1</sup> Open to motorized use until February 15.

<sup>2</sup> Closed to motorized use begins February 16.

## Effects Common to All Action Alternatives

- Because non-motorized uses are not precluded in any units, the range of opportunities would not change in any alternative. It is the quality of the recreational experience that may be affected.
- The ROS classifications that include primitive (P), semi-primitive non-motorized (SPNM), semi-primitive motorized (SPM), roaded natural (RN), roaded modified (RM), and rural (R) would not change in any alternative.

### **PROPOSED ACTION**

#### **Direct and Indirect Effects**

Most opportunities (snowmachining, skiing, snowshoeing, dog mushing, and fishing) would be available and would be a mix of motorized and non-motorized use.

In comparison to the No Action Alternative, the acreage and access available to motorized uses on a permanent basis (acres not subject to the seasonal swap) decreases by 5% and increases by 4% for non-motorized uses.

In this alternative, approximately 65% of the project area would be open to motorized access, 15% would be closed to motorized access and 19% would be managed as an alternating Season A/Season B scenario (see Tables 2-3, 2-4, and 2-14). In comparison to No Action, the acreage available to motorized access decreases.

#### **Season A**

Approximately 22 miles of winter trail and routes would be solely available to non-motorized users for an entire season, an increase (attributed to the Summit unit) when compared to the No Action Alternative. The majority of available winter routes would be multi-use with 140 miles of trails or routes. Non-motorized users would benefit most from the increased non-motorized acreage in the Summit and Tiehack/Mt. Alice units.

Motorized users would have increased access to the Resurrection and West Resurrection units in the late season when there is more daylight and better snowpack. Winter cabin use, which has been relatively low, is likely to increase in this unit. Shared use of this unit would occur, possibly increasing conflicts between motorized and non-motorized groups. Some non-motorized users may decide against utilizing the Resurrection unit if the trail condition deteriorates as a result of increased motorized use. If this occurs, there is likely to be some shifting of non-motorized use into the Russian unit, particularly to the already popular Barber Cabin. Overall, motorized opportunities benefit most from the extended season and the increased cabin availability in the Resurrection and West Resurrection units and the motorized Carter-Crescent and Lost Lake units (Table 3-2).

#### **Season B**

The available trails and routes solely available for non-motorized users would increase to approximately 64 miles with the addition of the Resurrection units. The majority of available winter routes would be multi-use with 98 miles of trails or routes. Non-

motorized opportunities would benefit most with the increased acreage in Resurrection, Summit and Tiehack/Mt. Alice units.

Motorized users would be most affected by the inability to use the Resurrection unit for the entire season. There is likely to be displacement of some well-established community and local uses into other units such as Carter-Crescent and Lost Lake. The desire to utilize other cabins is likely not to equal or replace the Resurrection cabin opportunity that allows for a multi-day/multi-cabin trip.

### Effects Common to both Season A and Season B for the Proposed Action

Local communities accustomed to using the cabins in the Carter-Crescent and Lost Lake units would continue to have uninterrupted access to these cabins. While the Aspen Flats Cabin would not be accessible to motorized users, the Upper Russian Cabin would continue to be available. The ability to utilize this cabin is likely to compensate for the loss of the Aspen Flats Cabin (Table 3-2).

**Table 3-2 Cabin Access (Motorized and Non-motorized), Proposed Action.**

Unit Name	Cabin	Season A		Season B	
		Motorized	Non-Motorized	Motorized	Non-Motorized
Resurrection	Caribou Creek	✓			✓
	Fox Creek	✓			✓
	East Creek	✓			✓
	Devils Pass	✓			✓
	Swan Lake	✓			✓
	West Swan Lake	✓			✓
	Juneau Lake	✓			✓
	Romig	✓			✓
	Trout Lake	✓			✓
Russian	Barber		✓		✓
	Aspen Flats		✓		✓
	Upper Russian	✓		✓	
C-C	Crescent	✓		✓	
	Crescent Saddle	✓		✓	
Lost Lake	Dale Clemens	✓		✓	
Snow River	Lower Paradise	✓		✓	
	Upper Paradise	✓		✓	

Winter motorized travel opportunities for local communities would increase because of the motorized corridor that connects Cooper Landing and Moose Pass to the Hope Y.

The exploratory areas for guided helicopter skiing would be eligible for special use permits. Terrain available for guided helicopter skiing would increase if the exploratory areas in the Ptarmigan/Grant and Snow River units were authorized.

In both seasons, trapping (for those who do not qualify for subsistence) may be affected. The motorized closure in the Russian unit would remove the section of the Russian Lakes Trail between Upper Russian, Aspen Flats, and Stetson Creek from use by snowmachines. Both hunting and trapping would be affected when the Resurrection unit is closed to motorized access. Other use areas would have to be utilized.

## **ALTERNATIVE 1**

### **Direct and Indirect Effects**

Most opportunities (snowmachining, skiing, snowshoeing, mushing, and fishing) would be available and would continue to be a mix of motorized and non-motorized. Some recreational trapping and hunting opportunities would be affected.

In comparison to the No Action Alternative, the total acreage open to motorized uses on a permanent basis (not subject to the seasonal swap) decreases by 16% and increases by 1% for non-motorized uses. The decrease for motorized uses is primarily from having 98% of the Summit unit non-motorized (additional acreage is added on the east side of the Seward Highway), 90% of the Russian unit non-motorized, 31% of the Snow River unit non-motorized, 64% of the Tiehack/Mt Alice unit non-motorized and the alternating Season A/Season B management of the Resurrection and Carter-Crescent units.

### **Season A**

The amount of winter routes solely available to non-motorized users increases to 68 miles when compared to No Action (21 miles). However, the majority of available winter routes would continue to be multi-use with 94 miles of trails and routes.

Most non-motorized use is likely to be concentrated in the Resurrection, Summit and Snow River units. Due to the availability of nine cabins in the Resurrection unit (which are not multiple use), non-motorized use of both trail/route and cabin use is likely to increase, particularly in the spring when there is more daylight and better snowpack. Non-motorized opportunities would benefit most from having all or most of the Resurrection, Summit, Russian, Tiehack/Mt. Alice, and Snow River units designated as non-motorized.

Motorized users would be most affected by the inability to use the Resurrection unit and its associated cabins in this season. It is likely that the Carter-Crescent, Lost Lake, and Johnson Pass units would receive increased motorized use in this season. In addition, the Upper Russian Cabin (Russian unit) would not be available to motorized users during this time. This would further displace cabin users into the Carter-Crescent and Lost Lake units. Motorized users would benefit most with the motorized designations in the Carter-Crescent and Lost Lake units (Table 3-3).

In the short term (at least two cycles of the alternating Season A/Season B management), local communities accustomed to accessing the Resurrection and the Russian units with snowmachines are likely to be dissatisfied with the restricted cabin availability. In the long term, this may dissipate once the benefits of having a full year of use (every other year) are realized.

Both hunting and trapping (those who do not qualify for subsistence) would be affected by the motorized closure in the Resurrection, Russian, and Snow River units. While some hunting activity (particularly ptarmigan hunting) may displace into the Johnson Pass unit, it is unknown what other areas hunters and trappers may find suitable.

### **Season B**

The amount of winter routes solely available to non-motorized users would be approximately 32 miles. This is an increase when compared to No Action (21 miles). However, the majority of winter trails/routes, approximately 132 miles, would continue to be multi-use.

Resurrection is the key unit that would remain multi-use. While it may not provide the experience some non-motorized users are seeking, some are likely to continue using the unit in order to access the Resurrection cabin system. For those non-motorized users wishing to avoid multiple use areas, their use is likely to concentrate most (and increase) in the Summit, Carter-Crescent, and Snow River units. Cabin use is likely to remain the same or increase at the Barber Cabin (Russian unit) and increase for the two cabins in the Carter-Crescent unit (Table 3-3). Non-motorized users would benefit most from the additional acreage in the Summit, Snow River, Tiehack/Mt. Alice, and Carter-Crescent units.

The most benefit to motorized users would be from the ability to use the Resurrection unit (and its 9 cabins) for the entire 151-day season. Motorized use of winter cabins, which has been relatively low, is likely to increase, particularly in the latter part of the season when there is more daylight and better snowpack.

The key unit that would be removed from motorized use would be Carter-Crescent. It is expected that some well-established community and local uses would shift into the Resurrection, Lost Lake, and Johnson Pass units and that motorized use would increase in these units. However, many locals who were accustomed to using Carter-Crescent unit due to its close proximity and convenient access (no trailering of snowmachines), may not recreate in other units and may change their winter activity until the unit is once again open.

Both hunting and trapping opportunities (those who do not qualify for subsistence) would be affected by the motorized closure in the Russian and Snow River units. However, the Resurrection unit would be available for both activities.

### **Effects Common to both Season A and Season B for Alternative 1**

- The exploratory areas for guided helicopter skiing would be eligible for special use permits. Terrain available for guided helicopter skiing would increase if the exploratory areas in the Ptarmigan/Grant and Snow River units were authorized. Opportunities for local communities would increase from the motorized corridor that connects Cooper Landing and Moose Pass to Summit Lake.

- Alternative 1 removes a popular motorized loop opportunity that connects the Primrose Trail to the Lost Lake power line and state lands.

**Table 3-3 Cabin Access (Motorized and Non-motorized), Alternative 1.**

Unit Name	Cabin	Season A		Season B	
		Motorized	Non-Motorized	Motorized	Non-Motorized
Resurrection	Caribou Creek		✓	✓	
	Fox Creek		✓	✓	
	East Creek		✓	✓	
	Devils Pass		✓	✓	
	Swan Lake		✓	✓	
	West Swan Lake		✓	✓	
	Juneau Lake		✓	✓	
	Romig		✓	✓	
	Trout Lake		✓	✓	
Russian	Barber		✓		✓
	Aspen Flats		✓		✓
	Upper Russian		✓		✓
C-C	Crescent	✓			✓
	Crescent Saddle	✓			✓
Lost Lake	Dale Clemens	✓		✓	
Snow River	Lower Paradise	✓		✓	
	Upper Paradise	✓		✓	

**ALTERNATIVE 2**

**Direct and Indirect Effects**

Most opportunities (snowmachine, skiing, snowshoe, mushing and fishing) would be available and would continue to be a mix of motorized and non-motorized use. Some trapping and hunting opportunities (those who do not qualify for subsistence) would be affected. In comparison to the No Action Alternative, the total acreage open to motorized use and access on a permanent basis (not subject to the seasonal swap) decreases by 18% and remain unchanged for non-motorized use and access.

**Season A**

Thirty-seven miles of trails and winter routes would be solely available to non-motorized users for an entire season, an increase when compared to the No Action Alternative (21

miles). This number includes the addition of two non-motorized access corridors (totaling 6.7 miles) in the Lost Lake Unit. Please refer to Issue 2 (Section 2.3.2.) for information on how this addition affects the non-motorized experience. The majority of available winter routes would be multi-use with 132 miles of trails or routes.

Because the Resurrection unit would provide additional motorized opportunities, it is likely more non-motorized users would disperse into the Carter-Crescent unit than presently do and that the expanded terrain in Summit unit would increase opportunities for non-motorized recreation. The expanded terrain in the Snow River unit would also be utilized, but to a lesser degree due to the lack of trails and trailheads and the more challenging terrain. Non-motorized users benefit most from having the Summit, Carter-Crescent, North Fork of Snow River, and the Russian units designated as non-motorized.

The ability to utilize the Resurrection units and the South Fork of Snow River (access to Nellie Juan) would have the most positive effect on motorized users. Both trail and cabin use in the Resurrection unit is expected to increase because of the opportunity to utilize the entire 151-day season and from motorized users who have been displaced out of the Carter-Crescent and Russian units and their associated cabins (Table 3-4).

The motorized opportunity would be reduced most by the inability to use Carter-Crescent unit. The Resurrection, Lost Lake, Snow River and Johnson Pass units are likely to receive more use when Carter-Crescent unit. However, many locals who were accustomed to using Carter-Crescent unit due to its close proximity and convenient access (no trailering of snowmachines is required), may not recreate in other units and may change their winter activity until the unit is once again open.

Trapping (for those who do not qualify for subsistence) is an opportunity which may be affected in the odd years. The motorized closure in the Russian unit would remove the Stetson Creek and the Lower Russian Lakes Trail from use by this group if snowmachine use were the primary means of access. The Resurrection unit may compensate for the loss of this unit.

## **Season B**

The trails/winter routes available for non-motorized users increase to approximately 62 miles with the addition of the Resurrection unit and the expanded terrain in Summit. This is an increase when compared to No Action. This number includes the addition of two non-motorized access corridors (totaling 6.7 miles) in the Lost Lake Unit. Please refer to Issue 2 (Section 2.3.2.) for information on how this addition affects the non-motorized experience. The majority of available winter routes would be multi-use with 107 miles of trails or routes. It is likely that most non-motorized users would concentrate in the Resurrection and Summit units.

When the Resurrection and West Resurrection units are closed, motorized users would benefit most from the ability to use the Carter-Crescent unit and would continue to utilize the Lost Lake, Ptarmigan/Grant, Johnson Pass and Snow River units. A new cabin opportunity would be available in the Russian unit and it is likely that the Barber Cabin, which is a short distance from the trailhead, is likely to see a marked increase in use.

Trapping activities via snowmachine (those who do not qualify for subsistence) could continue in the Russian unit and would be unaffected and opportunities may increase with unrestricted access into Snow River unit. However, both hunting and trapping opportunities (those who do not qualify for subsistence) would be removed in the Resurrection unit when it is closed to motorized uses.

**Table 3-4 Cabin Access (Motorized and Non-motorized) by Year, Alternative 2.**

Unit Name	Cabin	Season A		Season B	
		Motorized	Non-Motorized	Motorized	Non-Motorized
Resurrection	Caribou Creek	✓			✓
	Fox Creek	✓			✓
	East Creek	✓			✓
	Devils Pass	✓			✓
	Swan Lake	✓			✓
	West Swan Lake	✓			✓
	Juneau Lake	✓			✓
	Romig	✓			✓
	Trout Lake	✓			✓
Russian	Barber		✓	✓	
	Aspen Flats		✓	✓	
	Upper Russian		✓	✓	
C-C	Crescent		✓	✓	
	Crescent Saddle		✓	✓	
Lost Lake	Dale Clemens	✓		✓	
Snow River	Lower Paradise		✓	✓	
	Upper Paradise		✓	✓	

### Effects Common to both Season A and Season B for Alternative 2

- The communities of Cooper Landing and Moose Pass would benefit most from a motorized corridor that connects their communities to Summit Lake.
- Terrain available for guided helicopter skiing would increase if the exploratory unit in Ptarmigan/Grant was permitted. This would provide additional terrain opportunities for recreationists utilizing this service. Although the Snow River exploratory area would be removed from future permitting, there would still be a

range of quality terrain available for a quality guided helicopter skiing experience. Therefore, the overall affect to the range of opportunities is minimal.

### **CUMULATIVE EFFECTS – ALL ALTERNATIVES**

The range of winter opportunities in all alternatives, including the No Action Alternative, are likely to increase as foreseeable future actions such as the Mills Creek-Iditarod Hut-to-Hut System, the Seward to Girdwood Iditarod National Historic Trail, and the increased commercially guided helicopter skiing occur throughout the analysis area. Some of these actions are likely to include more winter trails and facilities that could increase use in areas that currently receive a relatively small volume of use. These areas include the Johnson Pass, Summit, and Ptarmigan/Grant units. The Seward Highway realignment in the Summit unit and additional Snug Harbor parking in the Russian unit would further increase the ability to utilize more of the Resurrection and Russian units by both motorized and non-motorized recreationists.

In all alternatives, cabin replacement has occurred or is reasonably foreseeable. Past cabin replacement in the Resurrection and Carter-Crescent units resulted in increased visitation and use. Regardless of whether the unit is managed as motorized, non-motorized, or in a seasonal swap scenario, use is likely to increase with the foreseeable replacements of the Devil's Pass and Romig cabins in the Resurrection unit, the replacement of the Upper Russian Cabin in the Russian unit, and the restoration of the Manitoba Cabin in the Summit unit. Cumulatively, winter use is likely to increase from the existing level (particularly when the area is open to motorized use) as use begins to shift around and within the analysis area as favorite cabins become booked and other options have to be sought. Recreationists who typically use the Turnagain Winter Use Area would find a quality cabin opportunity and the quality terrain associated with the Summit unit. It is foreseeable that recreationists who typically use Chugach State Park would travel longer distances to have this experience. Without monitoring and some form of visitor survey, it is unknown how the development of the Mills Creek Hut-to-Hut system would affect the public cabin system.

While access would still be provided, displacement from historical use areas and activities may increase in all alternatives (regardless of the user type) when future actions such as the Mills Creek/Iditarod Hut-to-Hut System, and the Seward to Girdwood Iditarod National Historic Trail are implemented. If use increases, hunting and trapping activities, in particular, may be further confined to remote areas to avoid conflict with other uses. They may be unable to safely participate in hunting with increased use on favorite trails and areas.

#### **3.1.2.4. Affected Environment for the Winter Recreation Experience**

There are two elements (sub-issues) being considered for displaying the effects to the recreation experience, Shared Use and the Opportunity for Quiet.

##### **3.1.2.4.1. SHARED USE**

As first shown in Chapter 2, Section 2.3.2. the indicator for this sub-issue is:

- Change (increase, decrease, no change) in the potential for encounters between and within motorized and non-motorized uses in key units including Lost Lake, Carter Crescent, Resurrection, and Russian.

## **Methods**

This analysis uses the change in the potential for encounters between motorized and non-motorized uses by season and alternative. The analysis considers whether some users are dispersed from using a unit and whether topographic features affect the potential for encounters. Several key units are highlighted because their management has the potential to affect the recreational experience in other units. Because each individual will have different values and expectations regarding the quality of their recreation experience, there are no recreation use numbers associated with descriptors such as “increase, decrease, or no change” or “low, moderate, and high.” The effects are based on Seward Ranger District professional and local knowledge. Finally, although displacement was addressed in Issue 1, displacement as it affects the potential for encounters (and conflict) is also considered.

## **Affected Environment**

Currently, the Carter-Crescent, Hope, and Ptarmigan/Grant units are 100% open to all uses and the majority of the Lost Lake, Snow River, Russian and Tiehack/Mt. Alice units are open as well. However, only the units with established trailheads or parking areas, winter trails/routes and cabins are likely to have higher encounters between motorized and non-motorized groups. For example, this is true in the Carter-Crescent unit because the only recommended winter route is the Carter Lake Trail and both groups share a narrow trail corridor. Conversely, even though the Tiehack/Mt. Alice unit is mostly motorized, difficult access and terrain makes encounters between the two groups rare.

Most units have features such as roads, water features, or trails that can help distinguish between motorized and non-motorized unit boundaries. However, in units where the boundaries are uncertain, the potential for conflicts increases and recreation experiences can be affected. For example, in the Summit and Tern Lake units, there are areas of National Forest lands designated as motorized located between non-motorized areas. In addition, there are state lands located adjacent to the National Forest lands where boundaries are not clear. Because these boundaries are unclear, there is the possibility of motorized uses crossing into designated non-motorized National Forest lands, without realizing a closure exists.

Most recreationists utilizing the Seward Ranger District recognize that winter access can be difficult due to snow and ice conditions. Severe avalanche danger is inherent on much of the Kenai Peninsula. The use of frozen lake surfaces (such as Kenai Lake) as part of the recreational experience is also common and this can be hazardous as well.

Motorized and non-motorized users indicate that shared winter use on particular trails and in certain areas can be hazardous. Steep terrain and winter trails located in constricted valley bottoms result in users sharing narrow common corridors. Most trails providing access into the backcountry were originally designed for summer use and typically have a 20-foot wide corridor. In most cases, steep side slopes, gorges, and ravines limit options for separating use. Trails that separate motorized and non-motorized users have been (or will be) established. For example, in the recent Seward to

Girdwood Iditarod National Historic Trail analysis, a continuous route will be made available to snowmachines in addition to 81 miles of parallel, alternate routes for non-motorized uses (USDA-FS, 2003b, p. 1-24).

Within the analysis area, potential for conflicts are specifically noted for the Lost Lake Trail, the Primrose Trail and the Carter Lake Trail. Having skiers and/or snowmachines descending the trail while skiers and/or snowmachines are ascending can be hazardous. However, each of these primary access routes are used to access cabins, lakes or desirable terrain.

To reduce the potential for conflict, some non-motorized users are avoiding areas where interactions are likely. They seek out areas where concentrated motorized use is less likely. Likewise, motorized users are concerned with the safety of shared use and may avoid trails where non-motorized use is concentrated.

### **3.1.2.4.2. ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVE FOR SHARED USE**

#### **No Action Alternative**

##### **Direct and Indirect Effects**

The units where the potential for encounters between motorized and non-motorized users would not change and would continue to be moderate to high include Carter-Crescent, Lost Lake, Ptarmigan/Grant, Hope, Tern Lake, and Johnson Pass. However, the potential for encounters in Carter-Crescent unit would continue to be higher after February 15th when the Resurrection unit is closed and motorized users seek out quality terrain and cabins.

The potential for encounters (and conflict) would not change and would continue to be high until February 15th in the Resurrection and West Resurrection units - particularly since both groups travel on one primary route and are seeking out the public use cabins. After February 15th, no encounters (other than motorized subsistence) in the Resurrection and West Resurrection units would be expected.

The existing recreation use data indicates approximately 4,800 acres of terrain are shared between motorized and non-motorized users. However, because the majority of the Summit unit is non-motorized, the potential for encounters (and conflict) would not change and should be low. Non-motorized users are able to access the upper slopes utilized more by snowmachines. However, unidentified boundaries in the Summit and Tern Lake units would continue to result in encounters between user groups which can cause conflict.

In the Lost Lake and Carter-Crescent units, both motorized and non-motorized users would continue sharing the Lost Lake Trail, Primrose Trail, and the Carter Lake Trail. The potential for encounters would continue to be high and the existing safety issues would continue to result in conflicts between both groups.

There would be no encounters in the non-motorized portions of the Russian, Snow River, and Tiehack/Mt Alice units (other than motorized subsistence). Although these units have some motorized terrain, lower recreation use, challenging access or terrain

and physical boundaries (such as ridges, slopes and rivers) would continue to effectively separate most use.

### **Effects Common to All Action Alternatives**

- The alternatives that decrease or eliminate potential encounters through an alternating Season A/Season B scenario would have the greatest effect on reducing encounter-related and safety-related conflicts between motorized and non-motorized users.
- In all action alternatives, unit boundaries have been selected to use discernible topographic features such as rivers, creeks, ridges, roads or power lines. Closures, which may vary by year, should be identifiable to both use groups and reduce the potential for conflict (between use groups) that could arise from this type of management.
- Even though a unit may be designated as non-motorized, the potential for encountering subsistence users with snowmachines is likely.
- It is expected that some conflict may occur between groups until the winter management plan is understood. It may take up to two cycles of the alternating Season A and Season B management for recreationists to become familiar with most aspects of the plan.

### **Proposed Action**

#### **Direct and Indirect Effects**

Approximately 65% of the total acreage would be open to all uses and 19% would be managed as a seasonal swap. In comparison to No Action Alternative, this alternative increases the acres managed as non-motorized and increases the acres managed as an alternating Season A/Season B to a total of 35%.

#### **Season A**

The three units that would have the most decrease in the potential for encounters would be Summit, Russian, and Tiehack/Mt Alice.

The Summit unit reduces the potential for encounters (and conflict) because motorized users would utilize a corridor adjacent to the Seward Highway (all the way to the Hope Y) and non-motorized users would utilize the upper slopes away from this corridor.

Encounters in the Russian unit are eliminated in the non-motorized portion of the unit (which includes two cabins). The unit effectively separates users because Cooper Lake and the Russian Lakes Trail are discernible boundaries. The potential for encounters (and conflict) along the Upper Russian Lakes Trail and the Upper Russian Cabin would not change.

Overall, the potential for encounters in both the Resurrection and Carter-Crescent units would be high due to the popularity of the units (the terrain, trails and cabins) for both groups. However, in the Carter-Crescent unit, the potential for safety-related conflict that

results from encounters on the Carter Lake Trail would decrease with the alternative route that is available for non-motorized users.

Even though the Snow River unit would be open to motorized, the potential for encounters would remain unchanged or be, at the most, moderate (because snowmachine use is highly dependent on favorable snow conditions).

### **Season B**

The three units that would have the most decrease in the potential for encounters would be Resurrection, West Resurrection, and the majority of Summit. The potential for encounters on the Resurrection Pass Trail and cabins would be eliminated. Even though the Summit unit has some motorized acreage, the potential for encounters (and conflict) would be reduced because motorized users would utilize a corridor adjacent to the Seward Highway (all the way to the Hope Y) and non-motorized users would utilize the upper slopes away from this corridor. Management of the west side of the Seward Highway as one large contiguous areas with boundaries that follow discernible features on the east side of the highway would reduce boundary confusion and the potential for conflicts between groups from unintentional motorized use in the non-motorized areas.

The effects for the Russian, Tiehack/Mt. Alice, Lost Lake, Carter-Crescent, and Snow units are similar to the effects displayed in Season A. However, with the Resurrection unit closed to motorized, more motorized users are likely to displace into the Carter-Crescent and Lost Lake units. Conflicts between motorized users may increase if the volume of use increases on both trails/routes and in snowplay areas.

Although the Snow River unit currently receives low amounts of use, with the Resurrection unit closed, conflicts between motorized users may also increase, particularly when the snow conditions are favorable.

### **Effects Common to Both Season A and Season B for the Proposed Action**

- The expanded non-motorized terrain in the Lost Lake unit encompasses the Iditarod Trail and provides easy access from the Seward Highway for non-motorized use. The potential for encounters would be eliminated in this unit. If non-motorized users travel out of the non-motorized area into the alpine, the potential for encounters would be high because the area is popular for snowmachines. While the potential for conflict between groups exists, the encounters would occur in a large area and would not occur on confined, narrow trail corridors. In addition, the potential for safety-related conflict that results from encounters on the Lost Lake Trail should be decreased with the alternative route for non-motorized uses.
- Even though the Tiehack/Mt. Alice unit has some motorized acreage, the potential for encounters are currently low due to difficult access and terrain. In this alternative, the potential for encounters is likely to remain unchanged or decrease because key access points are managed as non-motorized. While it is possible that encounters could occur along the motorized access corridor (northern boundary) with the South Fork of Snow River, any conflict is expected to be minimal and is expected to be limited to when snow conditions are favorable for accessing Nellie Juan.

- Guided helicopter skiing could also occur in the Snow River unit. The potential for encountering this use and the potential for conflict between both motorized and non-motorized uses is possible – primarily during good snow conditions. However, given the challenging terrain, the overall volume of use into this portion of the unit by motorized and non-motorized groups is expected to be low.

## **Alternative 1**

### **Direct and Indirect Effects**

Approximately 55% of the total acreage would be open to all uses, 23% would be non-motorized, and 21% would be managed as an alternating Season A/Season B scenario. In comparison to the No Action Alternative, this alternative increases the amount of acreage that is managed as non-motorized or with a seasonal management strategy to 42%.

### **Season A**

The six units that would have the most decrease in the potential for encounters would be Russian, Resurrection, West Resurrection, and the majority of Summit, Tiehack/Mt. Alice, and Snow River.

The potential for encounters (and conflict) in both the Russian and Resurrection units would be eliminated. Even though the Summit unit has some motorized acreage, the potential for encounters (and conflict) would be reduced because motorized users would utilize a corridor adjacent to the Seward Highway (all the way to lower Summit Lake) and non-motorized users would utilize the upper slopes away from this corridor. In addition, because these units are adjacent to one another, one large contiguous area would be managed alike, which further reduces boundary confusion and the potential for conflicts between groups.

Although both the Tiehack/Mt. Alice and Snow River units would have acreage open to motorized uses, the potential for encounters would be decreased or low because key access from the Seward Highway would be closed to motorized users. Should there be encounters in these units, conflict between groups is expected to be low due to low volumes of use and no foreseen increases in use.

Most of the Lost Lake and all of Carter-Crescent units would be open to all uses. Because the Resurrection unit would be closed to motorized, it is likely that more motorized use would occur in both units. With the increased potential for encounters, increased conflict between motorized and non-motorized groups and between motorized users may occur. Encounters between motorized and non-motorized groups on the Lost Lake Trail, Primrose Trail, and the Carter Lake Trail would continue and the potential for safety-related conflicts would not change and would be high.

### **Season B**

The five units that would have the most decrease in the potential for encounters would be Russian, Carter-Crescent, Summit, Tiehack/Mt. Alice, and Snow River.

The potential for encounters (and conflict) in the Russian, Carter-Crescent and Summit units would be eliminated. Even though the Summit unit has a motorized corridor that is adjacent to the Seward Highway and extends to lower Summit Lake, the potential for encounters (and conflict) between groups should be decreased because the non-motorized users would utilize the upper slopes away from this corridor.

With the Carter-Crescent unit closure in Season B, increased motorized use and the potential for conflict between motorized users may increase (and be moderate to high) in the Resurrection, Lost Lake and Johnson Pass units.

### **Effects Common to Both Season A and Season B for Alternative 1**

- Although both the Tiehack/Mt. Alice and Snow River units have acreage open to motorized uses, the potential for encounters would be decreased or low because key access from the Seward Highway would be closed to motorized users. Should there be encounters in these units, conflict between groups is expected to be low due to low volumes of use and no foreseen increases in use.
- Guided helicopter skiing could also occur in the Snow River unit. The potential for encountering this use and the potential for conflict between both motorized and non-motorized users is possible – primarily during good snow conditions. However, given the challenging terrain, the overall volume of use into this portion of the unit by motorized and non-motorized groups is expected to be low.
- The conflict that results from safety issues associated with access into the Lost Lake unit would remain unresolved and the potential for encounters would remain high on the Lost Lake Trail.

## **Alternative 2**

### **Direct and Indirect Effects**

Approximately 53% of the total acreage would be open to all uses and 36% would be managed as a seasonal swap. In comparison to No Action Alternative, this alternative increases the acres managed as non-motorized and increases the acres managed as Season A/Season B to 47%.

### **Season A**

The potential for encounters (and conflict) between motorized and non-motorized users in the Russian, Carter-Crescent, Summit and North Fork of Snow units would be eliminated.

With the Resurrection unit being open to motorized uses, an indirect effect may be an increase in the volume of non-motorized use in the Carter-Crescent unit. This could result in other “quality of experience” conflicts within this user group. In addition, increased motorized use and the potential for conflict between motorized users or groups may increase in Resurrection.

Even though the Summit unit has a motorized corridor that is adjacent to the Seward Highway and extends to lower Summit Lake, the potential for encounters (and conflict)

between groups should be decreased or eliminated because the non-motorized users would utilize the upper slopes away from this corridor.

