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# Kenai Winter Access

## Final Environmental Impact Statement



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# Kenai Winter Access Final Environmental Impact Statement

## Chugach National Forest, Seward Ranger District

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## Abstract

The Chugach National Forest has developed a revised winter access management plan for the Seward Ranger District on the Kenai Peninsula. This revised plan is needed to respond to the withdrawal of the 2002 Chugach National Forest Revised Land and Resource Management Plan decision regarding winter motorized access for the Carter-Crescent Lakes area. Once it is adopted, the Kenai Winter Access Plan will amend the Chugach National Forest Revised Land and Resource Management Plan. The proposed plan is specific to winter recreation use only and does not consider other uses or other seasons of use. This final environmental impact statement (FEIS) examines five alternatives including the No Action Alternative and the Modified Preferred Alternative. The Modified Preferred Alternative designates a scenario (Season A/Season B) that alternates motorized and non-motorized use in the Resurrection and West Resurrection units each winter season. All other units are either permanently motorized or non-motorized during the winter season. The Carter/Crescent unit would remain motorized during every winter season while the designated non-motorized area in Summit, Russian, Snow River, and Tiehack/Mt Alice would increase in size. In one winter season, 175 miles of multiple-use trails or routes would be available and 120 miles would be available the alternating winter season. Three cabins would be available in non-motorized units every year. In every other year, there would be a total of 12 cabins available 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 Modified Preferred Alternative includes two non-motorized access corridors in the Lost Lake and Carter/Crescent units. Motorized travel would be allowed up the South Fork of the Snow River to the Nellie Juan area (every year). The No Action Alternative represents the current condition. The Proposed Action, Alternative 1, and Alternative 2 include a range of non-motorized and motorized designations, corridors, cabin availability, and guided helicopter skiing permitting.

The publication of this FEIS will be followed by a Record of Decision (ROD). The Record of Decision will document the selected alternative and provide the rationale for the decision.



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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

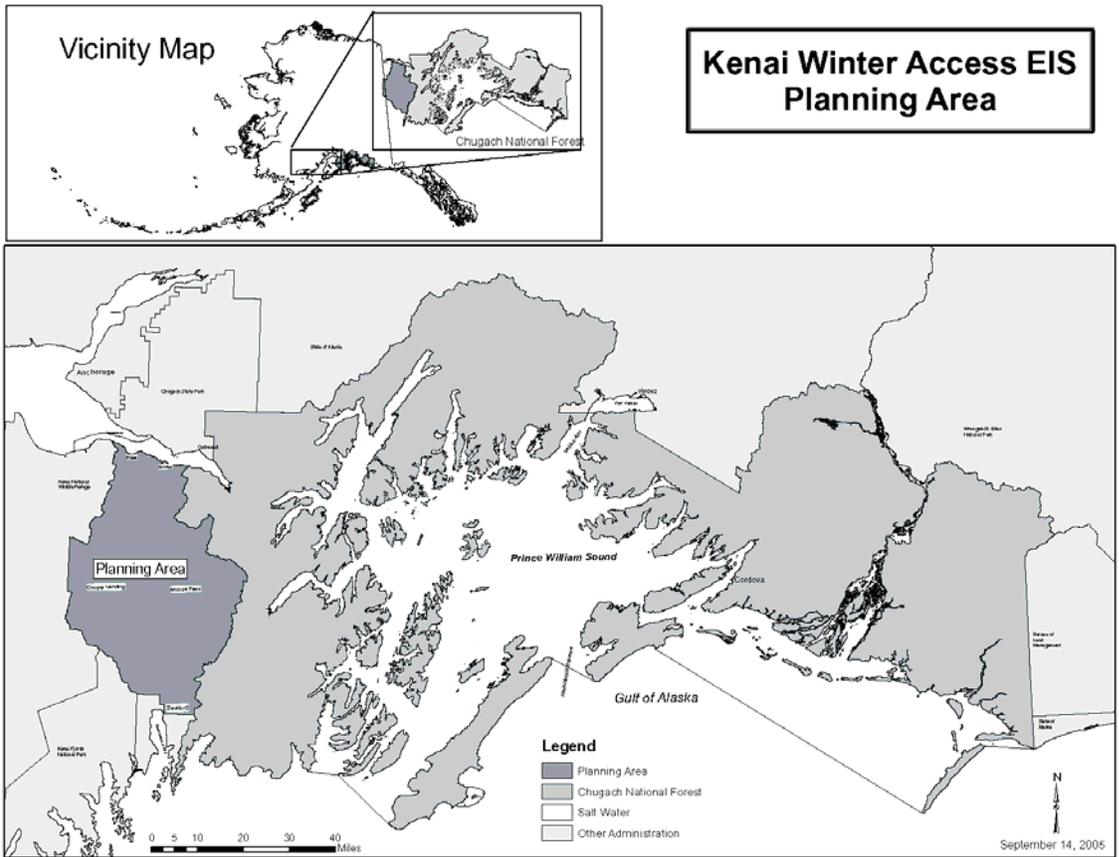
The project area is divided into 12 geographic units, listed below (see Map 1-2, Planning Area Geographic Units Map). These units will be used to guide the reader through a description of the alternatives.