Although there is likely to be some displacement of non-motorized users out of the Resurrection unit and into the North Fork of Snow River, no conflict between non-motorized uses are foreseen because of the difficult access and challenging terrain. However, the potential for a low to moderate number of encounters between motorized and non-motorized groups in the South Fork of Snow River could occur – particularly when snow conditions are favorable. Overall, the potential for conflict may only increase during times of good snow conditions. In addition, the removal of guided helicopter skiing from this unit would preclude any potential conflict with both non-motorized and motorized users.

### **Season B**

The potential for encounters (and conflict) between motorized and non-motorized users in the Resurrection, West Resurrection and Summit units would be eliminated.

Even though the Summit unit has a motorized corridor that is adjacent to the Seward Highway and extends to lower Summit Lake, the potential for encounters (and conflict) between groups should be decreased or eliminated because the non-motorized users would utilize the upper slopes away from this corridor.

Although Tiehack/Mt Alice has a mix of motorized and non-motorized acreage, user conflicts are not expected due to difficult access and challenging terrain.

There would continue to be a high potential for encounters between motorized and non-motorized users in the Carter-Crescent and Lost Lake units. In addition, increased motorized use and the potential for conflict between motorized users or groups may increase (moderate to high) in Carter-Crescent and in the Lost Lake and Johnson Pass units as a result of this concentration of use.

There would be a high potential for encounters and potential conflicts between motorized and non-motorized users in the western portion of the Russian unit because of the popularity of, and easy access to Barber Cabin.

Although the Snow River unit currently receives low amounts of use, with the Resurrection unit closed, conflicts between motorized users may also increase, particularly in South Fork of Snow when the snow conditions are favorable. There are no foreseen changes in the potential for encounters or conflicts in the North Fork of Snow River because of the challenging terrain coupled with uncertain snow conditions. The removal of guided helicopter skiing from this unit would preclude any potential conflict with both non-motorized and motorized users.

### **Effects Common to Season A and Season B for Alternative 2**

- Safety issues regarding multiple uses on the Carter Lake Trail (which increase conflict between motorized and non-motorized) would not be resolved.
- The majority of the Lost Lake unit would be open to all uses and the potential for encounters would be high – particularly in alpine terrain. However, two additional

winter access corridors would be designated. A 5.8 mile winter access corridor would begin at the Meridian/Grayling Trailhead and terminate in the alpine. The corridor would provide an alternative route and reduce the potential for encounters and the safety-related conflict that currently exists on the Lost Lake Trail. A second 4.6 mile access corridor would provide an alternative route for motorized users into the Mt. Adair area and could reduce the potential for encounters and the safety-related conflicts that currently occurs on the Primrose Trail. However, upon reaching the alpine, the potential for encounters would be high because the terrain would be shared by both motorized and non-motorized users.

- There would be no encounters in the non-motorized portions of Tiehack/Mt Alice. Although this unit does has some motorized terrain, lower recreation use, challenging access or terrain, and physical boundaries such as ridges, slopes and rivers would continue to effectively separate most use.

### **Cumulative Effects – All Alternatives**

In the near future, the Seward to Girdwood Iditarod National Historic Trail project will provide additional trails that are both motorized and non-motorized. This will create additional spatial separation and further reduce the potential for user conflict. In addition, the Mills Creek-Iditarod Hut-to-Hut System (a future project) may further reduce the potential for conflict by providing additional opportunities for both uses. This project may create more routes that are managed to separate use types. Overall, options for providing access that can separate use have occurred. Past projects combined with this and future project are likely to reduce potential conflicts between groups.

#### **3.1.2.4.3. OPPORTUNITY FOR QUIET**

As first shown in Chapter 2, Section 2.3.2. the indicator for this sub-issue is:

- Narrative on the ability to experience quiet (natural quiet)

#### **Methods**

This analysis considers if the opportunity for quiet is attainable for non-motorized uses. In addition to considering what units may be managed as non-motorized, the affect of highway noise is also considered.

#### **Affected Environment**

The opportunity for quiet can be impacted by motorized interactions that affect both the recreational experience and the experience of people seeking natural quiet. The Forest Plan addresses the need to maintain areas where natural quiet will predominate through ROS settings and management prescriptions (USDA-FS, 2002a, p. 3-8).

For some people, the recreation experience is negatively affected when noise, coupled with the smell of snowmachine emissions, is encountered. See Air Quality 3.7. for more information on snowmachine emissions. Snowmachines and helicopters are the two sources of noise most applicable to the analysis area. Automobile traffic is a third source of noise at parking lots, trailheads, staging areas, and terrain adjacent to transportation routes.

Within the analysis area, several shared staging areas, trailheads, and parking areas provide access for both motorized and non-motorized winter use. In these areas, noise (and smell from vehicle exhaust and snowmobile emissions) associated with snowmobiles and vehicles occurs. The primary transportation routes within the analysis area are the Seward, Sterling, and Hope Highways. Highway traffic sounds are estimated to be 70 decibels (dB) for passing automobiles and 80 dB for heavy traffic as heard from a sidewalk (USDA-FS, 2004e, p. 3-3, 3-4). For more information on measuring sound, refer to the Commercially Guided Helicopter Skiing FEIS.

Snowmachines are reported to routinely produce sounds levels exceeding 80 dB and some have been reported to exceed 100 dB (USDA-FS, 2004e, p. 3-3). For comparative purposes, a normal conversation produces 60 dB and a rock music concert produces 115 dB (<http://www.entnet.org/healthinfo/hearing/noise/hearing.cfm>). The Revised Forest Plan standard for snowmachine noise is the maximum noise level expected for factory standard equipment (USDA-FS, 2002a, p. 3-35).

Because changes and improvements in motorized technology are allowing more motorized users to access backcountry areas and terrain (steep slopes), it is becoming more common to find snowmachine use in remote parts of the analysis area that may not have been used in the past. Comments received during the collaborative workshops for this analysis supported this finding. Backcountry recreationists who travel on extended trips to reach remote terrain are now commonly finding snowmachine users present (USDA Forest Service, 2005, Kenai Winter Access Collaboration Meeting).

Guided helicopter use occurs in the Hope, Johnson Pass, Ptarmigan/Grant, and Lost Lake units. The deferred exploratory units subject to this analysis decision are located in Ptarmigan/Grant and Snow River. See Map A-2-1, the No Action Alternative, which displays the core and exploratory helicopter skiing units. The 2004 Commercially Guided Helicopter Skiing EIS analyzed the effects of sound (aircraft and snowmobile). The helicopters used produce 87.1 to 94.5 dB during power ascent. During landing approaches, they produce 75 dB while flying at 500 feet in elevation (USDA-FS, 2004e, p. 3-4).

Sound level (noise) dissipates predictably as a function of distance from source and receptor (in this case, humans). For example, an automobile might produce 80 dB at a distance of 25 feet. At 50 feet, the noise level will be 74 dB, at 100 feet, 68 dB, and at 200 feet, 62 dB. In addition to distance, terrain, ground cover, vegetation, and temperature may also affect the transmission or reflection of noise. For example, sound dissipates less in cold, dense air. Vegetation, in general, tends to absorb sound but snow cover tends to mask the absorptive capacity of vegetation. Sound will tend to reflect within canyons and valleys (USDA-FS, 2004e, p. 3-4).

#### **3.1.2.4.4. ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVE FOR OPPORTUNITY FOR QUIET**

##### **No Action Alternative**

##### **Direct and Indirect Effects**

Areas where opportunities for natural quiet (or solitude) would be most attainable would be in three units – in the more remote parts of the Summit unit, the western portion of the Russian unit, and in the Resurrection unit after February 15th.

### **Effects Common to All Action Alternatives**

- Noise and exhaust would continue to be found at any winter staging area and trailhead, particularly those along highways, roadways, communities, within private subdivisions, and on State lands. All access points on the Seward Ranger District fit one or more of these descriptions.
- Most units are likely to have some heavy timber or vegetation in the valley bottoms. Non-motorized users are likely to be able to move beyond hearing snowmachine noise by having the ability to use these areas to access the higher elevations.
- Even though a unit may be managed as non-motorized, the potential for encountering subsistence users with snowmachines for access is likely. However, given the sporadic nature of this use, the opportunity for quiet should be attainable.
- The main corridor of Johnson Pass (as with most of the units) would likely be a mix of helicopter and snowmachine sounds. However, once off the main corridor, ample drainages and terrain exists where noise would be minor.
- Lost Lake would likely have snowmachine sounds present at any given time, particularly on weekends and later in the year when it is lighter and there is better snowpack in the higher elevations. The presence of helicopter skiing traffic in the Lost Lake unit during the weekdays may further impact the ability to find areas without some type of mechanized noise.
- Even though the percentage varies by alternative, the majority of the Summit unit would be non-motorized. However, for skiers who recreate on the slopes facing the highway, noise would continue to be present because of snowmobile and highway traffic. Until skiers were able to climb the slopes and ridges and get out of the highway corridor, sound is likely to hinder the experience. This would not be the unit to seek quiet, unless traveling into the backcountry and away from the highway corridor.
- Regardless of the alternating Season A/Season B management, motorized use would continue to be most prevalent within 3 to 5 miles from the community of Moose Pass in the Ptarmigan/Grant unit. Once past this point, many opportunities for experiences without mechanized noise should exist. However, with the addition of helicopter skiing in the remote parts of this unit, there could continue to be times when helicopters, snowmobile, or both are heard.

## **Proposed Action**

### **Direct and Indirect Effects**

#### **Season A**

The opportunity for quiet would best be found in the Russian unit. In the Russian unit, the opportunity for quiet would be enhanced because of the increase in non-motorized acreage and the physical boundary of Cooper Lake, which separates the motorized and non-motorized uses.

The Resurrection unit would be open to motorized uses for the entire season. If non-motorized users choose this unit, the possibility of encountering snowmobiles along the trail or at the public use cabins would be higher, (as use would be expected to increase) especially in the later part of the season when there is more sunlight and weekend use increases. The opportunity for quiet is not likely to be available in this unit due to the popularity of the trail and cabin system.

### **Season B**

The opportunity for quiet or solitude would best be found in three units - Resurrection, West Resurrection, and Russian. While the opportunity for quiet in the Resurrection units would be optimized (because the units are managed as non-motorized), the opportunity for quiet in the Russian unit would also be enhanced because of the increase in non-motorized acreage, and the physical boundary of Cooper Lake which separates the motorized and non-motorized uses.

### **Effects Common in both Season A and Season B for the Proposed Action**

- Carter-Crescent would likely have snowmachine sounds present at any given time, particularly on weekends and later in the year when it is lighter and there is better snowpack in the higher elevations.
- The Snow River unit would be open to motorized use and snowmachine use is likely to be heard when snow conditions are favorable. For those recreationists who are able to travel to the more remote parts of this unit, particularly the South Fork of Snow River, the presence of guided helicopter skiing use may further impact the ability to find areas without some type of mechanized noise.
- The Tiehack/Mt Alice unit would have increased non-motorized acres. Once off the main motorized corridors (Seward Highway and the South Fork of Snow) the opportunity for solitude would exist.

## **Alternative 1**

### **Direct and Indirect Effects**

#### **Season A**

The opportunity for quiet would best be found in four units - Resurrection, West Resurrection, Russian, and Tiehack/Mt Alice.

#### **Season B**

The opportunity for quiet would best be found in three units - Russian, Tiehack/Mt Alice, and Carter-Crescent.

The Carter-Crescent unit would provide increased opportunities for quiet and solitude for non-motorized uses. However, with the Resurrection unit open to motorized uses, there is likely to be more people using the Carter-Crescent unit. The increased volume of use in this unit may affect the ability to find quiet and solitude.

In West Resurrection, motorized use would occur in the adjacent (main) Resurrection unit. The possibility of encountering snowmachines along the trail or at the public use cabins would be high because use would be expected to increase (particularly later in the season when there is more daylight and better snowpack). For this reason, the West Resurrection unit has not been included as an area to seek opportunities for quiet.

### **Effects Common to both Season A and Season B for Alternative 1**

- The Tiehack/Mt Alice unit would have increased non-motorized acres. Once off the main travel corridors the opportunity for solitude would exist.
- Although the key access points into the Snow River unit would be non-motorized, guided helicopter skiing would be permitted. For those non-motorized recreationists who are able to access this unit and who may not be expecting to hear any type of motorized equipment, the ability to hear helicopters in a relatively pristine part of the unit would negatively affect the opportunity for quiet.

## **Alternative 2**

### **Direct and Indirect Effects**

#### **Season A**

Opportunities for quiet and solitude would best be found in four units - Russian, Carter-Crescent, Snow River, and Tiehack/Mt Alice. Because Russian and Carter-Crescent are managed entirely as non-motorized, the opportunity for quiet would be optimized. Although a portion of the Snow River unit is motorized, the opportunity for quiet would be available in the North Fork of Snow because key access points would not be available to motorized uses, helicopter skiing would not be permitted, and there are no foreseen increases in non-motorized use (due to the lack of trailheads and challenging terrain). However, during good snow conditions, the opportunity for quiet may not be attainable in the South Fork of Snow due to increased motorized use.

Although the majority of the Tiehack/Mt Alice unit would be open to motorized uses, once away from the motorized travel corridors (Seward Highway and South Fork of Snow River) the opportunity for solitude would exist.

#### **Season B**

Opportunities for quiet and solitude would best be found in three units – Resurrection, West Resurrection, and Tiehack/Mt Alice.

The Russian unit would be motorized and Season B management provides a new cabin opportunity for motorized users. Given the proximity of the Barber cabin to the trailhead (3 miles), solitude may not be attainable with increased use. However, given the remote

nature and limiting terrain within this unit, opportunities for quiet may still exist farther from the trailheads, campgrounds, and roads.

The Snow River unit would be motorized and snowmachine use is likely to be heard when snow conditions are favorable and with the increased access opportunities (when compared to No Action). The closure of a portion of the unit to guided helicopter skiing use would reduce the chance of hearing a mix of both helicopter and snowmachine sounds for those recreationists who are able to travel farther into the more remote and pristine parts of this unit.

### **Cumulative Effects – All Alternatives**

The No Action and action alternatives share commonalities by providing areas where motorized use would be permitted and areas where motorized use would be prohibited. Large contiguous units that are either managed as open or closed for a winter season would cumulatively offer greater opportunities for quiet and solitude when considered at a district-wide scale. The effects of helicopter use coupled with snowmachine use have been analyzed (in the 2004 Commercially Guided Helicopter Skiing analysis) and specific mitigation was applied to reduce or eliminate the impacts in the Lost Lake, Ptarmigan/Grant, and Johnson Pass unit (USDA-FS, 2004e).

The Johnson Pass and Summit units are foreseeable units for backcountry hut development. Currently, the Johnson Pass unit is managed as a mix of motorized and non-motorized with core helicopter use. It is still possible to attain solitude by moving farther into and away from the main corridors. With the foreseeable future development of the Mills Creek-Iditarod Hut-to-Hut System (with winter use potentially concentrated in the Johnson Pass and Center Creek areas), an additive effect may occur to the current level of snowmachine and helicopter use, making this unit less desirable for experiencing natural quiet. In the Snow River unit, the alternatives that restrict helicopter use and snowmachine use would cumulatively allow for the opportunity for quiet in this unit. Along transportation corridors, foreseeable projects such as Sterling Highway realignment and the Cooper Lake Parking Area may increase the noise associated with snowmachines and automobiles. Implementation of the Seward to Girdwood Iditarod National Historic Trail actions such as new motorized trails and an increase in cabins (potentially six new cabins) may add more snowmachine-associated noise as new routes and amenities become developed and utilized.

## **3.2. WILDLIFE RESOURCES**

### **Introduction**

Recreation activities, both motorized and non-motorized, can cause disturbance or displacement to individual animals and affect their use of their winter habitats.

Commonly documented effects include facilitated access that can increase hunting or trapping pressure, animal disturbance, displacement of wildlife, or wildlife avoidance of areas.

Effects on individual animals will vary by species. The effects depend on the sensitivity of the species to disturbance, the type of disturbance, the duration and concentration of

disturbance, and its location (effects over time and space). Our assumptions are that the greater the percent of motorized or non-motorized use within an alternative, the more likely the effects will be from that type of activity (See Table 3-5).

We also assume that alternatives with a greater percentage of motorized use to have greater effects to individual animals. In these cases, a greater percentage of both motorized and non-motorized users and effects may be present, compared to non-motorized areas which would only have effects from non-motorized users.

The acres of affected habitat remain generally the same for any particular species across alternatives. The allowed use (motorized or non-motorized), however, and the amount of time in months that the use is allowed over any two year period does change from the No Action Alternative to the action alternatives.

Long-term impacts of how Season A/Season B scenarios affect a specie's use of its habitat are unknown. In the short term, this may eliminate motorized effects in areas when they are non-motorized, but may concentrate more human use and effects in other areas that are motorized. For species that continue to use Season A/Season B areas, during non-motorized seasons, there may be a reduction in effects every other year. It is unknown if some species would be permanently displaced.

The real question is whether the effects of motorized or non-motorized use could affect a species population. To help answer this, a ranked criterion was developed to estimate the level of effect and risk to populations that might result from any alternative (See Table 3-5). The criteria are based on:

- (1) The percent of available winter habitat affected
- (2) How important/critical the habitat is for survival
- (3) Whether the effect can impact reproduction or recruitment into the population or cause mortality
- (4) If the current population trend is stable, increasing, declining, or unknown

The greater the percentage of available habitat affected and the more important the affected habitat is for survival or reproduction, the greater the effect may be on the wildlife population. In addition, the amount of information that is unknown about a wildlife population or important habitat, the higher the risk of affecting that population.

Our analysis selected mountain goat, Dall's sheep, and narren-ground caribou as the species that could experience negligible impacts and risk to the population. Species that could experience negligible to low impacts or risk include brown bear in spring (without cubs) after den emergence. Species that could experience low to moderate impacts or risk include brown bear in denning habitat and core areas, moose, wolf, lynx, bald eagle, northern goshawk, black bear, small mammals, migratory birds, and marbled murrelet. Species that could experience moderate impacts or risk include brown bear and wolverine. No species are expected to experience high impacts (See Table 3-5).

For brown bear, the No Action alternative has the highest probability of affecting individuals, followed by Alternative 2, the Proposed Action and Alternative 1. For

wolverine, the No Action alternative has the highest probability of affecting individuals, followed by the Proposed Action, Alternative 2, and Alternative 1.

In summary, effects by species category are as follows:

### **Threatened, Endangered and Sensitive Species**

There will be no direct, indirect, or cumulative effects to listed threatened or endangered species, or to species proposed for listing because none of these occur in the project area during the winter season.

### **Management Indicator Species**

- Direct, indirect, or cumulative effects may occur to individual brown bears, moose and mountain goats due to winter recreation activity. The risks of affecting the populations of these species ranges from negligible to moderate.

### **Species of Special Interest**

- Direct, indirect, or cumulative effects may occur to individual species of special interest (wolverine, wolves, lynx, marbled murrelet, northern goshawk, bald eagle) due to winter recreation activity. The risks of affecting the populations is low-moderate for all species except wolverine, which is moderate.

## **Analysis Issue: Disturbance to Wildlife**

Winter recreation use increases human access into wildlife habitat, which may potentially affect an animal's use of the habitat for denning, nesting, cover, or foraging.

### **ISSUE INDICATORS**

- Percent of affected habitat that is motorized and non-motorized within a species habitat
- Level of effect/risk to species and its population

## **Methods, Units of Measure, Assumptions, and Limitations**

### **METHODS**

Natural history, habitat requirements, GIS, habitat models, consultation with State and Federal biologists, CLMP direction, and scientific literature was used to investigate the significance of potential disturbance to wildlife. Affected habitat is based on existing recreation use, which is our best estimate of accessible areas (See 3.1).

### **UNITS OF MEASURE**

1. **Percent of Motorized and Non-motorized Use within the affected habitat:**

**Assumption:** While the acres of affected habitat remain the same for any particular species across alternatives, the mixture of the allowed uses (motorized

or non-motorized) changes by alternative. Although many of the effects of motorized and non-motorized recreation are similar, some of the effects may differ depending on the species or individual animals. We expect alternatives with a greater percentage of motorized use to have greater effects to individuals because both motorized and non-motorized users and effects may be present.

**Limitations:** Displays relative differences between alternatives regarding the types of use potentially affecting wildlife. While we report percentages of use, no threshold values are available in the literature to determine if a certain value is significant in affecting a species or population.

2. **Level of Effect and Risk to the population:** This displays the level of effect to the species and risk of affecting the population. This is based on (1) the percent of available winter habitat affected, (2) how important/critical the habitat is for survival, (3) whether the effect can impact reproduction or recruitment into the population or cause mortality, (4) if the current population trend is stable, increasing, declining, or unknown.

**Assumption:** The greater the percentage of available habitat affected and the more important the affected habitat is for survival or reproduction, the smaller or less stable the population, the more information that is unknown about the population or important habitat, the higher the risk of affecting the population.

**Limitations:** In some instances, information used to evaluate the level of effect and risk to populations is based on professional judgment of Chugach National Forest Biologists, professional opinion, and limited data on some species population levels collected by State Fish and Game biologists. Habitat information for some species is limited, and is based on GIS cover types (small mammals, wolverine, migratory birds, black bear, and lynx). Habitat for moose and Dall's sheep come from ADF&G range maps, which is coarse and several years old. Although this is the best available data, it has limitations and varying degrees of accuracy. Habitat acres and percentages may be over or underestimated.

## **Ranked Criteria: Level of Effect and Risk to Populations**

Potential impacts to each species were considered using the following ranked approach.

### **Negligible to Low Impacts**

- No species of concern are present, or present in low numbers. No or minor impacts expected
- Affected habitat is <20%, of available habitat on the Seward Ranger District
- Habitat is not critical for survival and not limited to the project area
- Population trends are considered to be stable, increasing, decreasing, or unknown
- Minor impacts that do occur have no long-term or population effects

### **Low to Moderate Impacts**

- Breeding or non-breeding animals of concern may be present for critical life stages
- Affected habitat is < 25% of available habitat on the Seward Ranger District
- Habitat may be critical for survival or reproduction, but is not limited to the analysis area
- Population trends are considered to be stable, increasing, declining, or unknown
- Mortality and interference with activities necessary for survival may occur but is not expected to threaten the continued existence of species in the area

### **Moderate Impacts**

- Breeding animals of concern are present for critical life stages
- Affected habitat is less than 50% of available habitat on the Seward Ranger District
- Habitat may be critical for survival or reproduction, but is not limited to the analysis area
- Population trends are considered declining or unknown
- Mortality and interference with activities necessary for survival may occur and could potentially threaten the continued existence of species in the area

### **High Impacts**

- Breeding animals present in high numbers and/or during critical life stages
- Winter recreation occurs during critical life stages during critical periods
- Habitat is limited and animals cannot relocate to avoid impacts
- Affected habitat is greater than 50% of available habitat on the Seward Ranger District
- Population trends are considered declining, or unknown
- Mortality or other effects (injury, physiological stress, effects on reproduction and young raising) are expected on a regular basis; these effects threaten the continued survival of the species

**Table 3-5. Wildlife Summary of Direct and Indirect Effects and Level of Effect/Risk to Population**

Species or Habitat	Effect/Risk to Population	Percent Available Winter Habitat	Population Trend	Important/Critical Habitat	Recruitment	Use Type	No Action (% in affected habitat)	Proposed Action (% in affected habitat)	Alt 1 (% in affected habitat)	Alt 2 (% in affected habitat)
Brown Bear-Spring with Cubs	M	43	unknown	Y	Y	Motorized	96	86	80	95
						Non-Motorized	4	14	20	5
Brown Bear-Spring w/o cubs	L	17	unknown	Y	N	Motorized	76	68	41	56
						Non-Motorized	24	32	59	44
Brown Bear	L-M	5%	unknown	Y	Y	Motorized	81	68	61	65
						Non-Motorized	19	32	39	35
Brown Bear Core	L-M	14	unknown	Y	Y	Motorized	99	95	73	77
						Non-Motorized	1	5	27	23
Moose	L-M	17	Stable to - declining	Y	N	Motorized	76	66	40	58
						Non-Motorized	24	34	60	42
Mountain Goat	N	2	declining	Y	N	Motorized	80	56	48	51
						Non-Motorized	20	44	52	49

Species or Habitat	Effect/Risk to Population	Percent Available Winter Habitat	Population Trend	Important/Critical Habitat	Recruitment	Use Type	No Action (% in affected habitat)	Proposed Action (% in affected habitat)	Alt 1 (% in affected habitat)	Alt 2 (% in affected habitat)
Gray Wolf	L-M	17	unknown	Y	N	Motorized	76	68	41	56
						Non-Motorized	24	32	59	44
Lynx	L-M	20	unknown	Unknown	N	Motorized	85	74	64	69
						Non-Motorized	15	26	36	31
Wolverine	M	15	unknown	Unknown	Y	Motorized	89	81	70	74
						Non-Motorized	11	19	30	26
Bald Eagle	L-M	15	Stable or increasing	Y	Y	Motorized	70	73	47	64
						Non-Motorized	30	27	53	36
Northern Goshawk	L-M	16	unknown	Y	Y	Motorized	100	100	100	100
						Non-Motorized	0	0	0	0
Dall's Sheep	N	<1	declining	Y	N	Motorized	99	66	66	71
						Non-Motorized	1	34	34	29
Barren Ground	N	4	Stable	Y	N	Motorized	50	50	50	50
						Non-Motorized	100	33	33	33
Black Bear Denning	L	17	N/A	unknown	Y	Motorized	84	74	63	68
						Non-Motorized	16	26	37	32

Species or Habitat	Effect/Risk to Population	Percent Available Winter Habitat	Population Trend	Important/Critical Habitat	Recruitment	Use Type	No Action (% in affected habitat)	Proposed Action (% in affected habitat)	Alt 1 (% in affected habitat)	Alt 2 (% in affected habitat)
Small Mammals	L	12	unknown	variable	Y	Motorized	85	75	66	70
						Non-Motorized	15	25	34	30
Migratory Birds	L	12	Variable	variable	Y	Motorized	85	75	66	70
						Non-Motorized	15	25	34	30
Marbled Murrelet	L-M	unknown	Stable	Y	Y	Motorized/Non-motorized	unknown	unknown	unknown	unknown
River otter	L-M	unknown	unknown	Y	Y	Motorized/Non-motorized	unknown	unknown	unknown	unknown

### Legend

Effect/ Risk to the population: See description above. N is negligible, L is Low, L-M is low-moderate, M is moderate, H is high.

Recruitment: Has the potential to affect recruitment of individual animals into the population because it could affect breeding or survival of young.

Birds: Courtship, nesting, survival of eggs or chicks.

Mammals: Disruption of breeding, abandonment of denning sites or displacement from foraging areas for females with young after den emergence.

Population trends: Considers whether the population is stable, increasing, decreasing or trends are unknown.

Important/Critical Habitat: Includes areas that we assume to be very important to survival or reproduction within winter range. Habitat was identified as high importance in Forest Plan EIS, or important for supporting high numbers of animals by Alaska Department of Fish and Game, or they are known breeding, nesting, calving, or denning areas, or winter range is considered the limiting factor for populations, or the area has high value for winter foraging.

Percentage in Affected Habitat: Includes the percent of winter habitat on the Seward Ranger District affected by recreation use. Affected habitat is based on current recreation use, which is our best estimate of accessible areas.

## **ANALYSIS AREA**

The Seward Ranger District is the bounds of wildlife analysis area for the Kenai Winter Access project.

For the purpose of this Environmental Impact Statement, a number of wildlife species were selected for detailed analysis. For a complete list of species considered, see the Wildlife Specialist Report in the Project Record.

### **Threatened, Endangered, and Sensitive Species**

There would be no direct, indirect, or cumulative effects to listed threatened or endangered species, or species proposed for listing in any of the alternatives because these species do not occur within the analysis area during the winter recreation period (See Biological Assessment and Evaluation, Appendix E).

### **Management Indicator Species, Species of Special Interest and Other Wildlife of Concern**

#### **3.2.1. Brown Bear**

For more detail on affected environment and environmental effects, see the Wildlife Specialist report in the Project Record.

##### **3.2.1.1. Affected Environment**

Brown bear habitat that is important during the winter recreation period includes core areas, potential denning habitat, and post den emergence habitat (spring habitat) for females with cubs and other bears without cubs. Brown bear core areas are places that provide bears with important habitat. The references to core areas here mean these brown bear habitat areas. These are not the same areas described as guided helicopter skiing core use areas.

Brown bear core areas occur in the Russian, Carter-Crescent, Ptarmigan/Grant, and Johnson Pass geographic units. Currently, 9,997 acres, or 14% of the core areas overlap current winter recreation use areas. The greatest amount of current winter recreation use occurs in the Carter-Crescent unit. See Map A-3-5, Brown Bear Denning Model.

Potential denning habitat occurs throughout the project area on all aspects of steep mountain slopes. Habitat potentially affected by winter recreation use that is 80-100% more likely to provide denning habitat, occurs on 15,283 acres or 5% of what is available, primarily in the Johnson Pass, Summit, and Hope units.

Emergence from dens typically occurs in early spring when much of the habitat is still snow covered. There has been no denning chronology performed on the Kenai Peninsula brown bear population, so actual dates are uncertain, and potential exists for emerging bears to be active in areas overlapping winter recreation use. Males are the first to emerge in March, followed by lone females and sub-adults at the end of April, and

finally females with cubs, which may stay in or near the den until late May (Farley, 2005). Males, females without cubs, and sub-adults are most likely to be affected by winter recreation use after emergence through the end of the winter recreation period.

In the spring, brown bears depend on winter-killed moose and other carrion for food, as other food sources are limited at this time (LeFranc et al., 1987 pg 27; Farley, 2005). Affected habitat occurs on 17% of available foraging areas in Resurrection, Summit, Russian, Snow River, Ptarmigan/Grant, Hope, and Lost Lake units (see moose section).

Suring et al. (2005, pg 7) indicated that in the spring, female brown bears without cubs were associated with areas with low densities of human developments and roads, as well as with riparian areas that would receive summer salmon runs. Units that meet this description include Resurrection (Resurrection Creek), Russian (Russian River), Lost Lake (Resurrection River), Ptarmigan/Grant (Trail Creek), and Snow River (South Fork of Snow River).

Suring et al. (2005, pg 13-14) found when female brown bears with cubs leave dens, they are more associated with upland habitats in close proximity to cover. Using Suring's model, habitat with the highest potential for use (80-100% probability), indicates approximately 636 acres (43% of what is available on the Seward Ranger District) could be affected by winter recreation use. This habitat occurs in the Ptarmigan/Grant, Johnson Pass, Snow River, and Hope units, and some overlap in the Tern Lake, Resurrection, and Lost Lake units.

### 3.2.1.2. Environmental Consequences

There are two stages in the annual cycle where brown bears are vulnerable to the impacts of winter recreation use: (1) denning and (2) post-denning emergence (Olliff et al., 1999, pg 53).

The majority of brown bears are denning during winter recreational activities. Because they reside in a state of energy conservation, the concern is energetic costs of disturbance.

A larger issue is the potential for bear-human conflicts and bear displacement while bears are foraging after den emergence. These occur from surprise encounters between humans and bears in backcountry areas, although reports of this happening are few (Olliff et al., 1999, pg 53).

Winter recreation has the potential to disturb or displace bears from denning or foraging areas, increase energy expenditure, and potentially increase incidences of DLP's (bears killed in defense of life and property). The amount of motorized and non-motorized use that would be allowed by alternative in important bear habitats is listed in Table 3-5. The No Action Alternative has the highest probability of affecting individual bears, followed by Alternative 2, Proposed Action, and Alternative 1. Effects may be concentrated in motorized areas where bear habitat occurs in alternatives with Season A/Season B scenarios. The Proposed Action may have additional effects related to disturbance to denning bears, foraging bears in the spring, and in the core area due to the Grouse Lake and North Shore of Kenai Lake access corridors, which will add access on 1.2 miles within core areas, and 0.3 miles in potential denning habitat.

### 3.2.1.3. Cumulative Effects

Cumulative effects may occur to denning or foraging bears from winter recreation activities such as helicopter skiing as well as vegetation and fuels treatments, and road construction or development. Effects from guided helicopter skiing are generally the same across alternatives in core areas and foraging habitats. Denning bears may experience increased cumulative effects in the No Action, Proposed Action, and Alternative 1 due to greater acres of denning habitat open to guided helicopter skiing. Cumulative effects may occur on up to 1% of the available denning habitat on the Kenai Peninsula. Vegetation treatments may also enhance foraging habitat.

#### **LEVEL OF RISK TO THE POPULATION**

The current population level and trend for brown bears is unknown. Important habitats such as core areas (14%), denning (5%) and foraging habitats for bears without cubs (17%) and with cubs (43%) are potentially affected. Recruitment into the population could be affected if mortality of cubs occurs due to den disturbance, displacement from high quality foraging areas, or DLP's. The risk of affecting brown bear populations due to disturbance or displacement in core areas is low. Disturbance or displacement in denning habitat is low to moderate, disturbance or displacement in spring foraging habitat for bears without cubs is low, and disturbance or displacement in spring foraging habitat for bears with cubs is moderate.

All factors considered together, the level of effect and risk to brown bear populations on the Seward Ranger District is moderate because of the high amount of spring foraging habitat for females with cubs potentially affected, the concern over maintenance of the population if reproduction is affected, unknown population levels and trends, and unknown dates of den emergence. Bear-human interactions resulting in DLP's may also affect all bears. Whether these effects cause permanent harm to bears, individually or at the population level is not known, and is an information need. Because brown bears react to winter recreation in a variety of ways, most of which appear to cause no permanent harm to the bears, at present, the intersection between this subset of bears and winter recreation is not viewed as causing irreversible harm to the brown bear population. The CNF (Chugach National Forest) and IBBST (Interagency Brown Bear Study Team) are moving in the direction to help answer questions on potential long term effects on brown bears from winter recreational activity.

### 3.2.2. Moose

For more detail on affected environment and environmental effects, see the Wildlife Specialist report in the Project Record.

#### 3.2.2.1. Affected Environment

Within the project area, there are 95,738 acres of moose winter range occurring in all geographic units. The affected environment is 17% of the available moose winter range on the Seward Ranger District, and includes both foraging and cover areas. Most of the recreation use currently occurs in the Snow River and Summit units. The Johnson Pass unit, which includes the West Bench Peak helicopter skiing unit, is also a primary recreation use area in moose winter range. See Map A-3-6, Moose Winter Forage.

### 3.2.2.2 Environmental Consequences

Winter recreation may disturb or displace moose from bedding or foraging areas, may cause energetically expensive flight, stress, habituation or tolerance, or allow increased access for predators such as wolves. The majority of effects on moose are expected to be from motorized recreation including guided helicopter skiing. The No Action Alternative has the highest probability of affecting individual moose, followed by the Proposed Action, Alternative 2, and Alternative 1 because of the decreasing amount of motorized use allowed in the affected habitat (see Table 3-5).

The non-motorized Grouse Lake access corridor in the Proposed Action intersects winter range for 0.5 miles, which may increase existing use within the area, increasing potential disturbance to moose.

### 3.2.2.3. Cumulative Effects

Currently, 169 miles of road and approximately 129 miles of available trail run through the moose winter range contributing to animal mortalities. Continuing development of roads, trails, and private and public lands in the valley bottoms along the major road corridors has the potential to degrade moose winter range.

Reasonably foreseeable future actions, such as the Mills Creek-Iditarod Trail Hut-to-Hut project, which would add new trails and huts in the Mills Creek area, could disturb or displace moose in their winter range. The Iditarod Trail would bisect three areas of winter range that currently receive recreation use.

Past and future hazardous fuel reduction projects near Palmer Creek Road, Victor Creek, Cooper Lake, Primrose, and Juneau may improve moose winter range through hardwood regeneration. Fuel treatments may cause short-term disturbance or displacement of moose from foraging areas.

Mining claims occur throughout the project area in lower elevations along streams in moose winter range. Mining activities may lower foraging quality by removing vegetation along stream banks.

#### **LEVEL OF RISK TO THE POPULATION**

The current population level and trends for moose are thought to be stable to declining due to habitat conditions such as declining early seral habitat used for foraging. On the Kenai Peninsula, limitations of population growth include winter habitat, predation, hunting, and mortality from vehicular collisions (USDA-FS, 2002a, pg 3-216). Winter habitat is important, but it is not limited to the Seward Ranger District. Important foraging areas have not been identified, but work is underway now in cooperation with Alaska Department of Fish and Game (ADF&G) to update population numbers and habitat maps and develop a cooperative Moose Management Plan. All alternatives would potentially affect moose's use of 17% of the available winter habitat on the Seward Ranger District. Moose do not calve during the winter recreation period so recruitment should not be affected. Interference with foraging may occur at times. Cumulative effects may be higher than some other species, as moose winter range has had much activity in relation to development, roads, trails, and vegetation treatments.

The level of effect and risk to moose populations on the Seward Ranger District across all alternatives is therefore low to moderate.

### **3.2.3. Mountain Goat**

For more detail on affected environment and environmental effects, see the Wildlife Specialist report in the Project Record.

#### **3.2.3.1. Affected Environment**

Mountain goats use cliffs, alpine, and sub-alpine habitats. Winter habitat may limit mountain goat populations in south-central Alaska (USDA-FS, 2002b, pg 3-217).

Mountain goat habitat primarily occurs on steep slopes greater than 50%, which is often inaccessible to most recreationists, although some overlap does occur (Poe, 2005).

Mountain goat winter range currently receives winter recreation use on approximately 1,642 acres within the project area on 2% of their available winter range. The majority of the use is by snowmachiners and occurs in the Summit, Hope, and Johnson Pass units.

#### **3.2.3.2. Environmental Consequences**

Snowmachiners and skiers have the potential to disturb mountain goats (Olliff et al., 1999, pg 92) causing abandonment of habitat, increased and continuing stress, and excess energy expenditure (Olliff et al., 1999, pg 91). Goats also appear adaptable and able to habituate to adverse stimuli if they are gradually acclimated, and no negative effects are associated with the activity (Penner, 1988, pg 156). Compaction of snow caused by snow machines may also increase access to goats by predators such as wolves (Claar et al., 1999, pg 7.6) or hunting when open seasons overlap the winter recreation period.

The No Action Alternative has the highest probability of affecting individual goats, followed by the Proposed Action, Alternative 2, and Alternative 1 because of decreasing amount of allowed motorized use (see Table 3-5). Effects will likely be concentrated in areas open to motorized use in alternatives with Season A/Season B scenarios.

#### **3.2.3.3. Cumulative Effects**

Aircraft-assisted recreation such as dog sledding, guided helicopter skiing, and flight-seeing has increased annually in amount and distribution. Current motorized and non-motorized use occurs within areas also used for guided helicopter skiing, particularly in the Johnson Pass and Lost Lake units. The No Action, Proposed Action, and Alternative 1 may affect up to 652 acres in goat habitat, and the Alternative 2 would affect 642 acres.

Future actions such as the proposed Mills Creek-Iditarod Trail Hut-to-Hut project may affect mountain goats from aircraft operations within the Johnson and Summit units.

## LEVEL OF RISK TO THE POPULATION

The current population level and trends for goats are thought to be gradually declining across the Kenai Peninsula for unknown reasons. Winter habitat is important, but it is not limited to the Seward Ranger District. The Carter-Crescent unit has been identified as an important habitat area by ADF&G. All alternatives would only potentially affect mountain goat use of 2% of the available winter habitat on the district. Goats do not bear young during the winter recreation period so recruitment should not be affected. Interference with foraging may occur at times. Cumulative effects are primarily associated with guided helicopter skiing. The level of effect and risk to goat populations on the Seward Ranger District across all alternatives is therefore negligible.

## Species of Special Interest

### 3.2.4. Gray Wolf

For more detail on affected environment and environmental effects, see the Wildlife Specialist report in the Project Record.

#### 3.2.4.1. Affected Environment

There are approximately 10 to 11 resident wolf packs within the project area (Spraker, 2001) and spread across all areas of winter recreation use.

Wolves may be found foraging in all areas and habitats, although in the winter their primary foraging area is likely to be moose winter range and avalanche chutes where winter kill may be available (Shuster, 2005). Foraging habitat occurs on 95,738 acres in the district (17% of available habitat) primarily in the Resurrection, Summit, Russian, Snow River, Ptarmigan/Grant, Hope, and Lost Lake units with most of the recreation use in wolf foraging areas occurring in the Snow River and Summit units.

#### 3.2.4.2. Environmental Consequences

Wolves need two key habitat components for their existence: (1) an adequate, year-round supply of ungulates (moose), and (2) freedom from excessive persecution by humans (Claar et al., 1999, pg 7.4).

Winter recreation may disturb or displace wolves from foraging areas, cause stress, allow increased access for hunters and trappers, allow increased access to prey species such as moose through snow compaction, and increase chances of disease or parasite transfer from domestic dogs. Wolves use trails made by snow machines. This may result in mortality (i.e. shooting and running over), increased physical exertion, and altered movements (Claar et al., 1999, pg 7.6).

The No Action Alternative has the highest probability of affecting individual wolves, followed by the Proposed Action, Alternative 2, and Alternative 1 because of the decreasing amount of motorized use allowed in the affected habitat (see Table 3-5). Effects will likely be concentrated in units open to motorized use in alternatives with Season A/Season B scenarios.

The non-motorized Grouse Lake access corridor in the Proposed Action intersects wolf foraging habitat in moose winter range for 0.5 miles. This may increase existing winter recreation use within the area, increasing potential disturbance to moose.

### 3.2.4.3. Cumulative Effects

Cumulative effects of guided helicopter skiing, roads and trails, and development are the same as those for moose.

Reasonably foreseeable future actions, such as the Mills Creek-Iditarod Trail Hut-to-Hut project, could potentially contribute to cumulative effects (such as disturbance, displacement, increased access to trappers, and harassment) from new trails, and huts. Similar effects may occur where the Iditarod Trail will bisect three areas of winter range that currently receives winter recreation use.

Hazardous fuel reduction projects that have occurred or will occur near Palmer Creek Road, Victor Creek, Cooper Lake, Primrose, and Juneau should improve prey species habitat.

Increasing development of private and State lands may contribute to reduction of habitat quality for moose and wolves.

#### **LEVEL OF RISK TO THE POPULATION**

Winter recreation may disturb or displace wolves from foraging areas, cause stress, allow increased access for hunters and trappers, allow increased access to prey species such as moose through snow compaction, and increase chances of disease or parasite transfer from domestic dogs. Wolves use trails made by snow machines. This may result in mortality (i.e. shooting and running over), increased physical exertion, and altered movements (Claar et al., 1999, pg 7.6).

The No Action Alternative has the highest probability of affecting individual wolves, followed by the Proposed Action, Alternative 2, and Alternative 1. Primary affected units are Snow River and Summit.

The current population level and trends for wolves are unknown. Important habitat areas are considered to be big game or moose winter range, which is not limited to the Seward Ranger District. All alternatives would potentially affect wolves' use of 17% of the available winter foraging habitat on the district. Wolves do not den during the winter recreation period so recruitment should not be affected. Mortality as a result of recreation use or increased access may occur at times. Cumulative effects would primarily be in relation to development, roads, and trails. The level of effect and risk to wolf populations on the Seward Ranger District across all alternatives is therefore low to moderate.

### 3.2.5. Lynx

For more detail on affected environment and environmental effects, see the Wildlife Specialist report in the Project Record.

### 3.2.5.1. Affected Environment

Lynx may be potentially affected on up to 20% of their foraging habitat on the Seward Ranger District. Lynx foraging habitat occurs in the Resurrection, Summit, Russian, Snow River, Ptarmigan/Grant, Hope, and Lost Lake units on 316,187 acres on the district. The majority of the recreation use is by snow machines.

### 3.2.5.2. Environmental Consequences

Winter recreation may disturb or displace lynx from foraging areas, cause stress, allow increased access to hunters and trappers, allow increased access to predators and competitors such as wolves and coyotes through snow compaction, and may alter movements of prey species. The majority of effects on lynx are expected to be from motorized recreation. The No Action Alternative has the highest probability of affecting individual lynx, followed by the Proposed Action, Alternative 2, and Alternative 1 (see Table 3-5). Primary affected units are Snow River and Summit. Additional effects may occur in Alternative 2 from the Mount Adair access corridor, which intersects lynx habitat for 0.5 miles, and the Meridian access corridor, which intersects lynx habitat for approximately 2.4 miles. This may reduce foraging opportunities and increase competition and predation from wolves.

### 3.2.5.3. Cumulative Effects

The area used to determine the cumulative effects for this alternative, as it relates to guided helicopter skiing, would be 14,963 acres in the No Action, Proposed Action, and Alternative 1, and 14864 acres in Alternative 2.

Vegetation treatments may disturb or displace foraging lynx, but the treatments may also improve foraging habitat for prey species

#### **LEVEL OF RISK TO THE POPULATION**

The populations of lynx on the Forest are thought to be stable and within the range of historic variability (USDA-FS, 2002b, pg 3-218, 3-219). The distribution of lynx is such that occurrence within all units proposed for motorized and non-motorized use is likely, especially in the lower elevation forested areas. Important habitat areas are unknown, but considered to be areas where snowshoe hare are most likely to be found, which is not limited to the Seward Ranger District. All alternatives would potentially affect lynx use of 20% of the available winter foraging habitat on the district. Lynx do not den during the winter recreation period so recruitment should not be affected. Mortality as a result of winter recreation use or increased access may occur at times. Cumulative effects would primarily be in relation to guided helicopter skiing. The level of effect and risk to lynx populations on the Seward Ranger District across all alternatives is therefore low to moderate.

### 3.2.6. Marbled Murrelet

For more detail on affected environment and environmental effects, see the Wildlife Specialist report in the Project Record.

### 3.2.6.1. Affected Environment

Marbled murrelets are medium-sized seabirds that inhabit near-shore coastal waters, inland freshwater lakes, and nest in inland areas of old-growth conifer forest or on the ground (Carter and Sealy, 1986, pg 473-476; Marshall, 1988, pg 3-10). In Alaska, nesting is initiated in mid-March through July (Hamer and Nelson, 1995, pg 49-56), although egg laying and the incubation period do not occur until mid-May through late July. Specific nest sites on the Seward Ranger District are unknown, but some overlap between murrelet nesting habitat and winter recreation is possible where they are known to occur during the breeding season in the Lost Lake, Ptarmigan/Grant, and Tiehacker/Mt Alice units. Murrelet nesting habitat is most likely to occur within the hemlock-spruce and Sitka spruce cover types.

### 3.2.6.2. Environmental Consequences

Limited information is available on the effects of recreation activities on marbled murrelets. In a few places, species nest in state parks and other recreation areas with consistent human activity. It is unknown whether murrelets nest in trees or on the ground on the Seward Ranger District. Ground-nesting murrelets are easily disturbed by human activity (Nelson 1997, pg 1-2).

There may be short-term disturbance or displacement of individuals during March and April. Whether disturbance could impact reproduction is unknown.

The Meridian (Proposed Action) and Lost Creek (Alternative 2) access corridors may affect potential murrelet nesting habitat through disturbance to nesting birds during the beginning of the breeding season.

### 3.2.6.3. Cumulative Effects

Murrelets are not known to occur in the guided helicopter skiing exploratory areas and potential nesting habitat is unlikely in these areas. Opening a unit to guided helicopter skiing would not likely contribute to cumulative effects. Vegetation and hazardous fuel treatments have the potential to disturb murrelets during the breeding season in old growth habitats.

Some overlap between murrelet habitat and winter recreation is possible when the Iditarod Trail is complete in the Grayling/Meridian Lakes area and near Bear Lake.

#### **LEVEL OF RISK TO THE POPULATION**

Murrelet populations are thought to be stable on the Chugach National Forest since 1990 (USDA-FS, 2002b). The percent of habitat affected in all alternatives by motorized and non-motorized winter use is unknown. Potentially important habitat areas include nesting areas in old growth conifers within 31 miles of the coast, and the Lost Lake, Ptarmigan/Grant, and Tiehack/Mt Alice units. Important habitat is not limited to areas where winter recreation occurs, and is not likely to be preferred by recreationists, as these old growth habitats are comprised of dense vegetation. Winter recreation does overlap the nesting season, so potential exists to affect reproduction. Because of the

reasons listed above, the level of effect and potential risk to affect the population is low to moderate.

### **3.2.7. River Otter**

For more detail on affected environment and environmental effects, see the Wildlife Specialist report in the Project Record.

#### **3.2.7.1. Affected Environment**

River otters, associated with riparian areas, protected inlets, and coves, require aquatic and adjacent shoreline habitats, and may be impacted by both water-based and shoreline recreational activities.

Otters bear young in offshore subterranean burrows between January and June, and pups emerge when they are about 2 months old. During winter they dig elaborate tunnels and feeding dens in snow over frozen lakes and bays where fluctuations in water levels leave cracks for them to come and go (ADF&G, 2005a, pg 1). Potential exists for otter habitat (foraging and den areas) to overlap areas used for winter recreation.

River otters are known to occur in Resurrection River, Resurrection Creek, and Tern Lake and likely occur throughout the analysis area in appropriate habitats.

#### **3.2.7.2. Environmental Consequences**

Disturbance may cause stressful physiological reactions, interrupt activities, and displace river otters from preferred habitats, with resultant energetic consequences. Displacement can vary from a short-term flight and return or long-term abandonment of the area. Disturbance during spring and early summer (breeding, dispersal, parturition, and post-natal periods) may be most detrimental to productivity, although disturbance at anytime of the year may lower fitness, reproductive success, and survival (Waller et al., 1999, pg 5.2).

Snowmobiles operating on frozen surfaces can introduce oil residue and various derivatives from the combustion process into the water. These pollutants may directly impact fish, thereby affecting the forage base of river otters, and bioaccumulate in the food chain (Waller et al., 1999, pg 5.2).

Deliberate or accidental mortality of river otters can also result from impacts with vehicles, such as snowmobiles (Waller et al., 1999, pg 5.11).

Snowmobile activity may also cause unstable banks to collapse and compromise the stability of bank dens (Waller et al., 1999, pg 5.16).

#### **3.2.7.3. Cumulative Effects**

No past, present, or reasonably foreseeable future actions are expected that would cause any cumulative impacts.

## **SUMMARY AND LEVEL OF EFFECT/RISK TO POPULATION**

Otter population trends are unknown on the Chugach National Forest, although the population is considered to be recovered from the effects Exxon Valdez oil spill (USDA-FS, 2002b, pg 3-351). The percent of habitat affected in all alternatives by varying amounts of motorized and non-motorized use is unknown. Important habitat areas such as riparian areas with adjacent old growth habitat could be affected. Important habitat is not limited to areas where winter recreation occurs. Winter recreation does overlap the denning period, and mortality may occur on occasion, so some effects on recruitment or reproduction could occur. Because of the reasons listed above, the level of effect and potential risk to affect the population is low to moderate.

### **3.2.8. Wolverine**

For more detail on the affected environment and environmental effects, see the Wildlife Specialist report in the Project Record.

#### **3.2.8.1. Affected Environment**

Wolverines are thought to occur in low densities on the Kenai Peninsula, an estimated 3 per 400 square miles in 2004 (Golden, 2004, pg 1).

Wolverines have large foraging areas and appear dependent on carrion. It is likely they forage in winter ranges of sheep, goat, caribou, and moose. These winter ranges are in Resurrection, Carter-Crescent, Russian, and Snow River. Approximately 15% of wolverine foraging habitat would be potentially affected by winter recreation. Wolverine denning habitat on the district is unknown. Primary affected units (from past documented locations) are the Resurrection, Carter-Crescent, Russian, and Snow River.

#### **3.2.8.2. Environmental Consequences**

Hornocker and Hash (1981, pg 1300) state that human access on snow machines or all-terrain vehicles could cause disturbance, conflict, and increased access to trappers.

Non-motorized recreation has the potential to disrupt foraging behavior along groomed trails. Sub-alpine cirque areas (used for denning in many other areas outside Alaska) may be unavailable for denning due to winter recreational activities, as they often are used for backcountry skiing (Claar et al., 1999, pg 7.36).

Wolverines may also abandon dens after human disturbance (Heinemeyer et al., 2001, pgs 3-4), which can lead to reduced reproduction or lower kit survival (Magoun and Copeland, 1998, pgs 1316, 1318).

Wolverines may be impacted if prey species alter their behavior because of recreation activity, for example, if their prey becomes more susceptible to predation.

The No Action Alternative has the highest probability of affecting individual wolverines, followed by the Proposed Action, Alternative 2, and Alternative 1 (see Table 3-5) due to a decrease of allowed motorized use. Effects will likely be concentrated in motorized areas in alternatives with Season A/Season B scenarios.

The access corridors in the Proposed Action and Alternative 2 will increase existing use within the areas, which may increase disturbance or displacement of wolverines in foraging or denning areas, access by competitors, or trappers.

### 3.2.8.3. Cumulative Effects

Aircraft-assisted recreation such as guided helicopter skiing may result in the displacement of wolverines. Guided helicopter skiing is occurring in areas used for motorized and non-motorized recreation with potential for additional cumulative effects if the East Ptarmigan and Snow River units are permitted in the future. Potential cumulative effects may occur on 34,007 acres in the No Action, Proposed Action, and Alternative 1, and 32,950 acres in Alternative 2.

Because wolverines have been documented in the area of the proposed Mills Creek-Iditarod Trail Hut-to-Hut project, there would be potential to impact to denning and foraging habitat in this area. Aircraft, recreationists, and new trail construction have the potential to disturb denning or foraging animals. Trails would provide new access for hunters and trappers into previously inaccessible areas.

The Iditarod Trail, when constructed, will add new trail access for trappers, and potential for disturbance.

Past, present, and reasonably foreseeable future hazardous fuels and wildlife habitat improvement projects should generally benefit moose winter range, benefiting wolverines if they use these areas for foraging.

## **SUMMARY AND LEVEL OF EFFECT/RISK TO POPULATION**

Wolverine population trends are unknown on the Chugach National Forest, although there has been some concern expressed by ADF&G that numbers from the most recent survey were low (McDonough, 2005). Important habitat areas such as denning sites are unknown, but may be affected. Important habitat is not likely limited to areas where winter recreation occurs. Winter recreation does overlap the denning period, and mortality may occur on occasion, so some effects on recruitment or reproduction could occur. Because of the reasons listed above, the rarity of this species, amount of unknown information, and concern about recent survey indications, the level of effect and potential risk to affect the population is moderate.

### **3.2.9. Bald Eagle**

For more detail on affected environment and environmental effects, see the Wildlife Specialist report in the Project Record.

#### **3.2.9.1. Affected Environment**

Bald eagles in south-central Alaska generally nest in old cottonwood trees near water and use the same nest each year (Daum, 1994, pg 1). Bald eagle nest protection standards are outlined in an Interagency Agreement between the Forest Service and the U.S. Fish and Wildlife Service, which includes a 330 foot limited use zone around nest

locations (US-FWS, 2002, pg 1-6; USDA-FS, 2002a, pg 3-31). The nest season is generally from March 1 to August 31 (USDA-FS, 2002b, pg 3-256).

Twenty-five nest sites are located in winter recreation corridors where recreation use may be occurring within 330 feet of nest sites. The project area includes 15% of the habitat within nest limited use zones on the district. Resurrection and Carter-Crescent units have the majority of potentially affected nests.

### 3.2.9.2. Environmental Consequences

Eagle responses to disturbance ranges from temporary agitation to flushing of individuals from perches, roost sites, foraging areas, or nest sites, to permanent displacement from otherwise suitable habitat. These changes may increase energetic demands, reducing survival, especially during winter if food and quality foraging sites limiting nest abandonment and reproductive failure during the nesting season for individual pairs, although generally this is not significant at the population level (Buehler 2000, pg 26).

The disturbances being evaluated overlap temporally with pair-bonding (which often occurs in the vicinity of the nest) and nest initiation. The nest season is generally from March 1 to August 31 (USDA-FS, 2002b, pg 3-347). During these times, the birds are quite susceptible to the effects of disturbance and may abandon the nest site. Although the 330-foot buffer is an established management standard, it is an arbitrary distance. The potential for disturbance may exist further away from the nest in the spring because deciduous riparian foliage is not present to dampen sound (Suring, 2005).

The Proposed Action has the highest probability of affecting individual eagles, followed by the No Action, Alternative 2, and Alternative 1 (see Table 3-5) because of decreasing amounts of allowed motorized use. Effects will likely be concentrated in areas open to motorized use in alternatives with Season A/Season B scenarios. Affected area would be in the Resurrection and Carter-Crescent units.

### 3.2.9.3. Cumulative Effects

Cumulative effects may occur for 2 nest sites and on 11 acres.

Cumulative effects may occur from additional disturbance from other winter recreation activities such as guided helicopter skiing.

The Iditarod trail will pass near four known nests, so additional disturbance may occur.

Many of the roads, trails, and campgrounds within the project area are located near salmon streams that may contain potential eagle nesting habitat. People frequent these areas for recreation activities. Some cumulative effects from disturbance may occur to nesting eagles.

Recreational mining may occur within potential eagle nesting habitat and may disturb nesting eagles.

## **SUMMARY AND LEVEL OF EFFECT/RISK TO POPULATION**

Bald eagle population trends are considered stable or increasing on the Chugach National Forest. Important habitat areas such as nest sites occur within winter recreation use areas. Important habitat is not limited to areas where winter recreation occurs. Winter recreation does overlap the nesting period, and disturbance has the potential to affect reproduction. Because of the reasons listed above, the potential risk to affect the population is low to moderate.

### **3.2.10. Northern Goshawk**

For more detail on the affected environment and environmental effects, see the Wildlife Specialist report in the Project Record.

#### **3.2.10.1. Affected Environment**

The northern goshawk is an uncommon forest raptor that feeds on small and medium sized mammals and birds (Iverson et al. 1996, pg 16). They reside year-round on the Chugach National Forest (USDA Forest Service 1984, pg 12). The breeding-nesting season is March 1-July 31.

The Forest Plan contains a guideline (USDA-FS 2002a, p. 3-31) to protect active goshawk nesting habitat by preventing continuous disturbance within a 660-foot radius of the nest during the active nesting season. Of the 13 known territories and 22 known nests in the project area, 6 territories (46%) and 8 nests (36%) are potentially affected by winter recreation within 660 feet of the nest site. Recreation use occurs on 105 acres or 16% of known goshawk nest buffers. The Palmer Creek territory (Hope unit) is the territory with the most potentially affected acres.

#### **3.2.10.2. Environmental Consequences**

Some types of human disturbances to goshawk nests have been a suspected cause of nest abandonment (Reynolds et al., 1992, pg 1, 22). Critical times include the nesting period and post fledgling periods for goshawks. All alternatives would affect 44 acres of goshawk habitat. Potential nesting habitat may exist along the proposed access corridors in the Proposed Action and Alternative 2. If so, then recreation activity has the potential to disturb nesting birds.

#### **3.2.10.3. Cumulative Effects**

The greatest cumulative effects may come from the current impacts of the spruce bark beetle on the reduction of mature and old growth habitat (Holsten et al., 1999, pg 1), which would reduce the amount of available nesting habitat.

## **SUMMARY AND LEVEL OF EFFECT/RISK TO POPULATION**

Goshawk population trends are unknown on the Chugach National Forest. Important habitat areas such as nest sites occur within winter recreation use areas. Important habitat is not limited to areas where winter recreation occurs, and goshawk nests likely

occur on the Seward Ranger District which have not been located. Winter recreation does overlap the nesting period, and disturbance has the potential to affect reproduction. Because of the reasons listed above, the potential risk to affect the population is low to moderate.

## Other Species of Concern

### **3.2.11. Dall's Sheep**

For more detail on affected environment and environmental effects, see the Wildlife Specialist report in the Project Record.

#### **3.2.11.1. Affected Environment**

Dall's sheep inhabit the mountain ranges of Alaska on open alpine ridges, meadows, and steep slopes with rugged terrain (ADF&G, 1985, pg 9). Current winter recreation use occurs on 103 acres, or less than 1% of the habitat on the Seward Ranger District. The primary use of these areas is Nordic skiing in the mountains south of Shaft Creek in the Resurrection unit and north of Dave's Creek in the Tern Lake unit. Snowmachine use occurs in the Tern Lake and Russian units.

#### **3.2.11.2. Environmental Consequences**

Human activities and motorized recreation may cause increased stress and heart rate and can cause fleeing behavior and possible abandonment of high quality winter range. Disturbance may limit habitat to areas near escape terrain, disrupt foraging, and may cause the sheep to move to areas of lower quality forage, resulting in lower energy intake. Disruption of foraging patterns may expose them to increased risks of predation (Olliff, 1999, pg 6).

Whereas bighorn sheep in Alberta, Canada reacted to human pedestrians with variable responses based on the size of the group and distance and presence of dogs, another study performed on Dall's sheep in Alaska reported that there was no adverse stress-reaction caused by humans as close as 328 feet (Wilson and Shakleton, 2001, pg 5).

Additional effects could include reduced reproduction if physiological disturbance is substantial. Other effects could result if predators such as bears, wolves, or wolverines reduced their use of the area because of winter recreation activities, decreasing predation on sheep. Conversely, snow compaction and trail formation may allow access by predators such as wolves that normally might not be able to navigate in the deeper snow.

The amount of motorized and non-motorized use within affected sheep habitat is listed in Table 3-5. The No Action Alternative has the highest probability of affecting individual moose, followed by Alternative 2, the Proposed Action, and Alternative 1.

### 3.2.11.3. Cumulative Effects

Sheep may have increasing potential to be affected on their winter range across the Seward Ranger District over time as aircraft-assisted recreation such as dog sledding, guided helicopter skiing, and flight-seeing increase in amount and distribution.