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 mid-season swap changeover date from motorized to non-motorized in the No Action Alternative.

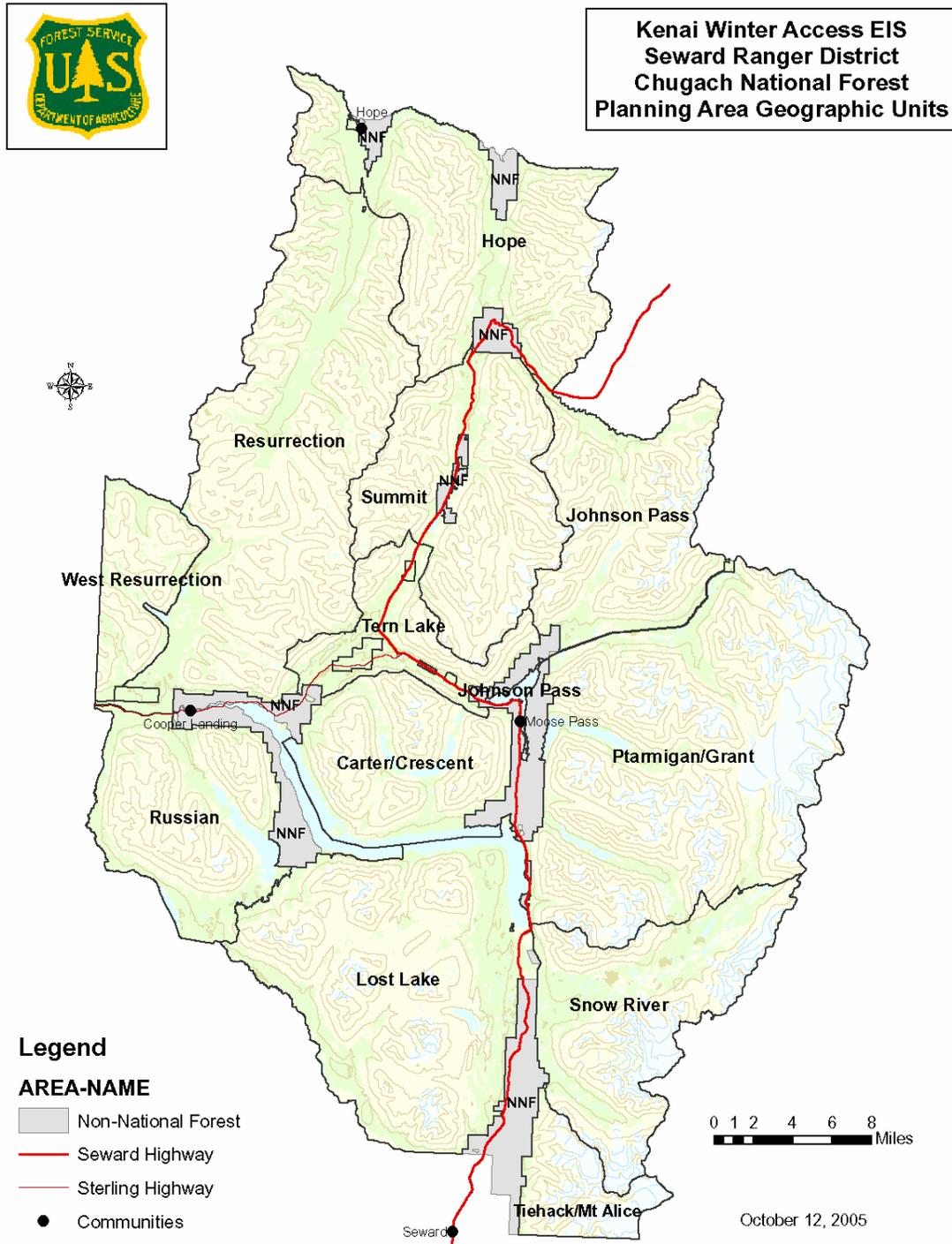
The following are the 12 geographic units:

- |                      |                      |
|----------------------|----------------------|
| 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

Due to the withdrawal of the Carter-Crescent Lakes area from the Record of Decision (ROD) for the Chugach National Forest Revised Land and Resource Management Plan (LRMP), the Chugach National 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). The winter motorized use season is from December 1 through April 30. The season may be extended or shortened by a Forest Order as snow conditions allow.

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 area 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 withdrawing the decision on the Carter-Crescent Lakes area, the management direction for that area reverted to the direction provided in the 1984 Chugach National Forest Land and Resource Management Plan (1984 LRMP). Under the 1984 LRMP, this area was designated motorized from December 1 to April 30, once there is adequate snow to protect resources.

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 of these comments and suggestions, 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. Chugach National Forest Land and Resource Management Plan Direction

The Chugach National Forest Revised Land and Resource Management Plan (LRMP) (USDA-FS, 2002a) provides direction for all resource management programs on the Chugach National Forest. The LRMP consists of forest-wide goals and objectives as well as specific standards and guidelines that direct land uses and resource outputs. The LRMP 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 1.6.1. Laws).

There are many Land LRMP standards and guidelines that are applicable to the general design of the proposed action. Specific LRMP standards (USDA-FS, 2002a, p. 3-35 to 3-42 and 3-47 to 3-48) that guided the development of the purpose and need are:

- 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.
- 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 snowmachines, 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, and National Recreation Trails (including Resurrection Pass National Recreation 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 view shed of the Seward Highway.
- Management activities, consistent with management area direction, may occur within the Seward Highway corridor.

## Land and Resource Management Plan Consistency

The Revised Land and Resource Management Plan for the Chugach National Forest (LRMP) (USDA-FS, 2002a), LRMP Final Environmental Impact Statement (FEIS) (USDA-FS, 2002b and 2002c), and LRMP Record of Decision (USDA-FS, 2002d) were approved on May 31, 2002. This FEIS is tiered to those documents. Once a decision is signed, the Kenai Winter Access Plan will amend the LRMP. The proposed actions are specific to winter recreation use only. The proposed plan does not consider other uses or other seasons of use.

### 1.3. PROPOSED ACTION

The Chugach National Forest has developed a revised winter access management plan for the Seward Ranger District. During the winter season, the Seward Ranger District land base would be designated 67 percent motorized, 15 percent non-motorized, and 18 percent would alternate use by winter season (Season A/Season B). The Carter/Crescent unit would remain designated motorized during the winter every year while the current designated non-motorized area in the Summit, Russian, Snow River, and Tiehack/Mt Alice units would be expanded.

After publication of the Notice of Intent to prepare an Environmental Impact Statement (EIS) and two sets of public collaborative workshops, a Proposed Action was developed. A Draft EIS (DEIS) with the Proposed Action was published in April, 2006.

The current management of the Resurrection and West Resurrection units allocates the first part of every winter to motorized use and after February 15, allocates the area to non-motorized use. Throughout this document, this is referred to as the February 15 mid-season swap. The Proposed Action uses a scenario that alternates motorized and non-motorized use in the Resurrection and West Resurrection units each winter season. That is, one year the Resurrection and West Resurrection units would be designated motorized and the following year, they would both be designated non-motorized. Throughout this document, this is referred to as a Season A/Season B scenario. All other units are either motorized or non-motorized every winter season.

In one winter season, 2 cabins would be accessible in designated non-motorized areas and 15 cabins in designated motorized areas. In the alternating winter 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 Map, which displays the 12 named units used throughout this analysis.

The Proposed Action addresses 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. Motorized travel would be allowed up the South Fork of the Snow River to the Nellie Juan area (every year).