#### **SUMMARY AND LEVEL OF EFFECT/RISK TO POPULATION**

Sheep populations and trends are declining on the Chugach National Forest (McDonough, 2005). Important habitat areas such as the Carter-Crescent unit are minimally affected, and less than 1% of their available habitat on the Seward Ranger District is affected. Important habitat is not limited to areas where winter recreation occurs. Sheep do not reproduce during the winter recreation period. Because of the reasons listed above, the potential risk to affect the population is negligible.

### 3.2.12. Barren Ground Caribou

For more detail on affected environment and environmental effects, see the Wildlife Specialist report in the Project Record.

#### 3.2.12.1. Affected Environment

Barren ground caribou inhabit the Kenai Mountains on open alpine ridges and steep slopes with rugged terrain between 2,000 and 4,500 feet elevation. Critical winter range occurs within the Resurrection unit. Winter recreation occurs adjacent to Hungry Creek on 4% of the available habitat on the district and is primarily motorized use.

#### 3.2.12.2. Environmental Consequences

Snowmachine trails may impact caribou by increasing predator access and making cratering for terrestrial lichens energetically expensive. As caribou use body fat and protein stores in the winter, this increased energy expenditure may influence body condition and in extreme cases, winter survival (Webster, 1997, pg 6).

The amount of motorized and non-motorized use in caribou habitat is listed in Table 3-5.

#### 3.2.12.3. Cumulative Effects

No cumulative effects are expected.

#### **SUMMARY AND LEVEL OF EFFECT/RISK TO POPULATION**

Caribou populations and trends are stable on the Chugach National Forest. Important habitat such as winter range is minimally affected on less than 4% of their available habitat on the district. Important habitat is not limited to areas where winter recreation occurs. Caribou do not reproduce during the winter recreation period. Because of the reasons listed above, the potential risk to affect the population is negligible.

### **3.2.13. Black Bears**

For more detail on affected environment and environmental effects, see the Wildlife Specialist report in the Project Record.

#### **3.2.13.1. Affected Environment**

In Alaska, black bears occur over most of the forested areas of the State and are most often associated with forests, but during the denning season, they are found from sea level to alpine areas (ADF&G, 2003, pg 1). Cubs are born in their dens. Black bears tend to emerge around the same time as brown bears, usually in mid-April, and follow the same patterns: males first, followed by lone females and sub-adults, and lastly females with cubs (Farley, 2005).

There are 63,540 acres of potential denning habitat within current recreation use areas. Approximately 17% of black bear habitat is potentially affected by primarily motorized use. The majority of potential habitat occurs in the Lost Lake, Johnson Pass, and Summit units.

#### **3.2.13.2. Environmental Consequences**

In one study on the effects of winter recreation on hibernating black bears, two types of den abandonment occurred in response to human activities: 1) flight as the field crew approached; and 2) departure after immobilization. Since the quiet approach of investigators sometimes causes den abandonment, skiing and other recreational activities could have the same or more heightened effects (Goodrich and Berger, 1994, pg 108). This could adversely affect individual fitness and reduce physical condition. Goodrich and Berger (1994) noted that bears that abandoned their dens in Alberta experienced greater over winter weight loss than those that did not abandon their dens.

Goodrich and Berger (1994) also noted indirect evidence of den abandonment due to recreational disturbance in the Sierra Mountains and that two bears moved to new dens when their original dens were 0.09 km from a snow machine trail.

Other literature shows lack of a response by denning black bears and no cub abandonment from human disturbance (Hightower et al., 2002, pg 16; Linnell et al., 2000, pg 408). These studies also report when bears were flushed from dens, they re-denined at no apparent long-term harm.

Individuals may be impacted if new access provided by motorized use increases hunter success to black bears.

Access corridors in the Proposed Action and Alternative 2 may also cause disturbance or displacement of denning or foraging bears.

The No Action Alternative has the highest probability of affecting individual bears, followed by the Proposed Action, Alternative 2, and Alternative 1 (see Table 3-5) because of decreasing amounts of allowed motorized use. Effects will likely be concentrated in units open to motorized use in alternatives with Season A/Season B scenarios.

### 3.2.13.3. Cumulative Effects

Expanding winter motorized and non-motorized recreation in combination with other aircraft-assisted recreation, such as guided helicopter skiing, may result in cumulative disturbance. Guided helicopter skiing overlaps other winter recreation use on 14,921 acres in the No Action, Proposed Action, and Alternative 1, and on 99 acres less in Alternative 2.

The Iditarod Trail and Mills Creek-Iditarod Trail Hut-to-Hut projects may occur in areas of potential denning habitat, increasing chances of cumulative effects.

Current and future hazardous fuel projects may reduce dead and down material that may serve as denning sites for black bears, yet may enhance forage for bears over time.

#### **SUMMARY AND LEVEL OF EFFECT/RISK TO POPULATION**

Black bear population trends are unknown on the Chugach National Forest. The amount of affected habitat is fairly low, but if is diverse and widespread, and available outside the analysis area. Breeding animals may be affected, as bears give birth in their dens. Important habitat areas such as den sites are unknown, but also likely widespread. Ratios of male/female bears taken during harvest periods do not indicate cause for population concerns (McDonough, 2005). Because of the reasons listed above, the potential risk to affect the population is low.

### 3.2.14. Small Mammals

For more detail on affected environment and environmental effects, see the Wildlife Specialist report in the Project Record.

#### 3.2.14.1. Affected Environment

Small mammals considered were those that use subnivean spaces (under the snow), and others such as hares, squirrels, and weasels that may use or avoid snow machine or ski trails. Small mammals are likely to occur in all habitats, except snow and ice, and water. Small mammal habitat is potentially affected by winter recreation on 12% of available habitat, primarily by motorized use and mainly alpine areas.

#### 3.2.14.2. Environmental Consequences

The impacts of motorized and non-motorized trails vary according to species. Both motorized and non-motorized trails can affect small mammals by facilitating movement for species less adapted to locomotion through deep snow, compacting of subnivean spaces, and altering predator-prey relationships. While snow machines, skis, and snowshoes all compact the snow, snow machines compact the snow the most (Bury, 1978, pg 153-154).

Snow compaction may also occur on the access corridors in the Proposed Action and Alternative 2.

The percent of motorized and non-motorized recreation allowed in the affected habitat by alternative is listed in Table 3-5. The No Action Alternative has the highest probability of affecting individual small mammals, followed by the Proposed Action, Alternative 2, and Alternative 1.

### 3.2.14.3. Cumulative Effects

Small mammals would be potentially affected by new recreation trails related to the Mills Creek-Iditarod Trail Hut-to-Hut project and the Iditarod Trail. Development of facilities, roads, and trails would contribute to habitat destruction or degradation. Hazardous fuel reduction and prescribed burn projects may cause a short-term increase in mortality during treatments and loss of cover by removing dead and down material. Over time, the resulting browse and new vegetation would provide food and cover for small mammals.

#### **SUMMARY AND LEVEL OF EFFECT/RISK TO POPULATION**

Small mammal population trends are unknown on the Chugach National Forest. The amount of affected habitat is fairly low, but it is diverse and widespread, and available outside the analysis area. Breeding animals may be affected, as some small mammals reproduce during the winter recreation period. Important habitat areas are unknown, but also likely widespread, diverse, and available outside the analysis area. Because of the reasons listed above, the potential risk to affect the population is low.

### 3.2.15. Migratory Birds

For more detail on affected environment and environmental effects, see the Wildlife Specialist report in the Project Record.

#### 3.2.15.1. Affected Environment

Most migratory birds arrive on the Seward Ranger District in April (Shuster, 2005), where they use a wide variety of habitats. Migratory bird habitat is potentially affected by winter recreation use on 11.6% of available habitat. Courtship and breeding begins near the end of the motorized recreation period.

#### 3.2.15.2. Environmental Consequences

Recreation routes have been shown to affect forest birds. Gaines et al. (2003) summarized data from a variety of researchers. He noted that brown creepers were twice as likely to occur in habitats that were more than 328 feet from a road and that brown creepers were associated with larger forest patches. Roads and motorized trails reduced forest bird reproduction up to a distance of 656 feet. In addition, roads and recreation trails may break up forest patches, increase nest predation, and increase parasitism rates. Human intrusion, in the form of hiking, increased the probability of gray jay recurrence, which may increase nest predation on other bird species.

The access corridors in the Proposed Action and Alternative 2 may contribute to minor destruction of potential nesting and foraging habitat during brushing or small tree

removal (which will take place outside the breeding season), and potential disturbance or displacement of some nesting birds due to recreation activity.

The percent of motorized and non-motorized recreation allowed in the affected habitat by alternative is listed in Table 3-5. The No Action Alternative has the highest probability of affecting individual birds, followed by the Proposed Action, Alternative 2, and Alternative 1.

### 3.2.15.3. Cumulative Effects

Cumulative effects may occur from loss of habitat due to spruce bark beetle impacts and associated hazardous fuel reduction treatments if they occur during the breeding season. New development of recreation facilities, roads, and trails would contribute to habitat loss and disturbance to nesting birds.

#### **SUMMARY AND LEVEL OF EFFECT/RISK TO POPULATION**

Migratory bird population trends are unknown on the Chugach National Forest. The amount of affected habitat is fairly low, but it is diverse and widespread, and available outside the analysis area. Breeding animals may be affected, as birds begin courtship and breeding at the end of the winter recreation period. Important habitat areas are unknown, but are likely widespread, diverse, and available outside the analysis area. Because of the reasons listed above, the potential risk to affect the population is low.

## **3.3. ECONOMIC**

### Effects Summary

The economic analysis area was selected in response to the issue of potential effects of changes in winter motorized areas on local economic activity. The economic analysis reveals that the potential effects on overall local economic activity from any of the action alternatives would likely be relatively small. This is because:

1. The reduction in currently-used snowmachine acres is 21% or less across the action alternatives.
2. Non-local snowmachiners are only a fraction (the exact percentage is unknown) of the customers who frequent Recreation and Tourism related businesses in the economic analysis area in the winter.
3. Winter economic activity is a small percentage of total economic activity in the economic analysis area.

### **3.3.1. Analysis Area**

This section presents a description of the economic environment that could be affected by the proposed action and its alternatives. This area was selected based on public comments received during the scoping process and the analysis issue identified. The economic analysis area was selected in response to the economic issue of the effects on local economic activity of closing areas to winter motorized use. The area chosen for this analysis is the Hope Sub-Subarea as defined by the Alaska Department of Labor

and Workforce Development, Research and Analysis (2004, p.42). This area includes the majority of the businesses located in the communities identified in scoping as communities of economic concern that could be affected by closing areas in the Project Area to snowmachine use.

### **3.3.2. Affected Environment**

This section contains two subsections. The first subsection (3.3.2.1.) further describes the economic analysis area. The second subsection (3.3.2.2.) examines current levels of economic activity in the economic analysis area.

#### **3.3.2.1 Economic Analysis Area**

Following the Alaska Department of Labor and Workforce Development (2004, p. 42-43) classification system, the Kenai Peninsula Borough is a Census Area (CA), Kenai-Cook Inlet is a Census Subarea (CSA) of the Kenai Peninsula Borough, and the Hope Sub-Subarea (SSA) is a Sub-Subarea of the Kenai Cook-Inlet CSA. The Hope SSA includes the following towns or places: Cooper Landing, Grandview, Hope, Hunter, Kenai Lake, Lakeview, Lawing, Moose Pass, Quartz Creek, Russian River Rendezvous, Silvertip, Sunrise, and Tunnel. The city of Seward and the communities of Bear Creek, Crown Point, and Lowell Point are in a separate CSA (the Seward CSA). According to criteria set forth in Forest Service Handbook 1909.17 Section 24, the economic impact area (analysis area) should be defined as (1) a functional economic unit of a size appropriate to the economic impact issue and (2) an area that includes most of the economic factors that are most directly affected by the proposed project. Most of the scoping comments related to economics identified concerns of the potential affects of winter motorized closures on local business in or near the small communities in or near the Project Area. Although Seward was also identified in some of the comments, it is a much larger community with a much more diverse economy and many more employment and business opportunities. The economic effects of the winter motorized closures proposed in any of the alternatives on Seward and throughout the rest of the Kenai Peninsula Borough would be too small to determine. Additionally, if these areas were included in the economic analysis area, their overall economic activity levels would swamp any changes in the economic activity levels of the smaller communities in the Project Area. The economic analysis area thus encompasses only the Hope SSA. Businesses in the communities of Crown Point and Primrose that use a Moose Pass zip code (99631) are also included in the analysis area.

#### **3.3.2.2 Current Levels of Local Economic Activity**

In order to respond to the issue of potential effects on local economic activity from changes in winter motorized use areas, an examination of the current amount of economic activity is necessary. This corresponds to the amount of economic activity associated with the No Action alternative. Monthly employment data for the last three years (2002-2004) for the Hope SSA was obtained from the Alaska Department of Labor, Research, and Analysis Division (Bergen, 2005). This data includes all employment covered by the State of Alaska's unemployment insurance laws. Certain segments of Alaska's employed population are excluded from unemployment insurance coverage and thus are not included here. These segments include self-employed

individuals, fishers, unpaid family help, domestics and most individuals engaged in agriculture.

In order to focus specifically on economic activity that could be directly affected by changes in the number of snowmachiners visiting the Project Area, the employment data was broken into two categories. After reviewing the literature on trip-related snowmobile expenditures, as well as the types of businesses located in the Project Area, a Recreation and Tourism (RecTourism) category was selected. According to the Kenai Peninsula Borough Community and Economic Development Division (2005), prior to 2002, visitor industry employment information was reported to the Alaska Department of Labor and Workforce Development embedded in and part of other sectors. However, since 2002 visitor industry employment can now be more accurately measured due to changes to North American Industry Classification System (NAICS) that provides a classification called "Accommodation and Food Services," which clearly defines employment in this industry. This sector includes all types of lodging as well as restaurants and bars. This is included in the RecTourism category below. Additionally, all gas stations, food, and beverage stores (including convenience stores) located in the economic analysis area were also included in the RecTourism category. All other reported employment is included in the Other category.

Charts 3-1 through 3-3 display monthly employment data for 2002-2004 in the economic analysis area. Monthly employment represents a count of jobs as opposed to individual workers. It is not an unduplicated count of the number of individuals because workers holding more than one job or who change jobs during the measuring timeframe (the pay period that includes the 12th of the month) may be reported by more than one employer.

In examining the three charts, it is obvious that the majority of economic activity, as measured by employment, takes place from May to October in the economic analysis area. Employment in the RecTourism category dwarfs employment in the Other category during these months, but in 2004 the RecTourism category accounted for less than a third of total employment in the winter months from January through March, and in November and December. The big drop in the winter RecTourism levels beginning in November of 2003 can be attributed to the decision by the Kenai Princess Lodge to discontinue operating in the winter months. According to a manager in Hotel Operations at the company that owns this property, the lodge was open for seven years in the winter on a trial basis, but there was not enough business so they no longer operate in the winter and they have no plans to in the near future (Cardenas, 2005).

Because people other than snowmachiners on trips frequent many of the businesses included in the RecTourism category during the winter, it is incorrect to say that all of the winter jobs in this category would be affected by changes in the number of snowmachiners who visit the Project Area.

One segment of the RecTourism category that is likely to be underrepresented in the employment figures are Bed and Breakfast Inns, since in many cases these business owners are self-employed and/or have few, if any employees. In order to examine current levels of economic activity associated with these businesses, quarterly gross sales revenues for the same three years were obtained from the Kenai Peninsula Borough Sales Tax Division (Tankersly, 2005). (Monthly reports were not available). All Bed and Breakfast Inns with addresses with the following three zip codes were included: 99605, 99631, and 99572. Chart 3-4 displays quarterly gross sales for Bed and

Breakfast Inns from 2002-2004. Again, the majority of economic activity in this segment, as measured by gross sales, occurs from April through September. In 2004, first (Jan-March) and fourth (Oct-Dec) quarter sales accounted for less than 10 percent of total gross sales by these businesses.

Again, because people other than snowmachiners stay at these businesses during the winter months it would be incorrect to say that all of their winter month gross sales would be affected by changes in the number of snowmachiners who visit the Project Area.

Economic impact analysis focuses on the effect of dollars from outside an area ("new dollars") on the area's economy. Expenditures by local snowmachiners (those who reside within the economic analysis area) do not create an economic impact within the analysis area as their expenditures are simply a recirculation of money within the area, rather than an influx of money from outside the area. We do not know how many snowmachiners visit the area or what proportion of snowmachiners are non-locals.

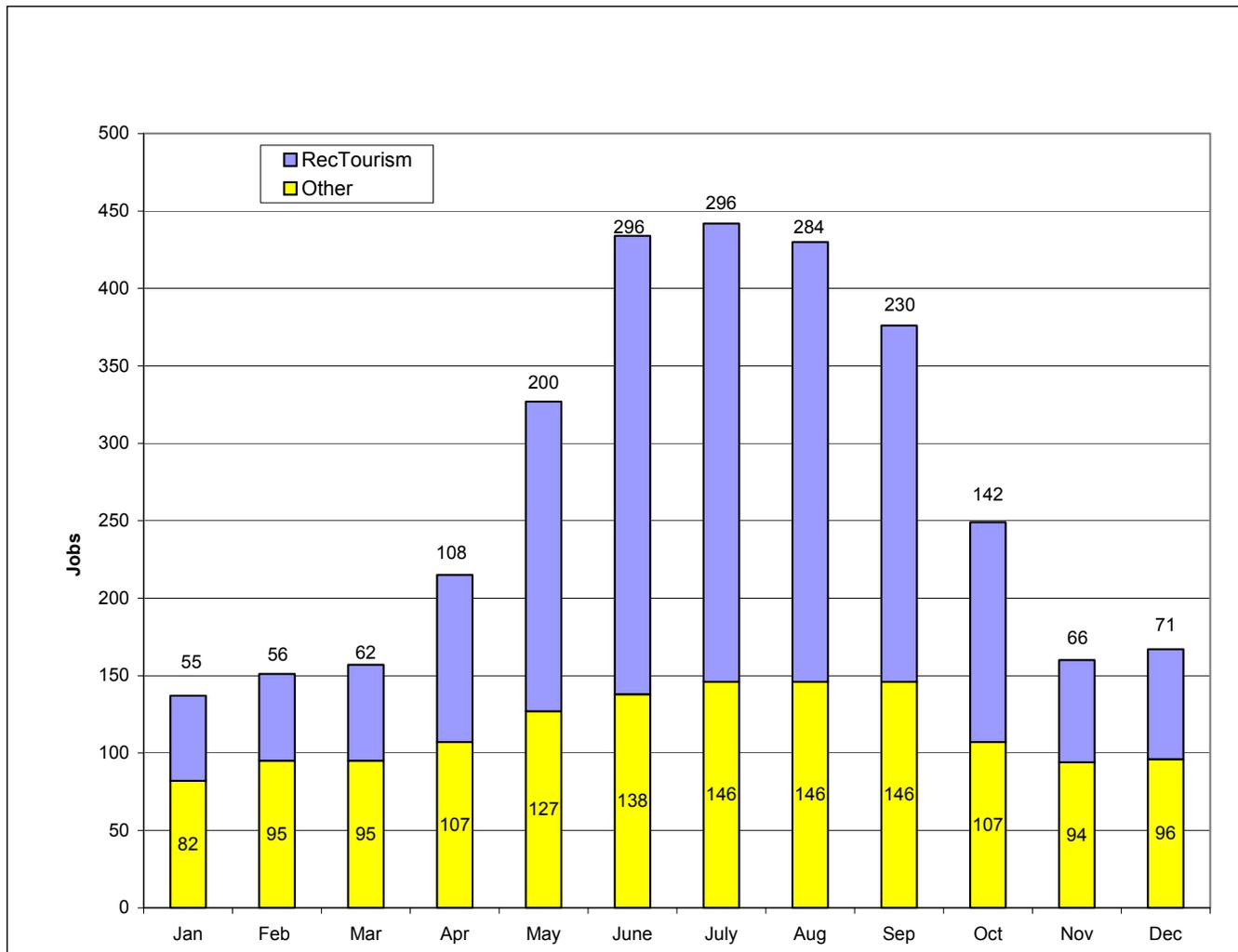
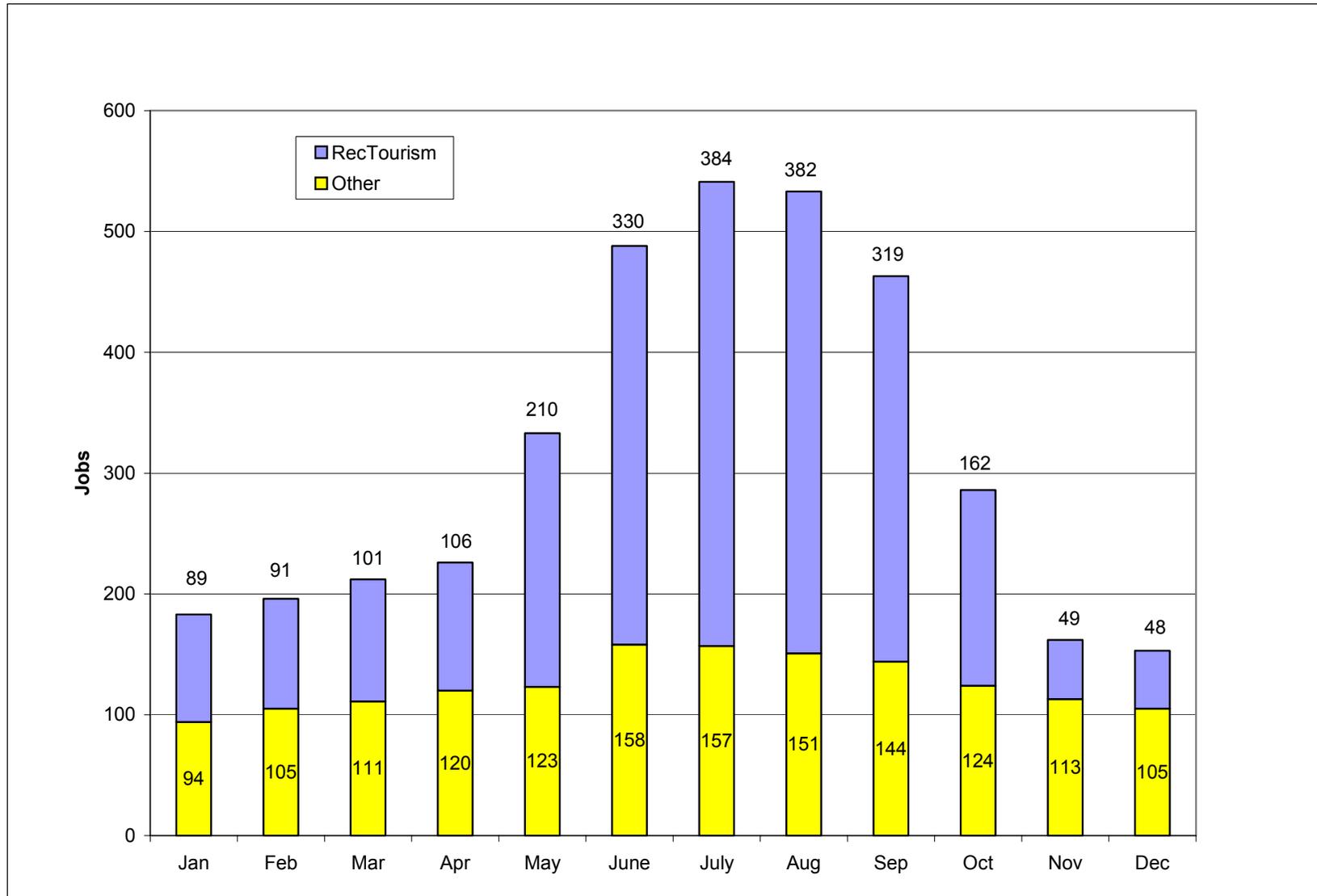
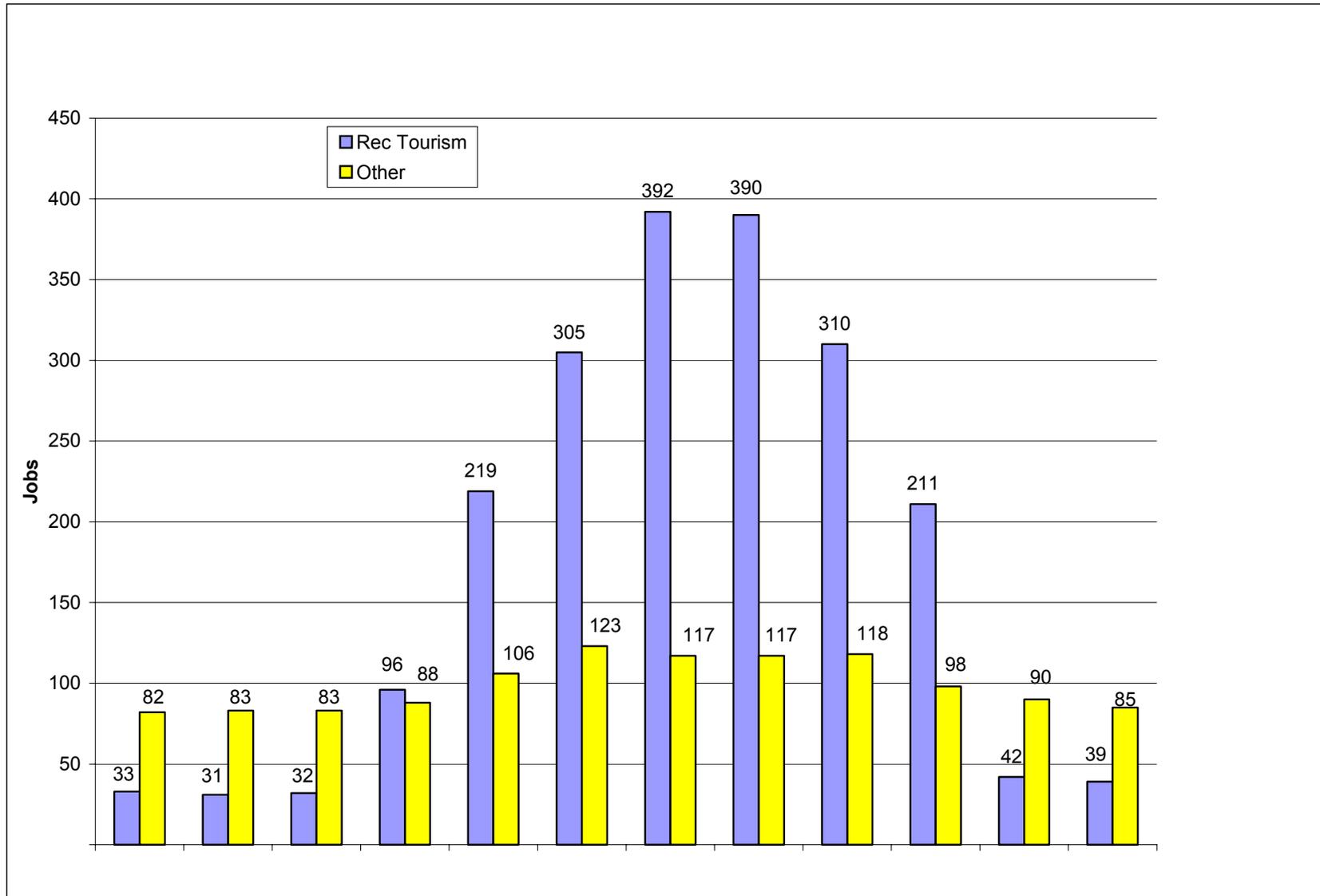
**Chart 3-1 Economic Analysis Area 2002 Employment by Month**

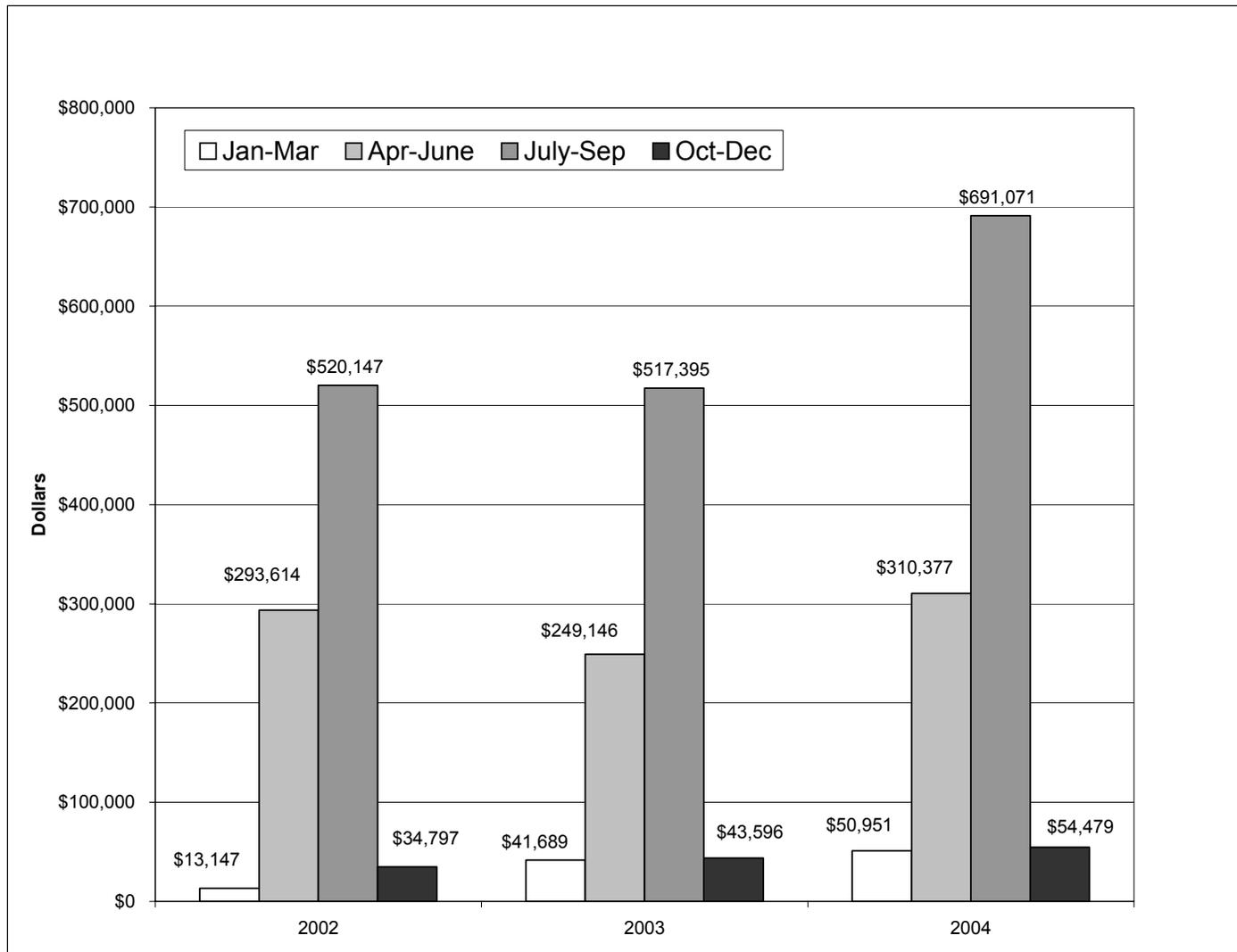
Chart 3-2 Economic Analysis Area 2003 Employment by Month



**Chart 3-3 Economic Analysis Area 2004 Employment by Month**



**Chart 3-4 Economic Analysis Area Bed and Breakfast Inn Gross Sales by Quarter**



### 3.3.3. Environmental Consequences

#### 3.3.3.1. Response to Issues

The economics effects analysis responds to the issue of potential effects of changes in winter motorized areas on local economic activity.

Because we do not know how many snowmachiners are currently visiting the Project Area and because changes in the amount of snowmachiner visits to the area by alternative have not been estimated, a proxy measurement is developed here. Many of the public comments received during scoping suggested that the total amount of acreage open to snowmachine use was not a good indication of the terrain available, because much of the acreage is not useable for various reasons (steepness, avalanche danger, forest cover, etc.). Thus, changes in total acres available may be a poor indicator of potential changes in use. Instead, the amount of acres currently used by snowmachiners is used as a baseline for acreage associated with snowmachine activity under the No Action Alternative. Because the Resurrection unit is currently subject to the February 15 motorized use closure, there are two total acreage figures for the No Action Alternative—the acreage total before February 15 and the acreage total after February 15. These totals were derived by querying the Winter Use database for acreage that showed snowmachine use alone or in combination with any other winter recreation use.

#### 3.3.3.2. Direct and Indirect Effects – All Alternatives

Since each action alternative involves Season A/Season B scenarios for motorized and non-motorized uses, in order to compare them to the No Action Alternative, two different acreage totals were calculated for currently used snowmachine acres available under each action alternative. For each action alternative, year 1 is the year motorized use is allowed in Resurrection unit and year 2 is the year motorized use is not allowed in Resurrection unit. The two currently used snowmachine acreage totals available under each alternative are:

1. Total in year 1
2. Total in year 2

Chart 3-5 displays the currently-used snowmachine acreage totals for all alternatives, including the No Action Alternative. The No Action totals do not vary from year to year, but they do vary before February 15 and after February 15. Because there is no way of knowing how much each acre is being used by snowmachiners, total currently-used acreage figures are certainly not an exact measure of total snowmachine use. However, the No Action Alternative totals do represent the currently-used snowmachine acreage associated with current snowmachiner expenditures in the economic analysis area.

Chart 3-6 compares each action alternative currently-used snowmachine acreage total with the No Action totals for each year, before and after February 15. In year 1, Alternative 2 would have the largest percentage decreases in currently-used snowmachine acres both before and after February 15 (-21% and -13%, respectively). In year 2, Alternative 1 would have the largest percentage decreases in currently-used snowmachine acres both before and after February 15 (-20% and -12%, respectively).

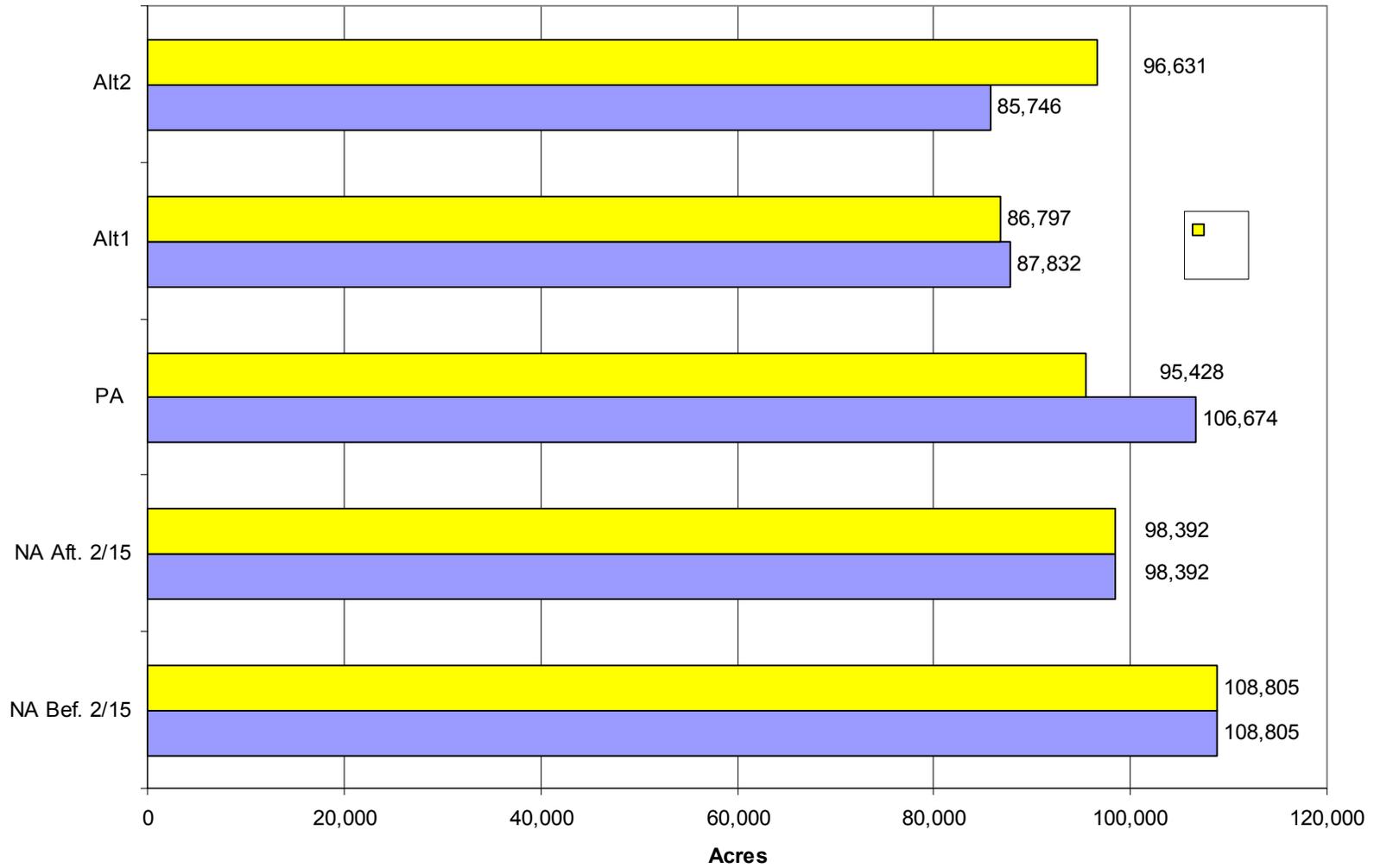
Averaging across the two year period, Alternative 1 would have the largest average decrease both before and after February 15 (-20% and -11%, respectively), followed by Alternative 2 (-16% and -7%, respectively). The Proposed Action would have the smallest average decrease before February 15 (-7%), and would actually have an average increase in the percentage of currently used snowmachine acres after February 15 (+3%).

Assuming that changes in the amount of currently-used snowmachine acreage are a good indicator for changes in the local economic activity generated from trip related expenditures by non-local snowmachiners; Alternative 1 could have the largest negative impacts on local economic activity in comparison to the No Action alternative. Alternative 2 could also lead to negative local economic impacts, especially in year 1. The Proposed Action Alternative could lead to a decrease in local economic activity before February 15, but an increase in local economic activity after February 15 across any two-year period (in comparison to the No Action Alternative). This comparison is the best that can be done given the currently available information (poor use data and no snowmachiner expenditure studies for the economic analysis area). As for overall economic activity in the economic analysis area, since the overwhelming majority of this activity occurs in the spring and summer months, the impact of the proposed winter motorized closures in any of the action activities would likely be relatively small. However, the impacts to specific businesses in particular communities would vary by alternative and by year.

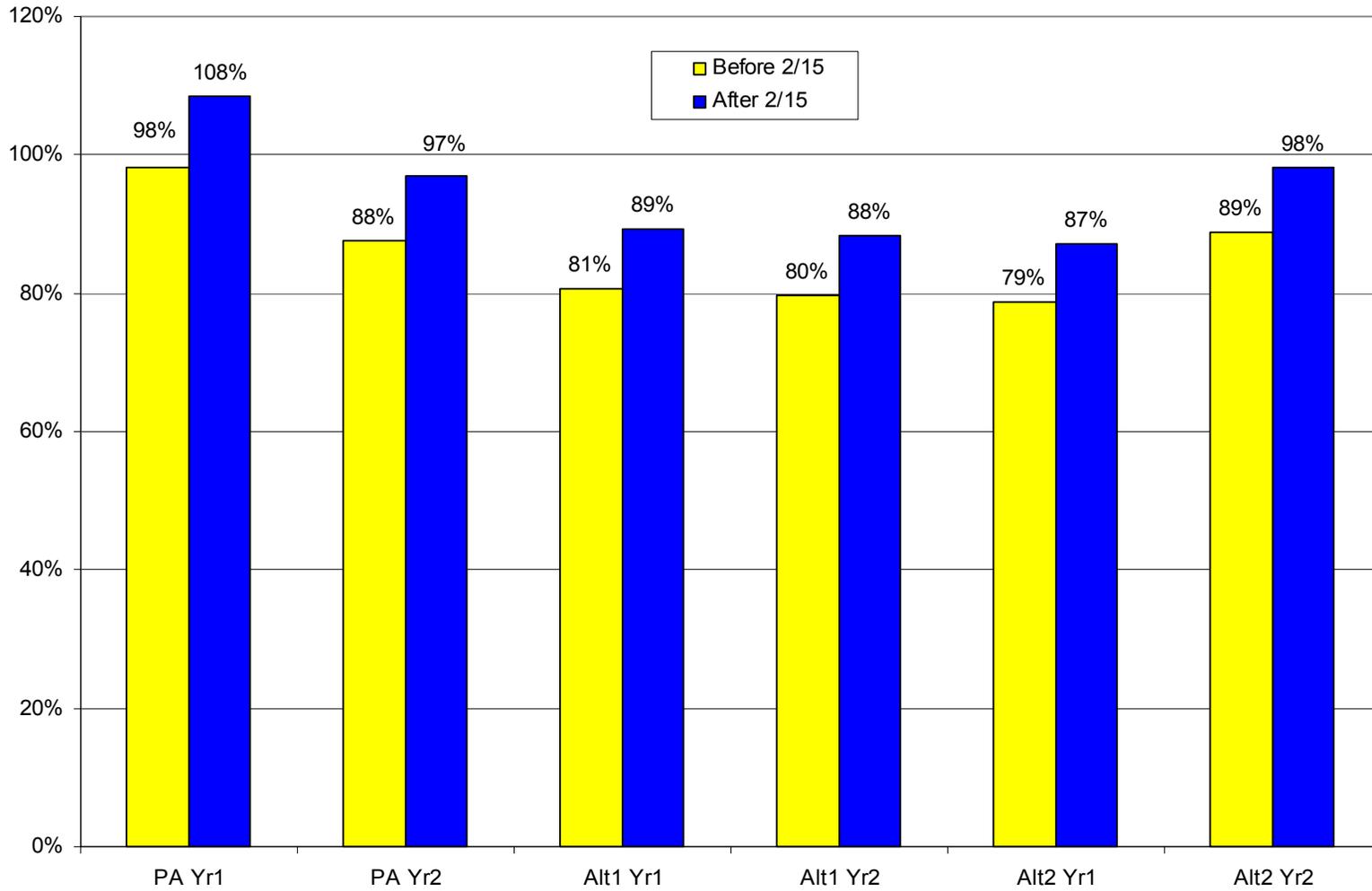
### 3.3.3.3. Cumulative Effects – All Alternatives

The majority of economic activity in the economic analysis area, as measured by employment takes place from May to October (Charts 3-1 through 3-3). The majority of gross sales at Bed and Breakfast establishments occur from April through October. Snowmachiners are only a portion of the customers that frequent RecTourism businesses in the winter, and only non-local snowmachiner expenditures add “new dollars” to the economic analysis area. The relatively small potential impacts to local economic activity from the proposed winter motorized closures in conjunction with past actions and reasonably foreseeable future actions would not cause any cumulative impacts.

**Chart 3-5 Total Currently-Used Snowmachine Acres by Alternative**



**Chart 3-6 Percent of the NA Currently-Used Snowmachine Acres by Alternative and Year**



## 3.4. CULTURAL RESOURCES

### 3.4.1. Summary

The Kenai Winter Access EIS proposes to develop a winter access management plan for the entire Seward Ranger District of the Chugach National Forest (835,370 acres in size). Implementation would occur for the 2006/2007 winter season. Field surveys and literature reviews have located 388 sites on the Seward Ranger District, 74 of these sites are either above ground and visible in winter or located near trailheads and parking areas with the potential for winter use. For all alternatives, the effects to sites that are buried and not visible under snow pack during the winter season would be considered negligible. The exception to the negligible effects would include buildings and other sites visible in the winter or sites near trailheads and parking areas that have the potential to be affected by concentrated use. Under the No Action Alternative, sites would continue to be vandalized and historic trails with documented erosion from spring motorized use would continue to need trail maintenance. For the Proposed Action, Alternative 1, and Alternative 2, there is the potential for effects from Season A/Season B scenarios along the Resurrection Trail. In the Summit unit, one historic site is adjacent to a winter pullout and increased use could cause resource concerns at this location. The Proposed Action and Alternative 2 propose four access corridors and two motorized corridors. All four access corridors are in an area of high potential for cultural resources and have not been completely surveyed for cultural resources. If corridors were constructed, additional Section 106 review and archeological survey would be necessary. If it were determined that adverse effects are unavoidable, mitigation measures would be required.

### Methods

#### ANALYSIS ISSUE - DISTURBANCE TO HERITAGE RESOURCES

Cultural resources are non-renewable and disturbances can be irreparable, affecting the eligibility status for inclusion to the National Register of Historic Places (NRHP). Disturbance includes vandalism, theft, and unintentional disturbances caused by an increase in access and concentrated use.

#### Indicators

- Number of historic properties documented
- Historic properties monitored during winter
- Number of acres inventoried

The Heritage staff completed a literature review of past surveys, the Alaska Heritage Resource Survey database, historic documents and the Forest Service site indexes and descriptions.

To date, no predictive model for cultural resources on the Kenai Peninsula has been completed and finalized with the State Historic Preservation Officer. Due to this sparse archeological survey coverage of the Kenai Peninsula, the entire Seward Ranger District

is located within an area of high potential for the presence of cultural resources, as defined in the Region 10 Programmatic Agreement (02MU-111001-076).

The National Historic Preservation Act (NHPA) protects historic properties. When an undertaking is begun, as defined in 36 CFR 800, all historic properties are to be located and evaluated for their potential to be placed on the National Register of Historic Places. Those sites determined to be eligible for the Register are identified, whether pre- or post-European contact in age, as “historic properties.” The State Historic Preservation Office (SHPO), Advisory Council on Historic Preservation (ACHP), Native Alaskan organizations and interested public must be informed of potential effects to any historic property. Agreement on mitigation of effects to all historic properties must be reached through consultation with SHPO and the ACHP before any project may take place (USDA-FS, 2002b, p. 3-275 – 3-276)

## **3.4.2. Archival Research**

### **3.4.2.1 Prehistoric Use**

Archeological and ethnographic data has documented prehistoric use on the Seward Ranger District in the Early to mid-Holocene (10,000 to 3,000 before present [BP]), the Riverine Kachemak (3,000 to 1,000BP) and the Late Prehistoric (1,000 to 225BP) periods. The Late Prehistoric is associated with the Dena’ina culture, who constructed villages containing large multi-family houses and underground cache pits for cold storage (Boraas 2002). The Dena’ina (Kenaitze Indian Tribe) still reside and are active on the Kenai Peninsula today.

### **3.4.2.2 Historic Use**

Historic Russian activities in the region include the 1792 construction of a shipyard at the modern town of Seward in Resurrection Bay. Russian expeditions on the Seward Ranger District include that of mining engineer Lt Doroshin in 1849. Doroshin tested and explored possible mineral deposits on the Russian River, Kenai River, Cooper Creek and Kenai Lake (Manuscript n.d.). The expedition did not lead to further mining activities in the area.

Gold claims were first staked on the Kenai Peninsula in the 1880s, but it was not until 1896 that the Turnagain Arm Gold Rush began in earnest. The rapid influx of non-Native people first led to the formation of the towns of Hope and Sunrise, followed by Moose Pass and Cooper Landing. At the start of the gold rush, a native village was located in Hope and Chief Affannassia and other native labor were employed as guides, tradesmen, porters and workers for the miners in the Hope and Summit units.

The increased population and the need for goods and services led to the development of new transportation routes, the use of older prehistoric routes and the completion of the Alaska Railroad. The formation of these routes assisted in expanding human activities. These activities included road houses, homesteads, fox farms, tie hacking activities, trapping, and the establishment of recreation based activities (lodges, big game and fishing services and smaller recreation cabins).

### 3.4.2.3. Cultural Resources

Field surveys and literature reviews have located 388 sites on the Seward Ranger District (Table 3-6). Of the 388 sites, 74 are either above ground and visible in winter or located near trailheads and parking areas with the potential for winter use.

**Table 3-6. Heritage Sites, acres surveyed and number of sites previously monitored in the winter<sup>1</sup>**

Analy	Sites Total	Prehistoric Sites and Districts	Historic Sites and Districts	Historic Buildings	Historic Trails	Acres Surveyed	Sites onitored in Winter
Hope	77	1	68	3	5	2020	1
Resurrection	58	12	33	5	8	2136	1
West Resurrection	6	5	1	0	0	500	0
Summit	48	0	38	3	7	900	1
Johnson Pass	23	0	17	3	3	325	1
Tern Lake	21	1	14	1	5	212	0
Russian	66	52	9	2	2	1352	0
Carter/Crescent	12	2	8	0	2	655	0
Ptarmigan/Grant	36	0	27	3	6	1570	1
Lost Lake	27	2	19	1	6	3650	0
Snow River	14	1	8	1	4	728	0
Tiehack/Mt Alice	0	0	0	0	0	0	n/a

Prehistoric sites are villages, house pits, cache pits and cemeteries. Historic sites are trails, roads, lode and placer mines, homesteads, roadhouses, fox farms, cabins and cemeteries.

### 3.4.2.4. Historic Properties

Of the 388 cultural sites on the Seward Ranger District, two are on the National Register of Historic Places (NRHP) and one has been designated a National Historic Trail. The Hirshey Mine and Lauritsen Cabin are listed on the NRHP. The Hirshey Mine was placed on the NRHP in 1978 for its association with John Hirshey, mining in the Hope-Moose Pass Mining District, the Iditarod National Historic Trail, and the ability of the site to provide interpretive opportunities for the public on lode mining technologies from 1911 to 1942. The Lauritsen Cabin is a hand hewn dovetail notched cabin constructed in 1898 by Danish immigrant Lauritz Lauritsen on the original Polly Claim (one of the claims that helped start the Turnagain Arm Gold Rush). The cabin was placed on the NRHP in 1979 based on the architecture and association with an individual significant to the history of mining in the state of Alaska. The Iditarod National Historic Trail runs the entire length of the Seward Ranger District. The trail is a historic route that was used to transport mail and supplies to communities from Seward to Nome during the early mining period and was the first trail in the nation to be congressionally designated a National Historic Trail in 1978.

<sup>1</sup> AHRS, 2005; Matzen et al, 2007; USDA-FS, 1983; USDA-FS, 1999.

Of the remaining sites, 62 have been determined eligible for the NRHP, 14 are ineligible, and the remaining 309 sites remain unevaluated.

### **3.4.3. Environmental Consequences**

#### **3.4.3.1. General Effects**

For all alternatives, the effects to sites that are buried and not visible under snow pack during the winter season are considered negligible. This would include most historic and prehistoric sites. However, the exception to the negligible effects would include buildings and other sites visible in the winter or sites near trailheads and parking areas that have the potential to be affected by concentrated use. Of the buildings, only five have been monitored for winter use, and all show evidence of intentional and unintentional impacts (Gilliam, 2001; Schick 2004; and Yarborough, 2004).

There is a general lack of cultural resource survey coverage in the affected areas, and little to no winter monitoring has occurred. Only 2% of the Seward Ranger District has been intensively surveyed for cultural resources, and no survey has occurred in the Tiehack/Mt Alice unit.

#### **3.4.3.2. Effects of the No Action Alternative**

Currently, there are trespass and vandalism impacts from winter use to historic structures on the Seward Ranger District. Under the No Action Alternative, historic buildings would continue to be damaged by winter activities.

Currently there are trail maintenance needs on specific motorized historic trails caused by erosion during low snow conditions in the late spring. Under the No Action Alternative, additional erosion requiring trail maintenance would continue to occur. This has the potential to alter the historic feeling and trail alignment that contributes to the eligibility of a historic trail for the National Register of Historic Places.

#### **3.4.3.3. Effects of the Proposed Action, Alternative 1, Alternative 2**

The Season A/Season B scenario alternative for the Resurrection unit has the potential to alleviate known vandalism and looting to two of the historic buildings during the season off from motorized use, but impacts could potentially increase during the longer motorized season in the year use would be allowed. Currently, spring motorized use of the historic Resurrection Trail is not permitted. There could be unintentional damage to this historic trail from spring motorized use from concentrated use at trail heads. Monitoring would need to occur to document the longer season increase of impacts to cultural resources and to determine if the Season A/Season B alternative would alleviate the need for additional trail maintenance and building vandalism.

The SEW-00035, SEW-00152 and SEW-01031 sites are within the area of potential effect for the designated corridor near Summit Lake. One site is adjacent to a winter pullout, and increased use could cause resource concerns at this location. If a corridor were constructed, it would require additional Section 106 review. If adverse effects were unavoidable, potentially intense mitigation measures would be required.

The Proposed Action and Alternative 2 propose four access corridors: Lost Creek, Meridian/Grayling, Mt. Adair and North Shore of Kenai Lake Trails. All four access corridors are in an area of high potential for cultural resources and have not been completely surveyed for cultural resources. If the corridors were constructed, additional Section 106 review and archeological survey would be necessary. If it were determined that adverse effects are unavoidable, mitigation measures would be required. Additionally, the access corridors will establish cleared areas through previously dense vegetation. This could lead to use in multiple seasons by the recreating public.

#### 3.4.3.4. Cumulative Effects for All Alternatives

The Mills Creek-Iditarod Trail Hut-to-Hut System trailhead, which would connect to the Iditarod Trail, Johnson Pass Trail, and the Whistle Stop trail system, would be adjacent to SEW-00035, SEW-00152 and SEW-01031. Combined with the designated motorized corridor near Summit Lake, the increase in public access and users would raise the potential for adverse effects to these three sites and possibly lead to additional trail maintenance if the proposed corridor crosses or connects to the historic Mills Creek Trail. If the proposed motorized corridor were constructed, it would require additional Section 106 review. If adverse effects were unavoidable, potentially intense mitigation measures would be required.

### 3.5. SOIL

#### 3.5.1. Affected Environment

Soil is the basic component of the environment. Most living things as we know it today depend on the soil for the initial source of nutrients from which most other living things evolve. All renewable resources on the Chugach National Forest depend on the soil, which is considered a nonrenewable resource because of the time it takes for its formation.

The Chugach National Forest used the National Hierarchical Framework of Ecological Units (ECOMAP) as the basis for mapping landscapes, soils, and vegetation. The Subsection Level is the most appropriate level of delineation for this project and winter recreation use. This level uses climate and its influence to shape the landscape as the major criteria for delineation.

The Kenai Peninsula is located in four subsections; the Chugach Icefields, the Kenai Fjordlands, the Eastern Kenai Mountains, and the Western Kenai Mountains. For the most part, the soil of the Chugach Icefields is covered with ice and snow for the entire year. The Kenai Fjordlands cover the area from Snow River down through Seward and typically has considerable amounts of snow in the high elevations, but undependable snow cover at low elevations. The Eastern Kenai Mountains are quite rugged from past alpine glaciation and still receive a considerable amount of snow at most elevations. The Western Kenai Mountains Subsection consists of mountains that are less rugged and they receive less snow, especially at the lower elevations.

There is typically minimal or no affect by winter recreation vehicles on the soil as long as there is adequate snow cover. Problems commonly occur when trails located at lower

elevations are not covered with adequate snow are used to access areas of higher elevations which do have adequate snow. These trails are most problematic in the Kenai Fjordlands and the Western Kenai Mountains subsections.

All soils found on the Kenai Peninsula can be disturbed when ATVs or snowmachines are used on them, especially when they are wet. This use is restricted to designated trails where the soil productivity has been eliminated. The greatest concern is accelerated erosion, which will have minimal affect on stream water, but will result in the removal of surface soil and gravel from the trail. Presently, the only trail where this has been a problem is the lower section of Lost Lake Trail 4 miles north of Seward.

Accelerated erosion rates can be expected where established snowmachine trails start at low elevations where an adequate depth of snow is rarely obtained until well after there is adequate depths at higher elevations, and in the spring when the snow melts first at the lower elevations. Snowmachines often use bare trails to access the snow-covered highlands. The new paddletrack machines are particularly destructive because they dig and spit soil and gravel as they propel the snowmachine forward.

There is guidance in the Forest Plan, Standards and Guidelines for minimizing disturbance and lost in soil productivity described on page 3-22 (USDA-FS, 2002a, p.3-22). One can also refer to the Best management Practices in the Soil and Water Conservation Handbook, FSH 2509.22; BMP Numbers: 16.5; Management of Off-Road Vehicle Use, 14.5; Road and Trail Erosion Control Plan, and 14.8; Measures to Minimize Surface Erosion (USDA-FS, 1996). There are also numerous standard open and closure dates for different locations that are identified in the Forest Plan when there is sufficient snow cover to protect the vegetation as determined by Forest Service personnel (USDA-FS, 2002a, p.4-91 – 4-94).

### **3.5.2. Environmental Consequences**

Changes in the motorized and non-motorized acreage for each alternative, when considered in relation to the soils resources across the Kenai Peninsula as a whole, are irrelevant given the nature of this resource and the scale of the project. For this reason, the effect to the soils resource does not change substantially across the alternatives. These effects are displayed below for all alternatives.

#### **3.5.2.1. Direct and Indirect Effects – All Alternatives**

Winter recreation (motorize and non-motorized) has little effect on soil, primarily because these activities are taking place on snow. With the application of the Forest Plan Standards and Guidelines, designed to provide protection to vegetation and, in turn, soils, any impact from the ripping and tearing of snowmachines would be negligible. Therefore, there would be minimal, if any, direct or indirect effects to the soils resource.

#### **3.5.2.2. Cumulative Effects – All Alternatives**

The negligible impacts to soils from winter recreation activities in conjunction with past actions and reasonably foreseeable future actions would not cause any cumulative impacts.

## 3.6. WATER, RIPARIAN, AND WETLANDS

The Kenai Winter Access EIS evaluates just over 835,000 acres of National Forest lands all of which are located on the Kenai Peninsula and within the boundaries of the Seward Ranger District of the Chugach National Forest. Surface water, groundwater, riparian area, and wetland resources for the project area are broadly described in Chapter 3 of the FEIS for the Revised Forest Plan (USDA-FS, 2002b, p 3-22 to 3-25). Pages 3-23 to 3-25 of the Forest Plan provides additional information on the Legal and Administrative Framework, and protection measures for these water-related resources on the Chugach National Forest.

Detailed hydrologic and climatic data records have been compiled and summarized for portions of the project area in a series of Forest Service produced Landscape Assessments completed or in process on the Seward Ranger District. These include:

- **Resurrection Creek Landscape Assessment** (USDA-FS, 2002e) – This document addresses the northern portion of the Resurrection unit as mapped in the project area, and the western portion of the Hope unit.
- **Cooper Creek Watershed Analysis** (USDA-FS, 2002f) – This document addresses the eastern portion of the Russian unit as mapped in the project area.
- **Sixmile Creek Landscape Assessment** (USDA-FS, 2002g) – This document addresses the eastern portion of the Hope unit as mapped in the project area, and the northern portions of both the Summit and Johnson Pass units.
- **Russian River Landscape Assessment** (USDA-FS, 2004a) – This document addresses the western portion of the Russian unit as mapped in the project area.
- **Snow River Landscape Assessment** (USDA-FS, 2006) – This document addresses the Snow River unit as mapped in the project area.

Resurrection Creek, Copper Creek, and Russian River Assessments are internet available at: [http://fsweb.r10.fs.fed.us/staffs/ep/inventory\\_monitoring/assessment/index.shtml](http://fsweb.r10.fs.fed.us/staffs/ep/inventory_monitoring/assessment/index.shtml)

Hydrologic and climatic data for the landscape assessments are further detailed in three USDA-FS Hydrologic Conditions Assessments (HCAs) that were produced in association with the Resurrection Creek, Sixmile Creek, and Russian River Landscape Assessments. These HCAs are listed in the Literature Cited section.

### 3.6.1. Affected Environment

#### Snow

The Kenai Winter Access EIS addresses access issues for snow sports and accordingly, snowpack is an important component for the project. Within the project area, winter snowpack depths generally increase to the east and to the south. This is a result of winter storms often coming out of the Gulf of Alaska from the south and/or east, with areas to the west and north often being “shadowed” from these storms by the mountains of the Kenai/Chugach Range. Within individual locales in the project area, the amount of

annual precipitation generally increases with elevation, as well as the percent of precipitation that comes as snow. Wind, particularly above timberline, can redistribute winter snowpacks significantly in some locations, leaving barren ridges and deeply deposited lee areas.

Winter snow sports within the project area occur most prominently in the period from November through early April. Snow availability can vary greatly from site to site and year to year within the project area. A prominent pattern of increasing winter air temperatures has occurred over the project area in the last 20 years. Warmer winter air temperatures within the project area result in a larger percentage of the winter precipitation coming as rain instead of snow (particularly at lower elevations.) This increase in rain often means shallower snowpacks and shorter snow access seasons, both of which are generally seen as a detriment to winter snow sports.

## Water Quality

Watersheds within the project area are mostly pristine, particularly in their upper reaches that often are popular for winter sports use. Due to the lack of development within these drainages, water quality is generally very good as indicated in the FEIS for the Revised Forest Plan (USDA-FS, 2002b, p 3-27).

## Wetlands and Riparian Areas

Wetlands and riparian areas are frequently recognized on National Forest system lands as being areas particularly sensitive to development due to both their high fish and wildlife habitat values, and their susceptibility to damage from human disturbances. In relation to winter sports activities, adverse impacts to wetlands and riparian areas are greatly reduced by both the “cushioning” of the winter snowpack and impenetrability of the underlying frozen ground. Wetlands and riparian areas can be subject to high disturbance from winter sports activities, particularly motorized activities, when snowpacks are very low and/or the ground is unfrozen.

### **3.6.2. Environmental Consequences**

Changes in the motorized and non-motorized acreage for each alternative, when considered in relation to the water, riparian, and wetlands resources across the Kenai Peninsula as a whole, are irrelevant given the nature of this resource and the scale of the project. For this reason, the effect to these resources does not change substantially across the alternatives. These effects are displayed below for all alternatives.