Access corridors defined in the action alternatives will be designated as either motorized or non-motorized corridors across non-motorized or motorized areas. No trail construction or other site specific improvements will be implemented for the proposed corridors by the decision made on the Kenai Winter Access FEIS. Any site-specific improvements in the designated access corridors would require additional analysis before constructing improvements in these access corridors. Clearing of access corridors and signing of corridors will be permitted as part of the Record of Decision for this FEIS.

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

This alternative includes motorized access 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.

## 1.4. SCOPE OF OUR ANALYSIS

The project area is the entire Seward Ranger District of the Chugach National Forest. The analysis considered the direct, indirect, and cumulative effects of the No Action, Proposed Action, Modified Preferred Alternative, Alternative 1, and Alternative 2. The alternatives propose a range of changes specific to winter recreation access. The winter motorized use season is from December 1 through April 30. The season may be extended or shortened by a Forest Order as snow conditions allow.

### 1.4.1. Past Activities and Connected Actions

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

##### Deferred Exploratory Units

A decision was made in the CGHS to allow commercially guided helicopter skiing in the exploratory areas in the Snow River and East Ptarmigan units (44,700 acres). To ensure the CGHS implementation would be compatible with any new direction from the Kenai Winter Access FEIS, implementation in the Snow River and Ptarmigan units was deferred.

## 1.4.2. Past, Present, and Ongoing Activities

### Past Activities

#### Cabin Replacement and Rehabilitation

Juneau Lake Cabin (Resurrection unit) – This cabin was replaced in 1997. Since its replacement, use has increased.

Lauritsen Cabin (Mills Creek) (Summit unit) – This historic cabin was rehabilitated in 2002. If the cabin becomes available for public use, increased use would be expected.

Devil's Pass Cabin and Romig Cabin (Resurrection unit) – These cabins were replaced and trail reconstruction was completed in 2006. More privacy to cabin users is expected. Experience with similar projects indicates that use increases once the cabin is replaced.

#### Trailhead Construction and Trail 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 and Public Facilities (ADOT&PF). This would provide a total of three additional parking areas in the general Summit Trailhead area.

#### 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 reconstruction was completed 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. There are plans to add an additional loop of campsites for summer use but there are no plans for additional winter parking.

#### Highway Reconstruction and Realignment

Seward Highway Reconstruction and Realignment – The State of Alaska Department of Transportation and Public Facilities (ADOT&PF) 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 and 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).

## 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 and from Russian River Campground Road
- Rainbow Lakes Trail from the Snug Harbor Road

### Winter Recreation Areas in Proximity to the Analysis Area

Turnagain Pass Winter Use Area, managed by the Glacier Ranger District, is directly adjacent to the analysis area. When Turnagain snow pack is low or the area 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 the Chugach State Park or when use is considered excessive.

Kenai National Wildlife Refuge is located adjacent to the west side of the analysis area. Motorized use is permitted in the entire Caribou Hills area and in designated areas below 2,000 feet in other areas of the Refuge. The Refuge restricts recreational motorized use within the areas adjacent to the Chugach National 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 community members of Soldotna can use

the Refuge for motorized use, Seward Ranger District observation indicates they tend to 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 the Willow Cabin is available for overnight reservation. The Willow cabin is available in the winter, after the Exit Glacier Road is closed (the fall through the first week in April).

## Outfitter and Guides

Six outfitters and guides provide winter services:

### Chugach Powder Guides

Guided helicopter skiing on the Kenai Peninsula was first permitted in 1996. Core use occurs in the Johnson Pass unit and exploratory use occurs in the Hope, Ptarmigan/Grant, and Lost Lake units (Map A-2-1, No Action Alternative).

### Glacier City Snowmobile Tours

Snowmobile Tours – 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 between Cooper Lake, Lost Lake, and Snug Harbor Road

### Alaska Snowmachine Safaris

Snowmobile Tours – Johnson Pass Trail

### Alaska Pacific University

Winter Camping, Avalanche Education, and 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 fuels 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 the Seward to Girdwood Iditarod National Historic Trail on January 23, 2004 (USDA, FS, 2003a). The decision included approximately 186 miles to be managed as part of the INHT. The decision included 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 use is allowed on approximately 105 miles of the trail while 81 miles of trail are closed to winter motorized use. All routes follow the LRMP 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 of five new cabins located in: Mills Creek, the eastside of Ptarmigan Pass, Lost Lake Trail, and the Johnson Pass unit (two cabins)