#### **3.6.2.1. Direct and Indirect Effects – Snow**

Adverse impacts of winter sports activities, both motorized and non-motorized, to the physical environment are greatly limited by the “cushioning” provided by the winter snowpack (the deeper the snow, generally the less the impact), and because the ground underneath is generally frozen in the winter. Motorized winter use in low snow conditions on unfrozen ground can cause considerable vegetation damage, soil erosion, and stream channel and bank disturbance in certain instances, although the Forest Plan standards and guidelines provide protection (USDA-FS, 2002a, p. 3-22 and 3-35).

Though not intended for this use, narrow track, high-horsepower snowmobiles with long paddles can be very effective in ground excavation/disturbance. Avoiding thin snow/unfrozen ground conditions and placing closures to motorized access when these conditions exist can go a long way in protecting water, soil, and vegetation from adverse physical impacts from motorized use.

### 3.6.2.2. Direct and Indirect Effects – Water Quality

The FEIS for the Revised Forest Plan (USDA-FS, 2002b, p 3-8) indicates that 2-cycle snowmobile engines generally bypass 20 to 33 percent of their gasoline/oil mixture unburned out the exhaust. Some of this unburned fuel is directly vaporized and escapes into the atmosphere, while the remainder is deposited as liquid droplets on the snowpack.

The FEIS for the Revised Forest Plan (USDA-FS, 2002b, p. 3-37 - 3-38) indicates that fuel deposition on the snowpack has the potential to concentrate in the snowpack and runoff into surface and ground water supplies during the spring snowmelt. Such runoff has been displayed in certain instances to have adverse effects on aquatic organisms if concentrations of petroleum-related toxics reach high enough levels.

We are not aware of any water quality data collected on project area streams during spring runoff to test for the presence of dissolved, petroleum-related products in the water. The wide areas open to motorized use combined with the relatively low winter motorized use levels tend to argue for a wide dispersal of relatively limited pollutants. Highly concentrated winter motorized use adjacent to water sources can likely be a detriment to water quality.

Starting in 2006 and continuing through 2012, the U.S. Environmental Protection Agency (EPA) will be phasing in a new set of exhaust emission standards for new recreational vehicles, including snowmobiles sold in the United States (US-EPA, 2002). The new emission standards for snowmobiles will set maximum levels for emissions of hydrocarbon and carbon monoxide levels. The hydrocarbon standards greatly limit the amount of unburned fuel that can be emitted in the exhaust of new machines.

Although the EPA emissions regulations apply to only new snowmobiles, over time these regulations should greatly reduce the average amount of fuel lost through exhaust by individual machines, and hence the amount of petroleum deposited on the snowpack. Potential increases in winter motorized use within the project area; however, would mean more individual sources of petroleum deposition.

Changes in the overall project area open to motorized use are relatively slight, and differences in overall area water quality between the alternatives would likely be minimal. Places in all alternatives most susceptible to petroleum related water pollution would be centralized parking area/trailheads, and concentrated, narrow, use corridors, particularly when such places are in immediate proximity to water sources.

The Proposed Action and Alternative 2 propose construction of access corridors to provide more access routes for winter recreationists. The design and location of these corridors has not been specified beyond the general areas in which they would occur; therefore, new trail impacts to water resources can only be discussed in a general

manner. No new access corridors are proposed in either the No Action Alternative or Alternative 1.

The new proposed access corridors could be winter only (involving only vegetation clearing) or all-season trails. From past experiences on the Forest, when winter-only corridors follow a logical access corridor, they often evolve into an all-season trail over time, created by summer users. If the winter-only corridor crosses riparian areas, floodplains, and/or wetlands, this can, in some cases, result in vegetation damage, soil erosion, and stream sedimentation. Such damage can occur if the access corridor gets used in low snow/unfrozen ground conditions, or if it converts to an all-season trail.

Adverse impacts to streams, wetlands, and water quality from access corridor development can be mitigated through the use of Forest Service best management practices (USDA-FS, 1996). Development and location of winter-only access corridors should be undertaken with the understanding of its potential to evolve to an all-season trail over time.

### 3.6.2.3. Direct and Indirect Effects – Wetlands and Riparian Areas

In the four alternatives considered for the Kenai Winter Access EIS, the total percent of the project area open to motorized use and non-motorized only use does not change substantially between the four alternatives. Over the project area, impacts to water resources, including wetlands and riparian areas, would show little variation between the four alternatives. However, between alternatives, some localized increases and decreases in such impacts are probable. Places particularly susceptible to new water resource impacts would be new trailheads and narrow travel corridors. Proposed Season A/Season B schedules for motorized use could have a beneficial effect of giving wetlands and riparian areas that might have physical or water quality impacts a “rest-rotation” that would reduce the intensity of the impact and limit long-term, impacts.

### 3.6.2.4. Cumulative Effects – Water, Riparian, Wetlands

The negligible impacts to water, riparian, and wetlands from winter recreation activities in conjunction with past actions and reasonably foreseeable future actions would not cause any cumulative impacts.

## **3.7. AIR QUALITY**

### **3.7.1. Affected Environment**

The Kenai Winter Access EIS evaluates over 835,000 acres of Chugach National Forest Lands located on the Kenai Peninsula and within the boundaries of the Seward Ranger District. Air and air quality for the project area are broadly described in Chapter 3 of the FEIS for the Revised Forest Plan (USDA-FS, 2002b, p.3-3 – 3-5). This section of the FEIS for the Revised Forest Plan also provides additional information on the Legal and Administrative Framework, and protection measures for air quality on the Chugach National Forest.

As conveyed in the FEIS for the Revised Forest Plan, the project area generally has “remarkably pristine” air quality (USDA-FS, 2002b, p.3-4). This is particularly true in the upper reaches of the project area watersheds, popular areas for winter sports access and often located away from highways and/or communities that might have some impacts on ambient air quality.

### **3.7.2. Environmental Consequences**

Changes in the motorized and non-motorized acreage for each alternative, when considered in relation to the air and air quality resources across the Kenai Peninsula as a whole, are irrelevant given the nature of this resource and the scale of the project. For this reason, the effect to air quality does not change substantially across the alternatives. These effects are displayed below for all alternatives.

#### **3.7.2.1. Direct and Indirect Effects – Air Quality**

The Revised Forest Plan FEIS indicates that 2-cycle snowmobile engines generally bypass 20 to 33 percent of their gasoline/oil mixture unburned out the exhaust. Some of this unburned fuel is directly vaporized and escapes into the atmosphere, while the remainder is deposited as liquid droplets on the snowpack (USDA-FS, 2002b, p.3-8). The Revised Forest Plan FEIS notes that snowmobile emissions have a negative effect on air quality by emitting toxic air pollutants (including benzene and toluene) and volatile organic compounds. The FEIS states, “Snowmobile hydrocarbon emissions exceed emissions from most other motor vehicles, with exhaust carbon dioxide levels around 1,000 times higher than an automobile operating at similar speeds (USDA-FS, 2002b, p. 3-8).” The FEIS points out that although snowmobiles can impact air quality in places of concentrated use, diminishment of local air quality below federal standards was unlikely due to the patterns of air movement on the Forest and relatively low concentrations of snowmobile users. No air quality data has been collected to date within the project area to evaluate the presence of petroleum-related pollutants in the air.

Starting in 2006 and continuing through 2012, EPA will be phasing in a new set of exhaust emission standards for new recreational vehicles, including snowmobiles sold in the United States (US-EPA, 2002). The new emission standards for snowmobiles will set maximum levels for emissions of hydrocarbon and carbon monoxide levels. The new standards also address the issue of fuel lost through the walls of plastic fuel tanks and rubber hoses (permeation). New standards starting in 2008 set a limit to the rate at which fuel can permeate through fuel tanks and fuel hoses.

Although the EPA emissions regulations apply to only new snowmobiles, over time these regulations should greatly reduce the average amount of hydrocarbons and carbon monoxide emitted in the exhaust of individual machines, and hence limit any existing impacts to air quality. Potential increases in winter motorized use within the project area; however, would mean more individual sources of exhaust emissions to the air.

#### **3.7.2.2. Cumulative Effects – Air Quality**

The negligible impacts to air quality from winter recreation activities in conjunction with past actions and reasonably foreseeable future actions would not cause any cumulative impacts.

## **3.8. ECOLOGY**

### **Effects Summary**

Current motorized and non-motorized use on the Kenai Peninsula has caused damage to vegetation communities including removal of tree bark and lower branches, and abrasion and scraping of roots. In places of concentrated use, such as cabin sites and parking areas, soil compaction from winter users can result in poor growth of annual forbs and slow regeneration of vegetation. Certain places such as riparian zones, lakeshores, and alpine/subalpine habitats are more susceptible to damage than other vegetation communities. Motorized and non-motorized users may also facilitate the establishment and spread of non-native plant species by carrying seeds on their clothing or machinery. The Kenai Winter Access proposal will not result in drastic increases in development or alterations of existing vegetation communities under any of the proposed alternatives because the scale and extent of new uses will remain small relative to existing use patterns.

### **3.8.1. Affected Environment**

This section describes the key components of vegetation that exist in the project area. Composition, structure, and function are used to describe the vegetated ecosystem. Composition describes the particular assemblage of species on the ground, at a stand level, or a larger level. Structure is the size and age classes of the existing vegetation while function describes the role of vegetation in the greater ecosystem in terms of being part of large-scale cycles, such as the hydrology cycle. Together, these terms can thoroughly describe an area when considering management decisions.

This section will also describe soil compaction, degradation to vegetation in fragile ecosystems, sensitive plant habitat, and non-native species introduction and spread. Soil compaction has direct effects on vegetation composition and function. Fragile ecosystems, such as alpine, subalpine, or riparian areas, include a more unique composition and structure than more resilient ecosystems. Sensitive plant habitat is any habitat suitable for listed sensitive plant species (USDA-FS. 2002a, p. 3-27). Non-native species introduction and spread is the establishment of any new population or the spread of existing population of a plant species not found naturally in Alaskan ecosystems.

#### **3.8.1.1. General Vegetation Composition, Structure, and Function**

The Kenai Peninsula includes developed, altered, and disturbed areas including trails, campgrounds, remote campsites, pullouts, interpretive sites, fishing access points, cabin sites, recreation sites, power line access areas, power lines, parking areas, administrative sites, private structures, and railroad and railroad access points. Other places include primary roads, secondary roads, communities, previously cut or managed areas, areas of previous fire, and areas of natural disturbance. These disturbance processes have caused changes in the vegetation composition, structure, and function across the landscape as a whole. Many of these developments, alterations, and disturbances are concentrated in places suitable to residency, access, and use. Current conditions across the Kenai Peninsula include a high number of acres in a relatively

pristine state when considering other public lands. Vegetation communities are discussed in detail in the Revised Forest Plan FEIS (USDA-FS, 2002c, p.3-150 - 3-153).

DeVelice et al (1999) describe in detail the vegetation of the Chugach National Forest in Plant Community Types of the Chugach National Forest. Plant communities across the Kenai Peninsula are varied as the terrain changes from sea level to alpine. The Kenai Peninsula encompasses a vast range of forested and non-forested cover types, geographical zones, and elevations. Vegetation composition in these types varies accordingly, including cottonwood forests in riparian zones, coastal spruce forests, mid-slope spruce-hemlock forests, upper elevation hemlock stands, mixed hardwood/softwood forests, mixed conifer forests, hardwood (birch and aspen) stands, black spruce bogs, upper slope wet meadows, alpine meadows, sedge meadows, and rock and ice areas. The composition of the project area also varies as the terrain varies. Many of the trails on the Kenai Peninsula are located within mixed conifer stands of spruce and hemlock, pure hemlock stands, or mixed hardwood and conifer stands, including quaking aspen with spruce or birch with spruce. Trails and cabins are also located in alpine areas, such as Devil's Pass Cabin and parts of Resurrection Pass Trail that are shrub types, grass types, or mixed forb types.

Vegetation structure is determined by natural and artificial disturbance events, past site history, soil site features, and climate. The structure of forested areas on the Kenai Peninsula has been altered by the spruce bark beetle infestation over the last fifteen years (Holsten et al., 1999, p.1540-1547). Areas that were once spruce-hemlock forests or pure spruce stands are now mainly hemlock forests or non-forested areas, as the bark beetle-killed spruce trees continue to die and fall over. Riparian areas are often dynamic with annual changes in river courses, ice, and hydrology. For example, within the project area around Sixmile Creek, stands of various ages of cottonwood are structured by past changes and disturbance events in the riparian corridor. Disturbance events, including avalanche and landslides, will alter the vegetation structure in the area of disturbance. Long term structural changes may be a result of changes in climate. Structure is often defined in terms of age class or size class of the dominant vegetation, with many systems to choose from.

A forested stand or an open meadow area has functions it performs in the greater ecosystem. An open area next to a forested area provides a set of wildlife values specific to the fauna of a region. An intact riparian forest filters atmospheric pollution at a higher rate than a previously managed stand in the same climate and location. Function is also affected by the spruce bark beetle infestation. Areas previously forested are no longer forested, which alters the hydrology of the stands, the understory vegetation in the stands, and the value to wildlife for forage and cover. Function is more determined by large scale changes, such as a spruce bark beetle outbreak or climate change, than vegetation structure.

Current motorized activities cause damage, at the small scale, to areas of use. For example, inadequate snow cover degrades vegetation and damages trees on and adjacent to trails. Damage includes the removal of tree bark and branches along the bole of the tree, cuts, abrasions and scrapes to roots, the removal of smaller shrubs and trees and the tops of small trees, as well as scraping ground cover (forbs or grasses) which exposes bare soil. In addition, off-trail motorized use can introduce damage to previously untrammelled areas if use is continuous or particularly heavy. The most severe trail damage usually occurs along the lower reaches of trails where snow cover

melts faster, or where snow becomes compacted to ice by continued use. Use is also often concentrated nearest parking areas and around cabin sites. Heavy motorized and non-motorized use causes degradation to all vegetation types, although high elevation vegetation types have a slower recovery potential. Sufficient snow cover can be defined as a foot or greater of complete coverage such that no part of a motorized vehicle touches the ground, trail, or vegetation underneath the trail footprint. Motorized use also compacts soil on the trails and in other areas, such as fields, meadows, and cabin sites. This compaction prevents future growth and reestablishment of plants.

### 3.8.1.2. Soil Compaction

Currently, concentrated use areas, including trails, cabins sites, favored camp sites, and other destinations and locations near parking areas have the greatest degree of soil compaction from motorized use. This soil compaction has affected vegetation growth by causing annual forbs to grow poorly and to slow revegetation of degraded areas. Recolonization by tree, shrub, and forb by seed has been slowed or prevented. Continued growth and health of existing vegetation is compromised due to changes in local hydrology, oxygenation, and mineral uptake associated with a change in the soil.

### 3.8.1.3. Fragile Environment Vegetation Degradation

Certain areas of use are more susceptible to degradation than others, including riparian zones, lakeshores, steep slopes, alpine areas, subalpine areas, and other areas of unique geographical features. Most areas of recreational use in the winter, both motorized and non-motorized, access different vegetation types. Favored areas, due to ease of passage from the lack of trees, often includes alpine and subalpine areas. Most of the major trails have at least part of the route in the alpine or subalpine zones. Winter weather conditions frequently include strong winds which often removes much or most of the snow in many of these areas, subjecting these fragile areas to greater resource damage due to insufficient snow cover. Non-motorized use, in the volume that the project area currently receives, is not sufficient to cause damage to these areas. Motorized use, in low to high volumes, has been shown to cause degradation of these alpine and subalpine areas from insufficient snow cover and in areas of concentrated use, regardless of snow cover, due to complete snow compaction. Vegetation, such as fragile lichens, Ericaceous shrubs, willows, alpine forbs, mosses, clubmosses, and heath, can die as a result of this use and subsequent compaction.

### 3.8.1.4. Sensitive Plant Habitat

Sensitive plant populations are measured by meander survey by presence or absence in a project area. Monitoring of sensitive plant habitats is addressed in Table 5-1, page 5-6, of the Forest Plan in the integrated effectiveness/validation monitoring section, and in Table 5-1, page 5-8, sensitive and exotic species (USDA-FS, 2002a). This table asks the question "What is the abundance and distribution of sensitive plants in areas affected by management activities?" There are several known populations of listed sensitive plants on the Forest Service Region 10 Regional Forester's Sensitive Species List (USDA-FS, 2002i) across the Seward Ranger District, as well as many known populations of rare plants listed on the Alaska Natural Heritage Program's rare vascular plant tracking list (Alaska Natural Heritage Program, 2005). Habitat for sensitive plants throughout the District has been or can be determined by a biogeographical prediction

model which takes known habitat requirements for each species of sensitive plant and determines suitable locations based on elevation, snow depth, rainfall, soil type, and other biogeographical conditions. Several sensitive plant species are found in alpine and subalpine habitats, one of the habitats most affected by motorized use either in low snow conditions or in heavy concentrated use areas. Other sensitive plant habitat includes riparian areas, sedge meadows, and forested cover. Rare plants are found in every vegetation type. A biological evaluation for plants has been completed and may be found the project record.

### 3.8.1.5. Non-Native and Invasive Species Introduction and Spread

The risk of introduction and spread of non-native or invasive plant species is much lower in the winter due to snow cover. The Forest Plan, Table 5-1, Page 5-8, addresses exotic species by asking the question “What is the abundance and distribution of sensitive plants in areas affected by management activities (USDA-FS, 2002a)?” Non-native species are any species that are introduced from another geographic area. Invasive species are a subset of non-native species that are capable of aggressive or rapid spread in their new location. Non-native or invasive species could be spread by hitchhiking on non-motorized or motorized users recreational equipment, camping gear, or mechanized vehicles of any size. Given correct environmental conditions, seeds or plant fragments could grow in the spring after transport. The Chugach National Forest has signed an Invasive Species Management Plan (USDA-FS, 2004c) which provides guidance in any project implementation in management of non-native or invasive species. Direction in this plan details how to prevent introduction and spread of invasive species into project areas during project activities. This plan ties in with the Forest Plan by addressing these research needs in the Forest Plan: 1. Identify infestations of exotic plant species and maintain infestation data in a standard database, and 2. Treat infestations with a high potential to spread (USDA-FS, 2002a, p.3-4).

## 3.8.2. Environmental Consequences

### 3.8.2.1. Direct and Indirect Effects - All Alternatives

The Kenai Winter Access EIS does not involve major changes in the amount of developments, alterations, or disturbances that would affect vegetation composition, structure, or function within the project area. Vegetation would generally be expected to remain the same over the Forest scale. Changes to the overall forested and non-forested vegetation structure, composition, and function, in any of the four alternatives, would not be measurably different within the scale of this project. With no change to the current patterns of winter non-motorized and motorized use on the Kenai Peninsula, there would be no change to the vegetation. Current levels of degradation by current use would remain steady.

Changes in the acreage in each of the alternatives, when related to vegetation composition, structure, and function across the Kenai Peninsula as a whole, are irrelevant given the nature of this resource area and the scale of the project. Acreage for motorized and non-motorized use and the number of cabins accessed in any of the alternatives by motorized or non-motorized users is also irrelevant to the scale of the project. In addition, as all of the recreational use analyzed in this project occurs in the winter, the effects to vegetation, in the scale of this project, are largely negligible. There

is already a certain volume of use occurring on the Chugach National Forest. The different alternatives would not change the amount of use as it affects vegetation to a measurable degree.

Construction and maintenance of access corridors under the proposed action and under Alternative 2 will not significantly alter the structure and function of vegetation communities on the district because of the small scale of the disturbance. Individual plant fitness may be compromised and local hydrological and soil characteristics will likely be affected, but these effects will be temporary.

As with any disturbance in areas of human use, trail construction and maintenance can lead to the establishment and spread of invasive plant species. This can be minimized by using a narrower tread while maintaining native grasses and forbs close to the trail edge, and using a light touch to maintain the root structure of native plants already present on the area.

### 3.8.2.2. Cumulative Effects – All Alternatives

The vegetation effects discussed in this project are similar with any change, disturbance, alteration, or use within the Chugach National Forest on projects that involve development or use. The negligible impacts to vegetation, regardless of which alternative is chosen, in conjunction with past actions and reasonably foreseeable future actions would not cause any cumulative impacts.

## 3.9. FISHERIES

### 3.9.1 Affected Environment

This section addresses the existing resource situation (affected environment) and the effects of the proposed alternatives (environmental consequences) on federally listed, Forest Service Region 10 Regional Forester's Sensitive Species, Management Indicator Species (MIS), and Species of Special Interest (SSI), as well as any other species identified by the Forest Service or the public as being of issue.

The project area (Seward Ranger District) contains approximately 930 miles of known fish bearing streams and over 26,500 acres of fish bearing lakes ranging from one to 14,000 acres (Kenai Lake). Both anadromous (fish that mature and spend much of their adult life in the ocean, returning to inland waters to spawn [e.g. salmon and steelhead]) and resident fish (fish that are not migratory and complete their entire life cycle in fresh water [e.g. trout]) utilize the Seward Ranger District. Anadromous fish habitat includes 390 miles of documented anadromous streams and 24,200 acres of anadromous fish lakes (Johnson et. al., 2004). There are almost 700 acres of resident fish lakes and an unknown number of resident fish streams (USDA-FS, unpublished data). The Seward Ranger District has 22 lakes used by recreational anglers. The Alaska Department of Fish and Game stock eight lakes with sterile rainbow trout (ADF&G, 2005b) and provides ice fishing opportunities.

There are no federally listed or Region 10 Sensitive fish species on the Chugach National Forest. Both MIS (Coho salmon and Dolly Varden char) are found within the project area (Table 3-7). The one SSI (cutthroat trout) is not known to occur within the

project area (Table 3-7). The table also lists Alaska's sport or subsistence fishery species occurring within the project area.

Other species that provide beneficial uses to the public are listed in Table 3-7. Generally, all populations are considered robust and healthy within the project area, although there are several localized areas where anthropogenic influences have adversely affected habitat and fish populations such as Cooper Creek, a tributary to the Kenai River. All species found in Table 3-7 and in the project area are important to subsistence and sport fishermen, as well as keystone species for ecosystem productivity. Additionally, salmon produced on the Forest are important for commercial fisheries occurring in salt water.

**Table 3-7 Amount of Available Habitat and Status of Fish Species<sup>1</sup>**

Species	Status <sup>2</sup>	Amount Of Habitat In Project Area
<b>Anadromous Fish</b>		
Coho salmon ( <i>Oncorhynchus kisutch</i> )	MIS	315 miles
Pink salmon ( <i>Oncorhynchus gorbuscha</i> )	ASF	161 miles
Chinook salmon ( <i>Oncorhynchus tshawytscha</i> )	ASF	160 miles
Sockeye salmon ( <i>Oncorhynchus nerka</i> )	ASF	121 miles
Chum salmon ( <i>Oncorhynchus keta</i> )	ASF	109 miles
Eulachon ( <i>Thaleichthys pacificus</i> )	ASF	Unknown
Dolly varden Char ( <i>Salvelinus malma</i> )	MIS	Unknown
<b>Resident Fish</b>		
Arctic grayling ( <i>Thymallus arcticus</i> )	ASF	Unknown
Rainbow trout ( <i>Oncorhynchus mykiss</i> )	ASF	242 miles
Cutthroat trout <sup>3</sup> ( <i>Oncorhynchus clarkii</i> )	SSI	Unknown

### 3.9.1.1. Salmon (Coho, Pink, Chinook, Sockeye, Chum)

Salmon are important sport fisheries species on the Kenai Peninsula. Their occurrence within rivers and streams in the project area varies by species. The rivers and streams where these species occur in large numbers include the Resurrection River, Resurrection Creek, Salmon Creek, Quartz Creek, Sixmile Creek, Kenai River, and Ptarmigan Creek (Johnson et. al., 2004; USDA-FS, unpublished data). The approximate amount of habitat used by these species is listed in Table 3-7.

### 3.9.1.2. Eulachon

These pelagic schooling smelts (common name Hooligan) live in marine environments offshore of the Chugach National Forest also spawn in fresh water within the Seward Ranger District. Two populations are known to occur in the project area in the Resurrection River and several other tributaries to Resurrection Bay near Seward. However, the extent of their habitat is unknown (USDA-FS, unpublished data).

<sup>1</sup>Source: USDA 2002a, USDI-FWS, 2006.

<sup>2</sup> MIS = Management Indicator Species; ASF = Alaska Sport (and/or subsistence) Fishery; SSI= Species of Special Interest.

<sup>3</sup> This species is not known to occur within the project area and is not considered further.

### 3.9.1.3. Dolly Varden Char

This species is one of the most important sport fish in Alaska and are common on the Seward Ranger District. The rivers and streams where this species occur in large numbers include the Kenai River, Russian River, Resurrection Creek, and the South Fork of the Snow River (Johnson et. al., 2004).

### 3.9.1.4. Arctic Grayling

This non-native to the Chugach National Forest is currently found within the Kenai Peninsula and the Copper River. These self-sustaining populations are the result of earlier introductions within the project area. They are currently found in Kenai, Bench, Upper and Lower Paradise, Juneau and Crescent lakes (USDA-FS, unpublished data).

### 3.9.1.5. Rainbow Trout

This species occurs naturally on the Kenai Peninsula. They are found in streams, rivers, and lakes throughout the Seward Ranger District. Hatchery raised rainbow trout were also introduced into eight lakes on the Seward Ranger District by the Alaska Department of Fish and Game to provide sport fishery opportunities. They are currently in Upper and Lower Summit, Carter, Jerome, Long, Meridian, Upper and Lower Russian, Upper and Lower Paradise, Johnson, Cooper, Rainbow, Trout, Swan, Juneau, and Lost lakes.

## 3.9.2. Environmental Consequences

### 3.9.2.1. Direct and Indirect Effects - All Alternatives

Changes in the acreage in each of the alternatives when related to the fisheries resource across the Kenai Peninsula as a whole are irrelevant given the nature of this resource area and the scale of the project. Therefore, the four alternatives would not have effects that differ among the alternatives to the fisheries resource.

Possible impacts to fish populations and aquatic resources from the proposed activities include: 1) sedimentation caused by snowmachine-caused ground disturbance activities during times of less than optimal snow cover; 2) introduction of petroleum-related products; and 3) changes in patterns of recreational fishing use that could result in over-harvest of fish.

None of the proposed alternatives would have measurable direct or indirect effects on any fish populations or fish habitat because all proposed activities would occur in the winter when snow and ice cover prevents sediment from entering aquatic habitats (see Soils [3.5]). Similarly, there would be a low risk of petroleum-based pollutants entering aquatic habitat (see Water Quality [3.6]). No adverse effects to fish populations would be expected because of over-harvest of lakes used for recreational ice fishing. These lakes are stocked specifically as “put and take” fisheries and adequate regulations exist to ensure conservation of fish populations and opportunities for anglers. None of the proposed alternatives would adversely affect Essential Fish Habitat as described under the Sustainable Fisheries Act (Public Law 104-297, October 11, 1996).

Additionally, the USDA Forest Service Soil and Water Conservation Handbook of Best Management Practices (USDA-FS, 1996), provides direction for minimizing adverse impacts to water and attendant fisheries resources. The majority of the fish habitat standards and guidelines are defined by soil and water concerns, and are designed to protect and maintain such elements as stream channels, stream banks, riparian vegetation, and water quality. Adherence to these practices would protect fisheries resources from detrimental effects.

The protection measures apply to all alternatives. Changes in either the method of implementation or the protection measure would occur if either does not adequately protect the fisheries resource in the project area.

### 3.9.2.2. Cumulative Effects – All Alternatives

The negligible impacts to the fisheries resource from winter recreation activities in conjunction with past actions and reasonably foreseeable future actions would not cause any cumulative impacts.

## **3.10. ENVIRONMENTAL JUSTICE**

Executive Order 12898 requires federal agencies to analyze the environmental effects, including human health, economic and social effects, of their actions on minority communities and low-income communities, addressing instances where the effects on these communities may be disproportionately high and adverse. A description of the communities in or adjacent to the Project Area is contained in a separate report in the Project Record. This report contains population estimates, socio-economic characteristics, and indicators of community attitudes and beliefs as measured in previous social research. All action alternatives were assessed to determine whether they would have disproportionately high and adverse effects, on minority or low-income populations. No such impacts were identified during scoping or through the effects analysis.

## **Appendix A – Maps**

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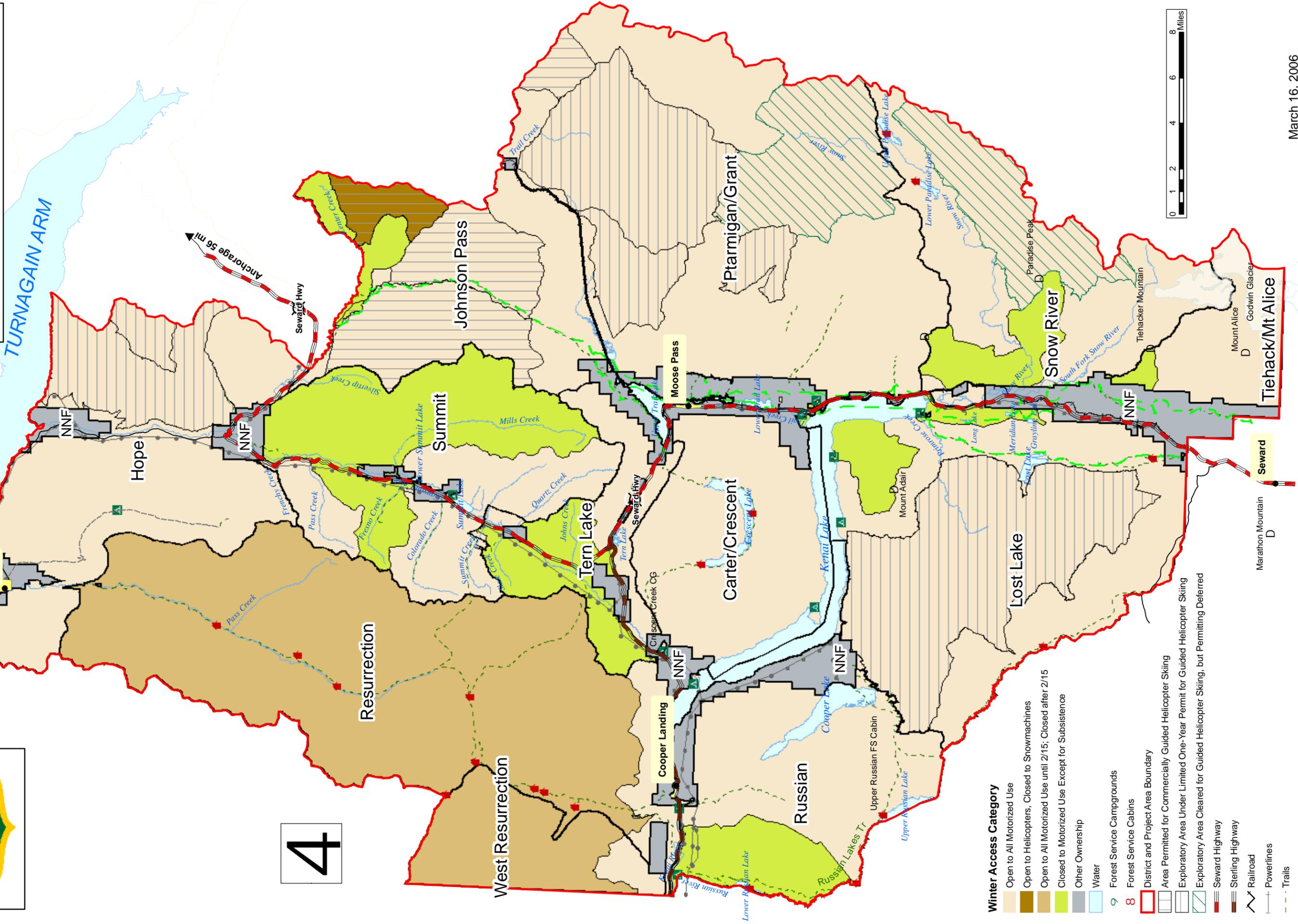
**Map A-2-1 No Action Alternative**



**Kenai Winter Access EIS  
Seward Ranger District  
Chugach National Forest  
NO ACTION ALTERNATIVE**

TURNAGAIN ARM

4



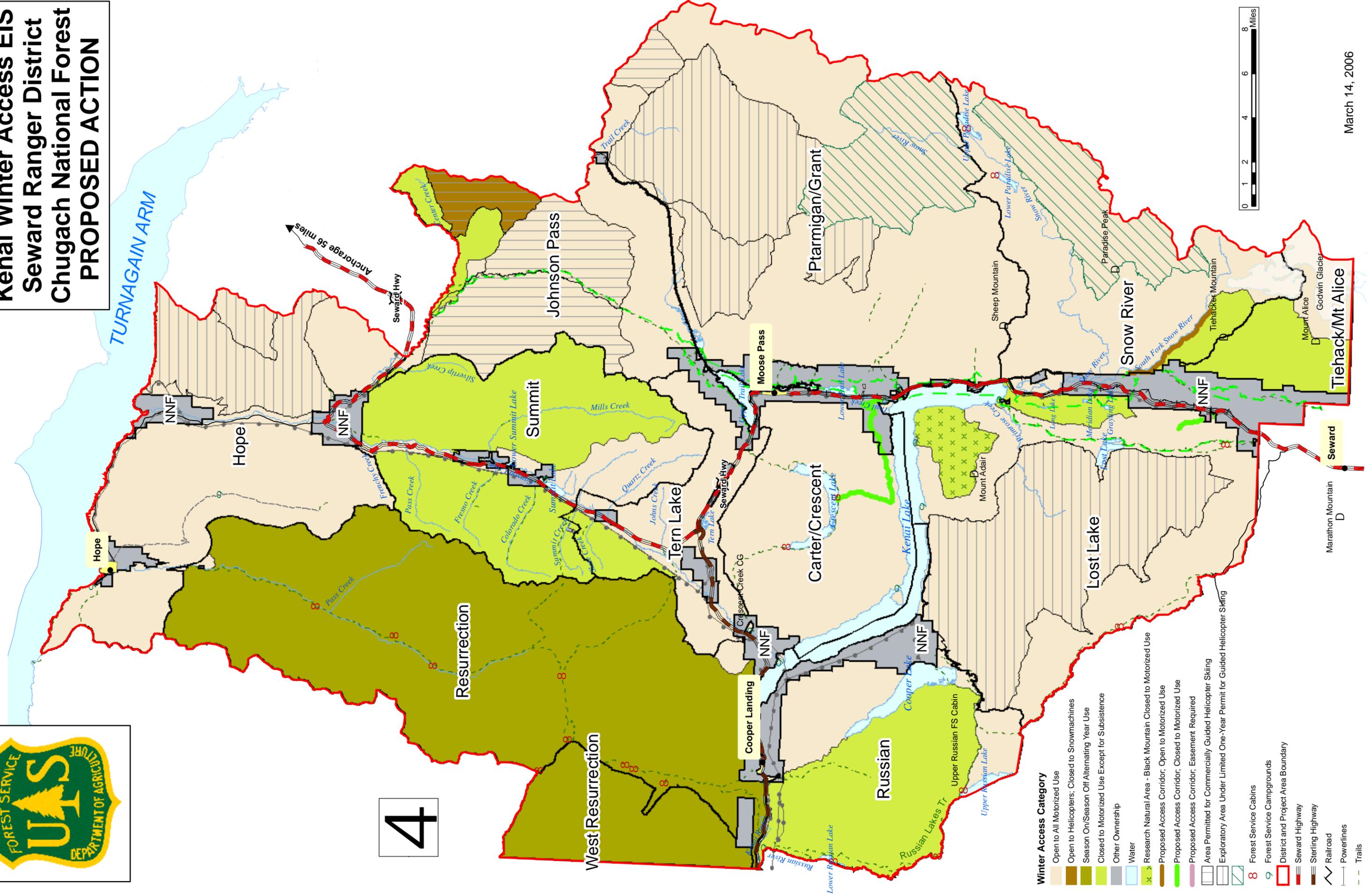
- Winter Access Category**
- Open to All Motorized Use
  - Open to Helicopters, Closed to Snowmachines
  - Open to All Motorized Use until 2/15; Closed after 2/15
  - Closed to Motorized Use Except for Subsistence
  - Other Ownership
  - Water
  - Forest Service Campgrounds
  - Forest Service Cabins
  - District and Project Area Boundary
  - Area Permitted for Commercially Guided Helicopter Skiing
  - Exploratory Area Under Limited One-Year Permit for Guided Helicopter Skiing
  - Exploratory Area Cleared for Guided Helicopter Skiing, but Permitting Deferred
  - Seward Highway
  - Sterling Highway
  - Railroad
  - Powerlines
  - Trails
  - Proposed Iditarod National Historic Trail

## Map A-2-2 Proposed Action

# Kenai Winter Access EIS Seward Ranger District Chugach National Forest PROPOSED ACTION



4



- Winter Access Category**
- Open to All Motorized Use
  - Open to Helicopters; Closed to Snowmachines
  - Season On/Season Off Alternating Year Use
  - Closed to Motorized Use Except for Subsistence
  - Other Ownership
  - Water
  - Research Natural Area - Black Mountain Closed to Motorized Use
  - Proposed Access Corridor; Open to Motorized Use
  - Proposed Access Corridor; Closed to Motorized Use
  - Proposed Access Corridor; Easement Required
  - Area Permitted for Commercially Guided Helicopter Skiing
  - Exploratory Area Under Limited One-Year Permit for Guided Helicopter Skiing
  -
- Legend**
- Forest Service Cabins
  - Forest Service Campgrounds
  - District and Project Area Boundary
  - Seward Highway
  - Sterling Highway
  - Railroad
  - Powerlines
  - Trails
  - Proposed Iditarod National Historic Trail



March 14, 2006

**Map A-2-3 Alternative 1**



# Kenai Winter Access EIS Seward Ranger District Chugach National Forest ALTERNATIVE 1

4

TURNAGAIN ARM

Anchorage 56 miles

Hope

Hope

Resurrection

West Resurrection

Tern Lake

Summit

Johnson Pass

Cooper Landing

Carter/Crescent

Moose Pass

Russian

Ptarmigan/Grant

Lost Lake

Snow River

Seward

Tiehack/Mt Alice

### Winter Access Category

- Open to All Motorized Uses
- Open to Helicopters, Closed to Snowmachines
- Season On/ Season Off Alternating Use with Resurrection
- Season On/ Season Off Alternating Use with Carter-Crescent
- Closed to Motorized Use Except for Subsistence
- Other Ownership
- Water
- Black Mountain Research Natural Area Closed to Motorized Use
- Forest Service Campgrounds
- Forest Service Cabins
- Area Permitted for Commercially Guided Helicopter Skiing
- Exploratory Area Under Limited One-Year Permit for Guided Helicopter Skiing
- Exploratory Area Cleared for Guided Helicopter Skiing, but Permitting Deferred
- District and Project Area Boundary
- Godwin Glacier
- Seward Highway
- Sterling Highway
- Railroad
- Powerlines
- Trails
- Proposed Iditarod National Historic Trail



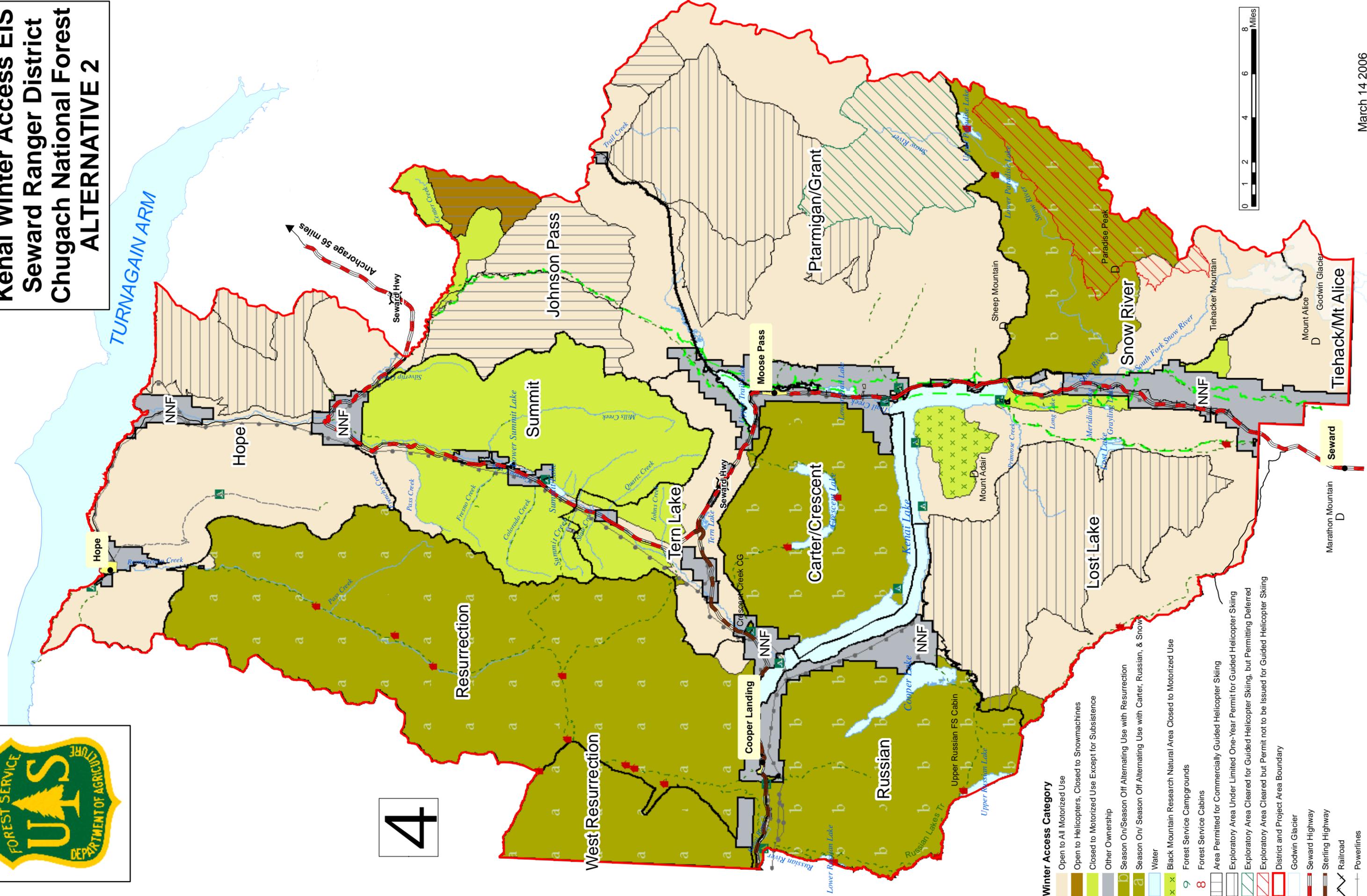
March 14, 2006

**Map A-2-4 Alternative 2**



# Kenai Winter Access EIS Seward Ranger District Chugach National Forest ALTERNATIVE 2

4



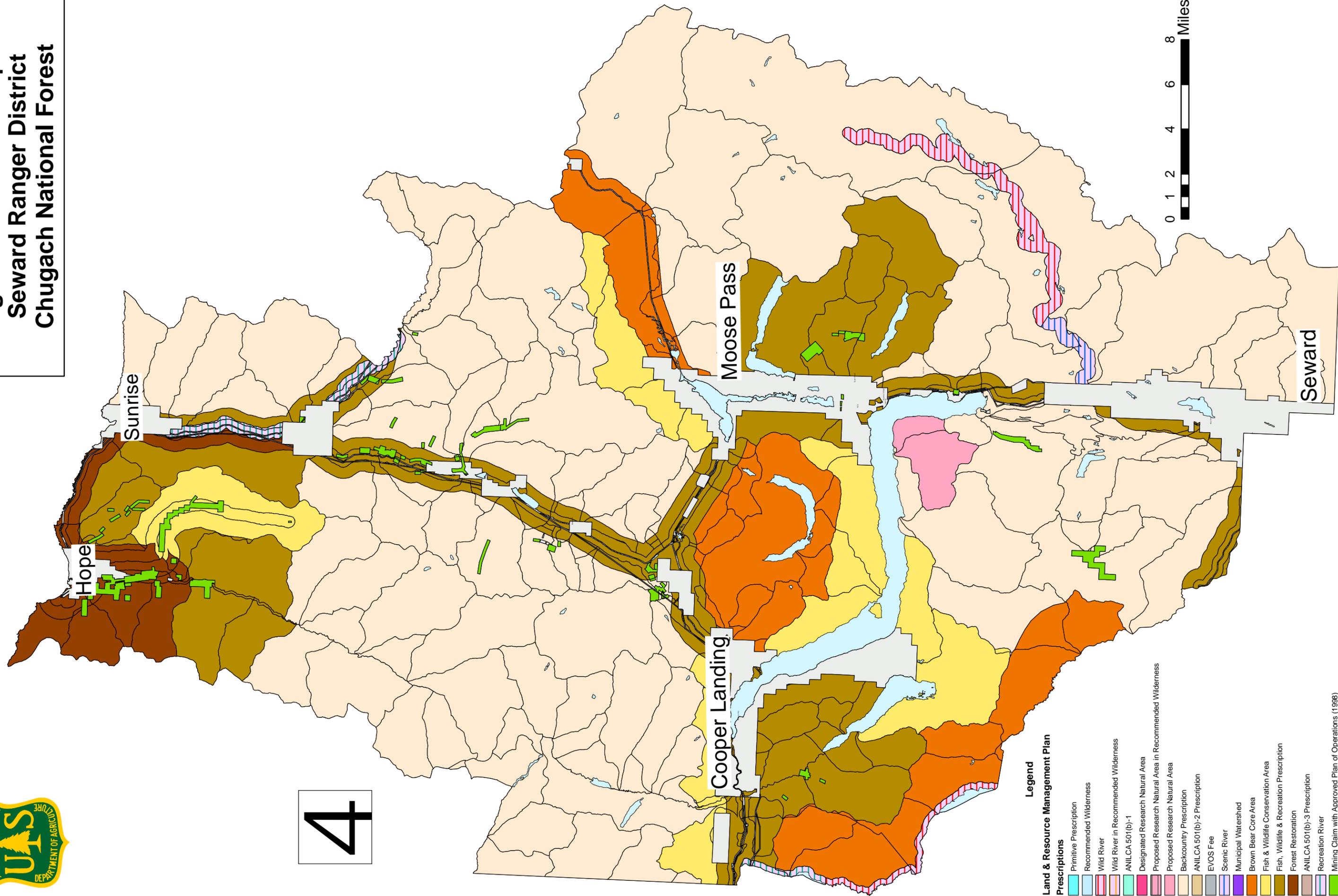
- Winter Access Category**
- Open to All Motorized Use
  - Open to Helicopters, Closed to Snowmachines
  - Closed to Motorized Use Except for Subsistence
  - Other Ownership
  - Season On/Season Off Alternating Use with Resurrection
  - Season On/ Season Off Alternating Use with Carter, Russian, & Snow
  - Water
  - Black Mountain Research Natural Area Closed to Motorized Use
  - Forest Service Campgrounds
  - Forest Service Cabins
  - Area Permitted for Commercially Guided Helicopter Skiing
  - Exploratory Area Under Limited One-Year Permit for Guided Helicopter Skiing
  - Exploratory Area Cleared for Guided Helicopter Skiing, but Permitting Deferred
  - Exploratory Area Cleared but Permit not to be Issued for Guided Helicopter Skiing
  - District and Project Area Boundary
  - Godwin Glacier
  - Seward Highway
  - Sterling Highway
  - Railroad
  - Powerlines
  - Trails
  - Proposed Iditarod National Historic Trail

## **Map A-3-1 Land Resource Management Plan Management Prescriptions**



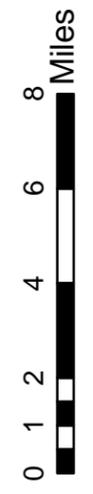
**Management Area Prescriptions  
Seward Ranger District  
Chugach National Forest**

4



**Legend**  
**Land & Resource Management Plan Prescriptions**

- Primitive Prescription
- Recommended Wilderness
- Wild River
- Wild River in Recommended Wilderness
- ANILCA 501(b)-1
- Designated Research Natural Area
- Proposed Research Natural Area in Recommended Wilderness
- Proposed Research Natural Area
- Backcountry Prescription
- ANILCA 501(b)-2 Prescription
- EVOS Fee
- Scenic River
- Municipal Watershed
- Brown Bear Core Area
- Fish & Wildlife Conservation Area
- Fish, Wildlife & Recreation Prescription
- Forest Restoration
- ANILCA 501(b)-3 Prescription
- Recreation River
- Mining Claim with Approved Plan of Operations (1998)
- Transportation/Utility Corridor
- Non National Forest
- Water

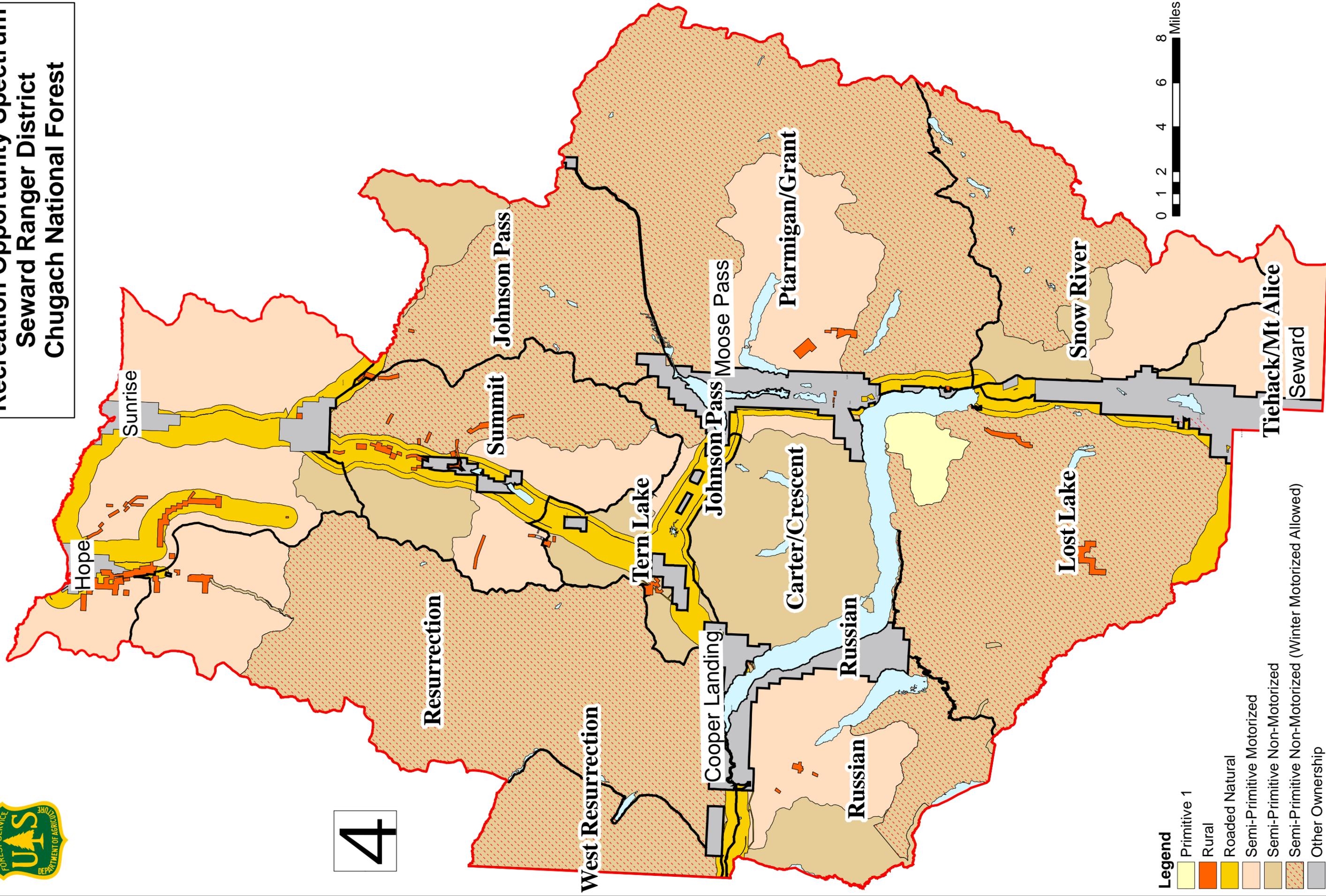


## Map A-3-2 Recreation Opportunity Spectrum



**Recreation Opportunity Spectrum  
Seward Ranger District  
Chugach National Forest**

4



**Legend**

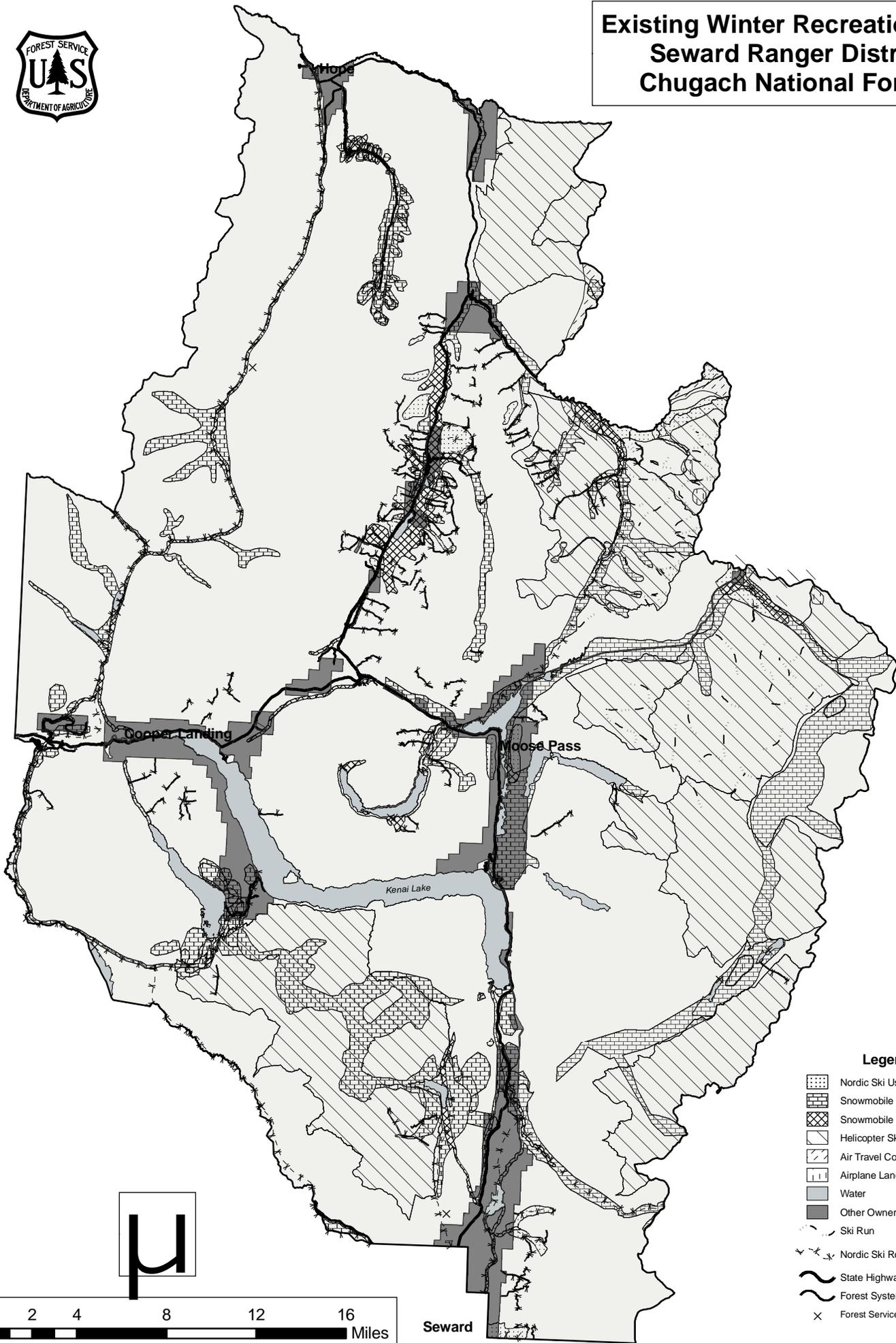
- Primitive 1
- Rural
- Roaded Natural
- Semi-Primitive Motorized
- Semi-Primitive Non-Motorized
- Semi-Primitive Non-Motorized (Winter Motorized Allowed)
- Other Ownership
- Lake
- District and Project Area Boundary



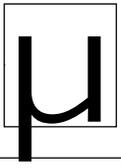
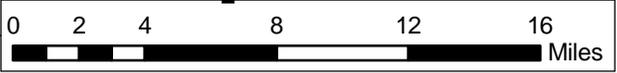
**Map A-3-3 Existing Winter Recreation Use**



# Existing Winter Recreation Use Seward Ranger District Chugach National Forest



- Legend**
- Nordic Ski Use
  - Snowmobile Use
  - Snowmobile & Nordic Ski Use
  - Helicopter Skiing Area
  - Air Travel Corridor
  - Airplane Landing Area
  - Water
  - Other Ownership
  - Ski Run
  - Nordic Ski Route
  - State Highway
  - Forest System Road
  - Forest Service Cabin



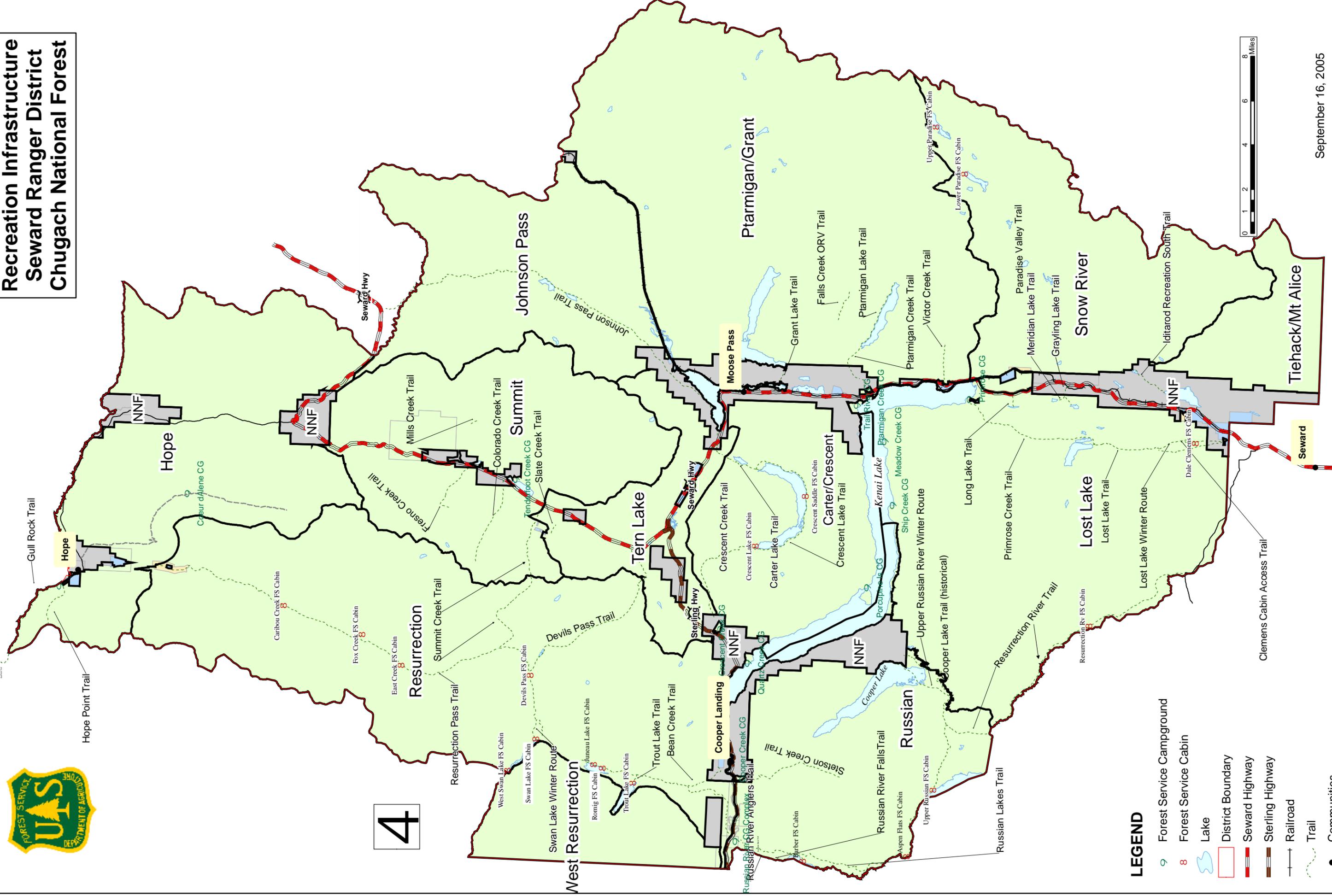
Seward

## Map A-3-4 Recreation Infrastructure



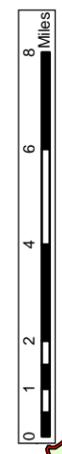
# Recreation Infrastructure Seward Ranger District Chugach National Forest

4



## LEGEND

- Forest Service Campground
- Forest Service Cabin
- Lake
- District Boundary
- Seward Highway
- Sterling Highway
- Railroad
- Trail
- Communities