#### Sterling Highway Realignment Project

The State of Alaska Department of Transportation and Public Facilities (ADOT&PF) has proposed to realign part of the Sterling Highway from milepost 45 to 60, away from the river canyon (ADOT&PF, 2003). Three action alternatives have been proposed for analysis in the Sterling Highway Milepost 45-60 Supplemental DEIS: Juneau Creek, G-South, and Cooper Creek. These alternatives all involve National Forest System lands, with the Juneau Creek Alternative impacting the most area. The Juneau Creek Alternative proposes to realign the highway around Cooper Landing and cross the Resurrection Pass Trail, while the G-South and Cooper Creek Alternatives propose to partially realign around Cooper Landing. If selected, the Juneau Creek Alternative has the greatest potential of the alternatives, to change the backcountry setting found on the southern portion of the Resurrection unit to a highly used day-use setting for both summer and winter.

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

The Federal Energy Regulatory Commission (FERC) is currently in the process of re-licensing the Cooper Lake Dam. As part of this process, the permit holder of the dam may do the following activities:

- Construct a new parking area at the Cooper Lake Parking area on Snug Harbor Road in 2009 or 2010.
- Implement a water diversion project to improve fish habitat in Cooper Creek. This project would include adding approximately 11,000 feet of pipeline and an access road approximately 2 miles long. Implementation is scheduled for 2013.
- Reconstruct approximately 12 miles of Snug Harbor Road in 2013.

These activities would address the safety issue of parking 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. A new parking lot would accommodate winter users and provide a needed parking facility to access the

Russian and Lost Lake units. Reconstructing the 12 miles of Snug Harbor Road would improve access to winter opportunities in the Russian and Lost Lake units.

## Mills Creek Iditarod Hut-to-Hut System (Hut to Hut)

The Mills Creek Iditarod Hut-to-Hut System project is a proposal for a 34-mile system utilizing new and existing trails. Approximately 16 miles of new, non-motorized trail 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 4 huts and associated facilities would be constructed to accommodate 20 overnight guests each. 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. This proposal could potentially increase winter backcountry use in the Summit and Johnson Pass units by providing trail systems and high quality facilities to the public. This project is still at the draft stage and no decisions have been issued about this proposal.

## Cabin Replacement and Rehabilitation

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

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

## Seward Highway Reconstruction and Realignment Projects

The State of Alaska Department of Transportation and Public Facilities (ADOT&PF) 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 all would provide areas where motorized use would be permitted and areas where motorized use would be prohibited. Large contiguous units that are managed as non-motorized 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 recreation have been analyzed (in the Commercially Guided Helicopter Skiing FEIS) and specific mitigation

was applied to reduce or eliminate the impacts in the Johnson Pass unit (USDA-FS, 2004d).

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 guided helicopter skiing areas. 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 motorized use, making this unit less desirable for experiencing natural quiet. In the Snow River unit, the alternatives that restrict guided helicopter skiing and snowmachine use, would cumulatively allow for the opportunity for quiet.

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

Implementation of the Seward to Girdwood Iditarod National Historic Trail decisions, such as establishing continuous parallel routes for non-motorized and motorized users, and an increase in cabins (potentially five new cabins) may add more snowmachine-associated noise in the Seward to Girdwood Iditarod National Historic Trail project area, as new routes and amenities become developed and utilized. New non-motorized, but no new motorized routes are proposed in the Seward to Girdwood Iditarod National Trail project area.

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 a Season A/Season B scenario, use is likely to increase with the recent 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 replacement 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 Pass 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 proposed Mills Creek Iditarod Hut-to-Hut System, and the Seward to Girdwood Iditarod National Historic Trail are implemented. If use increases, hunters and trappers 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 Hut-to-Hut System trailhead, which would connect to the Iditarod National Historic Trail, Johnson Pass Trail, and the Whistle Stop trail system, would be adjacent to three heritage sites. 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, river otter, and bald eagle) due to recreation activity. Risks of affecting the populations is low-moderate for all species except wolverine, marbled murrelet, and river otter, 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 Modified Preferred Alternative, 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 Modified Preferred Alternative, (2) select one of the other action alternatives, (3) select one of the action 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 LRMP.