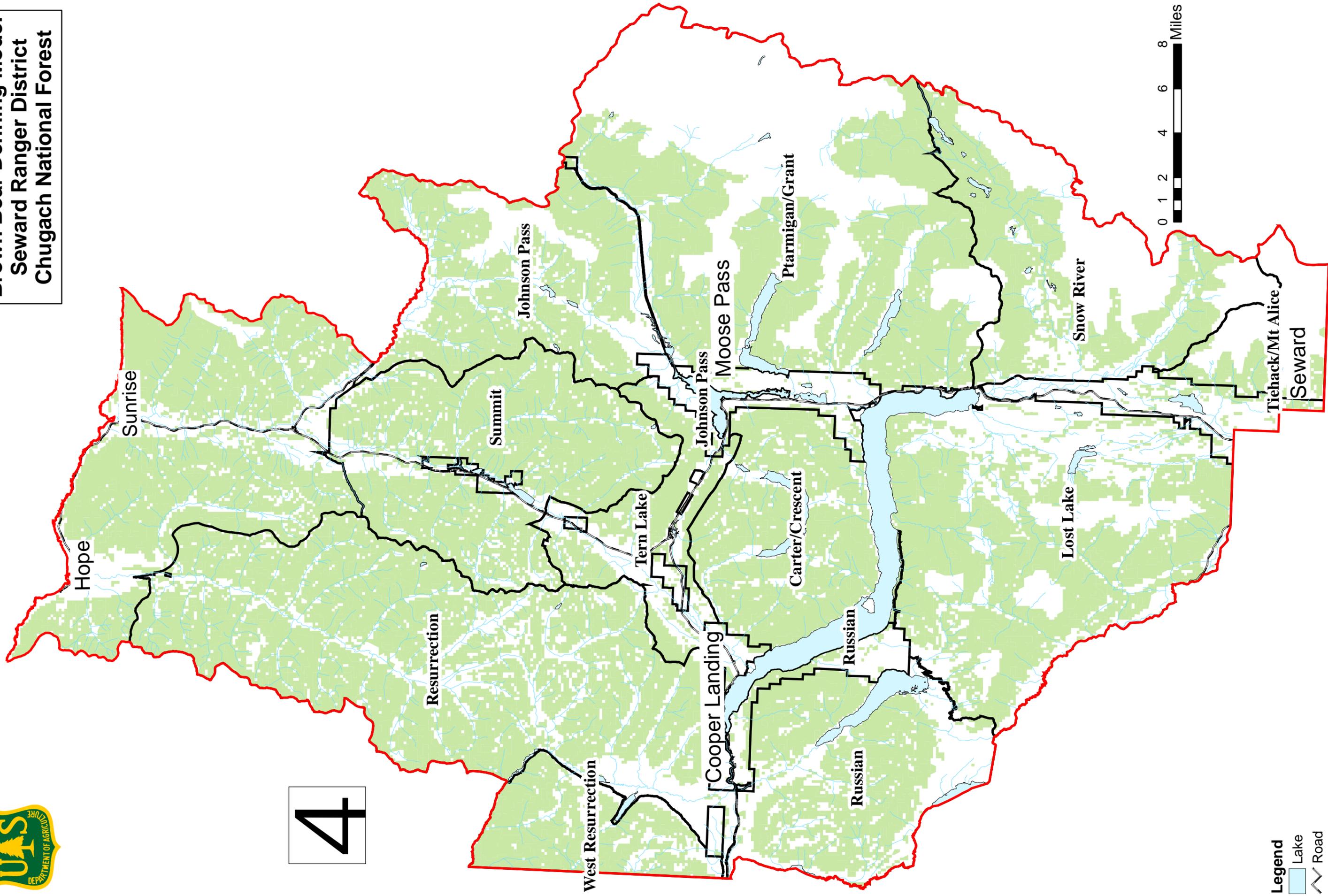
September 16, 2005

## Map A-3-5 Brown Bear Denning Model

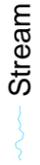


**Brown Bear Denning Model  
Seward Ranger District  
Chugach National Forest**

4



**Legend**



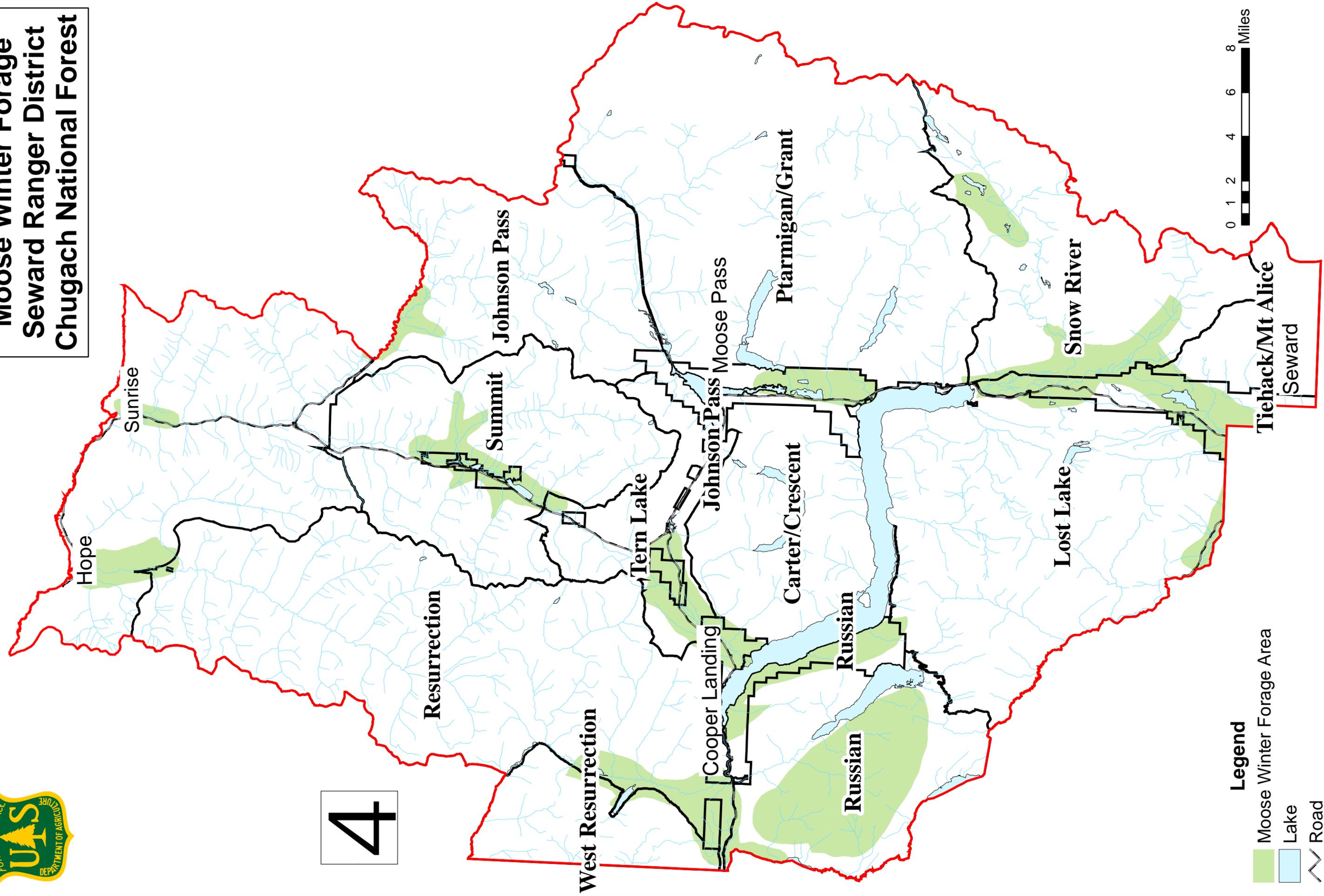
High Probability of use as Denning Habitat

**Map A-3-6 Moose Winter Forage**



# Moose Winter Forage Seward Ranger District Chugach National Forest

4



- Legend**
- Moose Winter Forage Area
  - Lake
  - Road
  - Stream

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## **Appendix D – Glossary and Acronyms**

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<b>ADF&amp;G</b>	Alaska Department of Fish and Game
<b>ANCSA</b>	The Alaska Native Claims Settlement Act of December 18, 1971, Public Law 92-203, 92nd Congress, 85 Stat. 688-716
<b>ANILCA</b>	The Alaska National Interest Lands Conservation Act of December 2, 1980. Public Law 96-487, 96th Congress, 94 Stat. 2371-2551
<b>BA</b>	Biological Assessment
<b>BE</b>	Biological Evaluation
<b>BMP</b>	Best Management Practice
<b>CFR</b>	Code of Federal Regulations
<b>DEIS</b>	Draft Environmental Impact Statement
<b>EIS</b>	Environmental Impact Statement
<b>EPA</b>	Environmental Protection Agency
<b>FEIS</b>	Final Environmental Impact Statement document
<b>FLPMA</b>	Federal Land Planning and Management Act
<b>FSH</b>	Forest Service Handbook
<b>FSM</b>	Forest Service Manual
<b>GIS</b>	Geographic Information System
<b>IDT</b>	Interdisciplinary Team
<b>MIS</b>	Management Indicator Species
<b>NEPA</b>	National Environmental Policy Act
<b>NOI</b>	Notice of Intent
<b>NOA</b>	Notice of Availability
<b>ROD</b>	Record of Decision
<b>SHPO</b>	State Historic Preservation Office
<b>VOC</b>	Volatile Organic Compounds

## A

**Access:** The opportunity to approach, enter, and make use of public lands.

**Alaska Historic Resource Survey (AHRs):** The official list of documented cultural resources for the state of Alaska. The list is maintained by the Office of History and Archeology, Alaska Division of Parks and Outdoor Recreation.

**Anadromous Fish:** Fish, which mature and spend much of their adult life in the ocean, returning to inland waters to spawn. Salmon and steelhead are examples.

**Analysis Area:** The geographic area that was analyzed to predict the possible effect that may be associated with proposed alternatives. This area varies in scale depending on the discipline being discussed, or the relationship being described.

**Alternative:** An option proposed for decision-making.

**ANCSA:** The Alaska Native Claims Settlement Act of December 18, 1971, Public Law 92-203, 92<sup>nd</sup> Congress, 85 Stat. 688-716.

**ANILCA:** The Alaska National Interest Lands Conservation Act of December 2, 1980. Public Law 96-487, 96<sup>th</sup> Congress, 94 Stat. 2371-2551.

**Area of Potential Effect (related to Heritage Resources):** The geographic area within which an undertaking may cause changes in the character or use of historic properties, if any such properties exist.

## B

**Bank:** The continuous margin along a river or stream where all upland vegetation ceases.

**Best Management Practices (BMPs):** Land management methods, measures or practices selected by an agency to meet its non-point source control needs. BMPs include, but are not limited, to structural and nonstructural controls and operation and maintenance procedures. BMPs can be applied before, during, and after pollution-producing activities to reduce or eliminate the introduction of pollutants into receiving waters. BMPs are selected based on site-specific conditions that reflect natural background conditions and political, social, economic, and technical feasibility. BMPs are found in Forest Service Handbook 2509.22.

**Biological Assessment (BA):** An evaluation conducted for federal projects requiring an environmental impact statement in accordance with the legal requirements under Section 7(e) of the Endangered Species Act as amended (16 U.S.C. 1536 (c)). The purpose of the assessment is to determine whether the proposed action is likely to affect any endangered, threatened, or proposed species or critical habitat.

**Biological Evaluation (BE):** A documented Forest Service review of Forest Service programs or activities in sufficient detail to determine how an action or proposed action may affect any threatened, endangered, proposed, or sensitive species.

**BMPs:** See Best Management Practices.

<b>C</b>
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**Cabins:** (Forest Service recreation cabins and safety shelters). Cabins and shelters for recreation cabin system.

**Channel:** A natural waterway of perceptible extent that periodically or continuously contains moving water. It has a definite bed and banks, which serve to confine the water.

**Conservation System Unit:** “The term “conservation system unit” means any unit in Alaska of the National Park system, National Wildlife Refuge System, National Wild and Scenic Rivers Systems, National Trails System, National Wilderness Preservation System, or a National Forest Monument including existing units, units established, designated, or expanded by or under the provisions of this Act, additions to such units, and any such unit established, designated, or expanded hereafter” (ANILCA, Sec. 102).

**Corridor (transportation):** A linear strip of land defined for the present or future location of transportation or utility rights-of-way within its boundaries. For planning purposes, potential and proposed corridors are depicted on the Plan map to show approximate corridor routes and widths. Actual corridor routes and boundaries for new systems will be identified through site-specific transportation and/or utility project planning.

**Critical habitat:** Specific areas designated as critical by the Secretary of Interior or Commerce for the survival and recovery of species listed as Threatened or Endangered pursuant to the Endangered Species Act.

**Cultural resources:** See Heritage resources.

**Cumulative effects:** See Effects.

<b>D</b>
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**Decision Maker:** The Forest Service employee who has the delegated authority to make a specific decision.

**Degradation:** The general lowering of the surface of the land by erosive processes, especially by the removal of material through erosion and transportation by flowing water.

**Demographic:** Pertaining to the study of the characteristics of populations, such as size, growth, density, distribution, and vital statistics.

**Disturbance:** A force that results in changes in the structure and composition through natural events such as wind, fire, flood, avalanche, or mortality caused by insect or disease outbreaks or by human caused events (e.g., timber harvest).

**Draft Environmental Impact Statement (DEIS):** The version of the statement of environmental effects required for major federal actions under Section 102 of the National Environmental Policy Act (NEPA) and released to the public and other agencies for review and comment.

## E

**Ecosystem:** A complete, interacting system of organisms considered together with their environment (e.g., a marsh, a watershed, or a lake).

**Effects:** include the following:

- **Direct** - Results of an action occurring when and where that action takes place.
- **Indirect** - Results of an action occurring at a location other than where the action takes place and/or later in time, but in the reasonably foreseeable future.
- **Cumulative** - Results of collective past, present, and reasonably foreseeable future actions.

**Endangered Species:** Any species of animal or plant that is in danger of extinction throughout all or a significant portion of its range. An endangered species must be designated in the Federal Register by the Secretary of the Interior. Disturbance of the habitat of endangered species is prohibited by the Endangered Species Act, 1973, as amended.

**Environmental Analysis:** An analysis of alternative actions and their predictable short- and long-term environmental effects, incorporating the physical, biological, economic, social and environmental design arts and their interactions.

**Environmental Impact Statement (EIS):** A document prepared by a federal agency in which anticipated environmental effects of a planned course of action or development are evaluated. A federal statute (Section 102 of the National Environmental Policy Act of 1969) requires that such statements be prepared. It is prepared first in draft or review form, and then in a final form.

**Environmental Justice:** Federal actions to address environmental justice in minority populations and low-income populations. Executive Order 12898, February 11, 1994; 59 Federal Register, 7629, February 16, 1994.

**Environmentally Preferable Alternative:** An alternative that best meets the goals of Section 101 of the National Environmental Policy Act and required by 40 CFR 1505.2(b) to be identified in the record of decision. Ordinarily, this is the alternative that causes the least damage to the biological and physical environment and best protects, preserves,

and enhances historical, cultural, and natural resources. In some situations, there may be more than one environmentally preferable alternative.

**Erosion:** The wearing away of the land surface by running water, wind, ice, gravity or other geological activities.

**Executive Order:** An order or regulation issued by the President or some administrative authority under his direction.

## F

**FEIS:** A Final Environmental Impact Statement document. A Final EIS is prepared after review and comment by the public on the Draft EIS.

**Forbs:** A grouping/category of herbaceous plants that are not included in the grass, shrub, or tree groupings/categories; generally smaller flowering plants.

**Forest Plan:** Source of management direction for an individual Forest specifying activity and output levels for a period of 10-15 years developed to meet the requirements of 36CFR 219. Management direction in the plan is based on the issues identified at the time of the plan's development.

**Forestwide Standards and Guidelines:** A set of rules and guidance that directs management activities and establishes the environmental quality, natural renewable and depletable resource requirements, conservation potential, and mitigation measures that apply to several land use designations.

**Function:** A term in ecology referring to the interactions and influences between plant and animal species within an area (how each species uses its environment), and to natural processes of change or disturbance (such as wind or aging).

## G

**Geographic Information System (GIS):** Computer software that links geographic information (where things are) with descriptive information (what things are like).

**Guideline:** A preferred or advisable course of action that may be followed to achieve Forest goals but are optional. Deviations from guidelines would be analyzed during project level analysis and documented in a project decision document but do not require a Forest Plan amendment.

## H

**Habitat:** The sum total of environmental conditions of a specific place occupied by a wildlife or plant species or a population of each species.

**Heritage Resources:** The non-renewable physical remains of a district, site, structure, building, network, event, or objects used by humans in the past. They may be historic, prehistoric, architectural, or archival in nature.

**Historic Property:** Any prehistoric or historic district, site, building, structure, or object included in or eligible for the National Register of Historic Places. The term includes artifacts, records, and remains that are related to and located within such properties.

**I**

**IDT:** See Interdisciplinary Team.

**Interdisciplinary Team (IDT):** A group of individuals with different training assembled to solve a problem or perform a task. The team is assembled out of recognition that no one scientific discipline is sufficiently broad to adequately solve the problem. Through interaction, participants bring different points of view and a broader range of expertise to bear on the problem.

**Irretrievable Commitments:** Applies to losses of production or use of renewable natural resources for a period of time. For example, timber production from an area is irretrievably lost during the time an area is allocated to a no-harvest prescription. If the allocation is changed to allow timber harvest, timber production can be resumed. The production lost is irretrievable, but the action is not irreversible.

**Irreversible Commitments:** Decisions causing changes, which cannot be reversed. Often applies to nonrenewable resources such as minerals and cultural resources.

**Issue:** A point of discussion, dispute, or debate with the Proposed Action.

**J**

**K**

**L**

**M**

**Management Area:** Combinations of adjacent Value Comparison Units having common management direction.

**Management Direction:** A statement of multiple-use and other goals and objectives, the associated land use prescriptions and standards and guidelines for attaining them.

**Management Indicator Species (MIS):** A representative group of species that are dependent on a specific habitat type. The health of the indicator species is used to gauge the function of the habitat on which it depends and, in turn, the health of other dependent species.

**Memorandum of Understanding (MOU):** An agreement between the Forest Service and others agencies resulting from consultation between agencies that states specific measures the agencies will follow to accomplish a large or complex project. A memorandum of understanding is not a fund-obligating document.

**Mitigate:** To lessen or make minimal the severity. For cultural resources, to lessen or minimize an adverse effect upon a cultural resource listed on or eligible for the National Register of Historic Places. The two categories of mitigation most often used are project modification and data recovery.

**Monitoring:** Gathering information and observing results of management activities to provide a basis for the periodic evaluation of the Forest Plan.

**Motorized access for subsistence:** Access for customary and traditional activities for rural users.

**Motorized recreation:** Recreation activities involving motorized methods for access and transport or in support of an activity. Examples include snowmachine use, ATV/OHV use, etc.

**MOU:** See Memorandum of Understanding.

<b>N</b>
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**National Environmental Policy Act of 1969 (NEPA):** An Act declaring a National policy to encourage productive and enjoyable harmony between man and his environment, to promote efforts which will prevent or eliminate damage to the environment and the biosphere and stimulate the health and welfare of man, to enrich the understanding of the ecological systems and natural resources important to the Nation and to establish a Council on Environmental Quality.

**National Forest Land and Resource Management Plan:** A plan developed to meet the requirements of the Forest and Rangeland Renewable Resources Planning Act of 1974, as amended by the National Forest Management Act of 1976 that guides all natural resource management activities and establishes management standards and guidelines for the National Forest System lands of a given National Forest.

**National Forest Management Act (NFMA):** A law passed in 1976 that amends the Forest and Rangeland Renewable Resources Planning Act and requires the preparation of Forest Plans.

**National Register of Historic Places:** A register of cultural resources of national, state or local significance, maintained by the Department of the Interior.

**No Action Alternative:** The most likely condition expected to exist in the future if current management direction were to continue unchanged.

**Notice of Intent (NOI):** A notice filed with the Federal Register informing the public that an environmental impact statement will be prepared and considered.

<b>O</b>
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<b>P</b>
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**Pollution:** The presence of matter or energy whose nature, location, or quantity produces undesired environmental effects.

**Population:** The actual number of animals or plants present in an area at a certain time that share a common gene pool.

**Public participation:** Public meetings, collaborative workshops, interdisciplinary team meetings, public notices, written comments, responses to survey questionnaires, and similar activities designed and held to obtain comments from the public about Forest Service planning.

**Q**

**R**

**Rare plants:** Plant species with potential conservation concerns, including all plants recognized by the Regional Forester as sensitive, plants designated by the Alaska Natural Heritage Program as G1-G3 S1-S2 that are known from or suspected on the Chugach National Forest, and plants that may be common elsewhere but are suspected to be at the edge of their range or disjunct on the Chugach National Forest.

**Recreation Opportunity Spectrum (ROS):** A system for planning and managing recreation resources that categorizes recreation opportunities into eight classes. Each class is defined in terms of the degree to which it satisfies certain recreation experience needs based on the extent to which the natural environment has been modified, the type of facilities provided, the degree of outdoor skills needed to enjoy the area and the relative density of recreation use.

**Resident fish:** Fish that are not migratory and complete their entire life cycle in fresh water.

**Riparian area:** The area including a stream channel, lake or estuary bed, the water itself, and the plants that grow in the water and on the land next to the water.

**Record of Decision (ROD):** The ROD is the document signed by the decision maker recording a decision that was preceded by the preparation of an environmental impact statement.

**ROS:** see Recreation Opportunity Spectrum

**S**

**Scoping:** The procedure the Forest Service uses to identify important issues and to determine the extent of analysis necessary for an informed decision on a proposed action. Scoping is an integral part of environmental analysis.

**Sediment:** Solid material, both mineral and organic, that is in suspension, is being transported, or has been moved from its site of origin by air, water, gravity, or ice and has come to rest on the earth's surface either above or below sea level

**Sensitive Species:** Plant or animal species, which are susceptible or vulnerable to habitat alterations or management activities resulting in a viability concern for the species long-term persistence. Sensitive species may be those species under consideration for official listing as endangered or threatened species, that are on an official state list, or that are recognized by the Regional Forester as needing special consideration to assure viable populations and to prevent their listing on federal or state lists.

**Standard:** A course of action or level of attainment required by the Forest Plan to promote achievement of goals and objectives.

**State Historic Preservation Officer (SHPO):** The official appointed or designated pursuant to Section 101(b)(1) of the National Historic Preservation Act of 1966, as amended, to administer the State Historic Preservation Program.

**Stream bank:** The portion of the channel cross-section that restricts lateral movement of water at normal water levels. The bank often has a gradient steeper than 45 degrees and exhibits a distinct break in slope from the stream bottom. An obvious change in substrate may be a reliable delineation of the bank.

**Structure:** A term in ecology referring to the arrangement of plant communities or ecosystems across a landscape and how they are connected, and to variations in tree heights and diameters within a stand or between stands.

**T**

**Threatened Species:** Any species of plant or animal which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. Threatened species are identified and defined in accordance with the 1973 Endangered Species Act and published in the Federal Register by the Secretary of Interior.

**Tree well:** The area surrounding the base of a tree which when covered with snow forms a depression that skiers can fall into.

**U**

**V**

**W**

**Watershed:** The area that contributes water to a drainage or stream. Portion of the forest in which all surface water drains to a common point. Watersheds can range from tens of acres that drain a single small intermittent stream to many thousands of acres for a stream that drains hundreds of connected intermittent and perennial streams.

**Watershed Analysis:** A systematic procedure for characterizing and evaluating ecological processes within a watershed, for use in ecosystem management and project planning.

**Wetlands:** Areas that are inundated by surface or ground water with a frequency sufficient, under normal circumstances, to support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include peatlands, muskegs, marshes, bogs, sloughs, potholes, river overflows, mud flats, wet meadows, seeps, and springs.

**Wild and Scenic Rivers:** Rivers or sections of rivers designated by congressional actions under the 1968 Wild and Scenic Rivers Act. Wild and scenic rivers may be classified and administered under one or more of the following categories:

- **Wild River areas** - Rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.
- **Scenic River areas** - Rivers or sections of rivers that are free of impoundments, with watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.
- **Recreational River areas** - Rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

<b>X</b>
<b>Y</b>
<b>Z</b>

## Appendix E – Biological Assessment and Evaluation for Threatened, Endangered, Candidate, Proposed, or Sensitive Species

Date: 19 July, 2005

Project Name: Kenai Winter Access for Winter Recreation

District: Seward Ranger District

Project Type: Recreation: Winter Motorized and Non-motorized Use

Location: Seward Ranger District.

Project Actions: Allowances for motorized and non-motorized use in all areas from 12-15 through 4-30 annually.

**Table E-1 Vegetation/Habitat Type:** All habitats and vegetation types (see specialist report)

I. Prior Biological Evaluation				No	Yes
Prior Project BE: Sensitive Plants	Date:	Forest Plan			X
Prior Project BE: Wildlife	Date:	Forest Plan			X
I. Prior Biological Evaluation				No	Yes
Prior Project BE: Sensitive Plants	Date:			X	
Prior Project BE: Wildlife	Date:			X	
II. Species and/or Habitat				No	Yes
2. Previous Species Observation				X	
3. Federally Listed Species Present				X	
4. Habitat For Federally Listed Species Present				X	
5. Sensitive Species Present				X	
6. Habitat For Sensitive Species Present					X
III. Analysis of Effects				No	Yes
1. Significant Habitat Alteration				X	
2. Effects Outside Project Area					X
3. Cumulative Effects on Listed Species or Habitat				X	
4. Cumulative Effects on Sensitive Species or Habitat				X	
IV. Determination of Effects				No	Yes
1. No Affect Threatened, Endangered, or Proposed Species					X
2. May Affect Threatened, Endangered, or Proposed Species				X	
3. May Affect Individual Sensitive Species				X	
4. May Affect Sensitive Species' Population Viability				X	
V. Consultation Requirements				No	Yes
1. Formal Consultation Required				X	
2. Additional Informal Consultation Required				X	

Based on the findings above and the size and effect of the proposed project, a detailed biological evaluation and further consultation are not required.

## Affected Environment

Winter recreation occurs over a wide variety of habitat including forested, riparian, alpine, sub alpine, and snow and ice. The proposed alternatives are not expected to encounter several of the species of concern listed in Chapter 3, Table 3-5.

### WILDLIFE

- The Dusky Canada Geese (*Branta canadensis occidentalis*) is a Region 10 sensitive species. The breeding distribution is restricted primarily to the Copper River Delta (Campbell et al. 1990). It winters primarily in the Willamette Valley in Oregon, and along the Columbia River in Washington (Cornely et al. 1988, Bartonek et al. 1971). The Dusky Canada goose does not occur in the project area. Determination of Effect: no adverse impacts to Dusky Canada geese are anticipated.
- The Humpback Whale (*Megaptera novaeangliae*) is an endangered species that occurs in all oceans of the world. Humpback whales do not occur in the project area. Determination of Effect: no adverse impacts to humpback whales are anticipated.
- The Steller's Sea Lion (*Eumetopias jubatus*) is a threatened species with centers of abundance and distribution in the Gulf of Alaska and Aleutian Islands. The Steller's sea lion does not occur in the project area. Determination of Effect: no adverse impacts to Steller's sea lions are anticipated.
- Trumpeter Swans (*Cygnus buccinator*) are a Region 10 sensitive species. Trumpeter swans transit the Chugach National Forest during spring and fall migrations. They commonly nest on the Copper River Delta wetlands and are known to nest at Ingram pond (between Ingram Creek and Placer River). Trumpeter swans do not occur within the project area during the winter recreation season. Determination of Effect: no adverse impacts to trumpeter swans are anticipated.
- Black oystercatchers (*Haematopus bachmani*) occur on the CNF in Prince William Sound. Black Oystercatchers are unlikely to be found within the analysis area. Determination of Effect: no adverse impacts to black oystercatchers are anticipated.
- The Montague Island Tundra Vole and Montague Island Hoary Marmot are endemic to Montague Island, and are not known to occur on the Kenai Peninsula. Determination of Effect: no adverse impacts to Montague Island mammals are anticipated.
- Steller's Eiders do not breed on the Chugach National Forest. They may winter on the south end of the Kenai Peninsula, but not on the Seward Ranger District (personal communication with Bill Shuster, Seward Ranger District Resource Staff Officer). Determination of Effect: no adverse impacts to Steller's eiders are anticipated.

- The Sitka black-tailed deer (*Odocoileus hemionus sitkensis*) is native to the wet coastal rain forests of Southeast Alaska and north-coastal British Columbia. Established populations now also exist near Yakutat, in Prince William Sound, and on Kodiak and Afognak islands. They use alpine and needle leaf habitat during the summer, and old-growth forest below 800 feet elevation during the winter. Loss of winter habitat would be the biggest risk to the Sitka black-tailed deer. Currently the population in Prince William Sound is considered to be at a moderate to high density. In 2003, several were seen as far west as Anchorage. On occasion, individuals in Seward have reported seeing deer along Nash Road, and as far north as Tern Lake. Determination of Effect: no adverse impacts to Sitka black-tailed deer are anticipated.
- The Osprey (*Pandion haliaeetus*) is a Region 10 sensitive species. The osprey is widely distributed across much of Alaska south of the Brooks Range, but localized in the vicinity of lakes, large rivers, and coastal bays. Osprey are rare to uncommon throughout Alaska (Palmer 1988) and may only occur within the project area during spring and fall migrations; they are not considered to be winter residents. Determination of Effect: no adverse impacts to Osprey are anticipated.
- The Peale's peregrine falcon is a Region 10 sensitive species. The Peale's peregrine falcon nests in Alaska along the Pacific coast from southeastern Alaska through the Gulf of Alaska and west to the end of the Aleutian Islands. Nesting habitat in Alaska includes ledges of vertical rocky cliffs in the vicinity of seabird colonies (Gabrielson and Lincoln 1959). There are no known nest sites within the project area. The Peale's peregrine falcon winters from the Queen Charlotte Islands and southwestern British Columbia, south along the coasts of Washington, Oregon, and California rarely to northern Baja California. Peale's peregrine falcons do not occur within the project area during the proposed operating season. Determination of Effect: no adverse impacts to Peale's peregrine falcon are anticipated.

## **DISCUSSION OF CUMULATIVE EFFECTS**

This project will not cause short or long-term changes to sensitive wildlife habitat as a direct result of recreational activities. There should be no adverse cumulative effects on endangered, threatened, or sensitive species due to the absence of direct habitat modification by any helicopter landings or ski activities.

## **MITIGATING MEASURES REQUIRED FOR ALL ALTERNATIVES**

If any previously undiscovered endangered, threatened or sensitive species are encountered during the implementation of this project, notify the Seward Wildlife Biologist for consultation and recommendation of appropriate mitigating measures to be enacted.

## **CONCLUSION**

The proposed action is not likely to have an adverse effect on vertebrate endangered, threatened or endangered species or their habitats. The proposed action should have no impact on sensitive species or their habitats.