### 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. Create closures or restrictions that are feasible to enforce.
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 motorized recreation use.
7. Provide management strategies to reduce conflicts between user groups.

## **1.5.2. Project Implementation**

Once a decision has been made and published, project implementation would begin in the next 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

## 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:

- The individual is lawfully engaged in an authorized subsistence activity during permitted dates.
- The individual can identify himself as a qualified subsistence user.
- The individual is in compliance with all public safety regulations (USDA-FS, 2004c, 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, 2005c)
- USDA Forest Service Region 10 Soil and Water Conservation Handbook of Best Management Practices (USDA-FS, 2006)
- 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, 2004d and 2004e)

## 1.7. WHAT TO EXPECT NEXT

The publication of this FEIS will be followed by a Record of Decision (ROD). The ROD will document the selected alternative and provide the rationale for the decision.

## 1.8. PROJECT RECORD

This FEIS takes advantage of existing information included in the Chugach National Forest Revised Land and Resource Management Plan (LRMP) (USDA-FS, 2002a), applicable resource specific research, project-specific reports and other sources as indicated. Where applicable, such information is briefly summarized and referenced to avoid duplication. The project record for this analysis documents all project-specific information, including resource reports. The project record also contains information resulting from public involvement. The project record is located at the Seward Ranger District in Seward, Alaska, and is available for review during regular business hours. Information from the project record is available on request.

## 1.9. ORGANIZATION OF THIS FINAL ENVIRONMENTAL IMPACT STATEMENT

The Forest Service has prepared this Final Environmental Impact Statement (FEIS) in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This FEIS discloses the direct, indirect, and cumulative environmental impacts that would result from the Proposed Action and other action 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 Modified Preferred Alternative:** 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 action alternatives. This analysis is organized by resource.

Appendices – The appendices provide detailed information to support the analysis presented in the FEIS. Maps provide a visual comparison between the alternatives. A glossary is included to explain some of the terms and acronyms used in the document.

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## Chapter 2 – Alternatives, Including the Modified Preferred Alternative

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### 2.1. INTRODUCTION

This chapter describes and compares the alternatives considered for the management 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

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 Chugach National 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 1 or several of the 3 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) to complete an Environmental Impact Statement (EIS) was published in the Federal Register on April 23, 2005. The NOI asked for public comment through May 25, 2005. 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 Chugach National 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.

The issues were used to develop the alternatives that were analyzed in a Draft EIS (DEIS) published in April 2006. A series of public meetings were held in May 2006 in Anchorage, Moose Pass, Soldotna, and Cooper Landing. About 60 people attended these meetings and they provided comments and suggestions on the DEIS and alternatives. Public comments were accepted on the DEIS for 52 days. Many letters were received from individuals and groups from the project area, adjacent communities, and across the country.

In October 2006, a Supplemental EIS (SEIS) was published. The SEIS Preferred Alternative was developed to address the issues and concerns expressed in public comments received on the DEIS. The SEIS Preferred Alternative proposed designating most of the Snow River unit as non-motorized with a motorized corridor along the South Fork of the Snow River. The SEIS Preferred Alternative would not include permitting commercially guided helicopter skiing in the Snow River exploratory unit. The East Ptarmigan unit would be available for commercially guided helicopter skiing in that alternative.

Comments were accepted on the SEIS for 45 days. Many letters were received from individuals and groups from the project area, adjacent communities, and across the country. The comments received on the SEIS were used to develop the Modified Preferred Alternative in this Final EIS (FEIS). This FEIS incorporates all of the comments received on the DEIS and the SEIS. The FEIS presents the analysis of the environmental effects of the No Action Alternative, Proposed Action, Modified Preferred Alternative, Alternative 1, and Alternative 2. All of this information will be used by the Chugach National Forest Supervisor to make a decision on the winter access management plan for the National Forest System lands on the Kenai Peninsula.

## 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, or
5. A general comment.

### **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 on the Resurrection Pass with a scenario that alternates motorized and non-motorized use each winter season.
- 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 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 users interested in recreating at cabins and in 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 Chugach National Forest for a variety of activities (including using snow for access to gather firewood as well as for recreational use on the National Forest System 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 for reservation
- 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.

### Indicators

- Shared Use: 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
- Opportunity for Quiet: 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
- 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.

### Indicator

- Number of historic properties documented

## 2.4. ALTERNATIVES CONSIDERED IN DETAIL

The Forest Service has developed five alternatives, the No Action Alternative, the Proposed Action, the Modified Preferred Alternative, Alternative 1, and Alternative 2, 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. The amount of area designated motorized, non-motorized, or Season A/Season B is the relative amount of National Forest System lands allocated to each type of use. There is a small area in the Johnson Pass unit that is closed to snowmachine use but open to guided helicopter skiing. This area is about 1 percent of the total project area. The Black Mountain Research Natural Area is in the Lost Lake unit. It is about 1 percent of the total project area and it is included in the non-motorized category in every 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. The miles of trail designated non-motorized will be included. Only trails on National Forest System lands will be included in these totals.
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. The miles of trail designated for motorized use will be included. Only trails on National Forest System lands will be included in these totals.
3. **Season A/Season B Scenarios** – This section describes which units would be part of a scenario that alternates winter motorized and non-motorized designation each winter season. Miles of National Forest System trail designated for motorized use will be included for each winter 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 FEIS. 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 in this area are described in this section.

6. **Motorized Community Access** – The extent of motorized access 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 some areas of the Kenai Peninsula in 2004 (USDA-FS, 2004e). Both the Ptarmigan/Grant and Snow River units 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 the Kenai Winter Access plan is made. This section will show whether guided helicopter skiing activities could be permitted in these exploratory areas. This project does not include any proposed changes to core guided helicopter skiing areas. The General Operating Requirements from the CGHS ROD regarding helicopter travel over non-motorized areas would apply in all units.

### 2.4.3. Unit Descriptions

This section includes a description of the management direction for each planning unit.

### 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. The Forest Service manages 17 cabins on the Seward Ranger District that are available for reservation by recreation users.

### 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), located in the Lost Lake 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 a RNA. The acres associated with it are included in the non-motorized percentages presented for the Lost Lake unit.
4. All of the alternatives, except the No Action Alternative, propose scenarios that alternate motorized and non-motorized designation each winter season. These will be referred to as Season A/Season B scenarios.
5. The existing motorized closure dates, as described in the LRMP on page 3-35 (#4) for non-motorized and motorized use will remain in effect for all alternatives. The February 15 mid-season swap between motorized and non-motorized use in the Resurrection and West Resurrection units will remain in effect for the No Action Alternative only. The four 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 scenarios 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. The 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 National Forest System lands only.
10. The total acreage within the project area (Seward Ranger District) is 885,730 acres. Non-National Forest System lands total 50,030 acres in the project area. Therefore, the total acreage of National Forest System lands used in all calculations is 835,700 acres.
11. Desirable and Usable Terrain: The ability to quickly access desirable terrain 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 an area.
12. 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.
13. Even though a unit may be designated as non-motorized, the potential for encountering subsistence users with snowmachines is possible.

## 2.5. NO ACTION ALTERNATIVE

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

This alternative is the existing direction in the LRMP, except for the Carter/Crescent unit. Due to withdrawal of the portion of the decision for the Carter-Crescent Lakes area from the LRMP decision, current management direction for that area reverts to the 1984 LRMP that leaves the unit available for motorized access.

The majority of the area within the Resurrection and West Resurrection units is part of the mid-season changeover from motorized use to non-motorized use after February 15 of each year.

The Seward Ranger District land base would be designated 72 percent motorized, 11 percent non-motorized, and 17 percent February 15 mid-season swap (most of the Resurrection and West Resurrection units).

## 2.5.2. Highlights - No Action Alternative

1. **Non-motorized Areas** – The non-motorized areas in the Summit, Johnson Pass, Tern Lake, Russian, Lost Lake, Snow River, and Tiehack/Mt Alice units would not change from the current condition. There are 26 miles of trail in designated non-motorized areas.
2. **Motorized Areas** – The motorized areas in all 12 geographic units would not change from the current condition. There are 143 miles of trail in designated motorized areas.
3. **Season A/Season B Scenario** – There is no Season A/Season B scenario in this alternative. The Resurrection and West Resurrection units continue to be motorized until February 15. After February 15, they are non-motorized. The 47 miles of trail in the Resurrection unit is designated motorized every winter until February 15 mid-season swap.
4. **Access Corridors** – No additional access corridors are designated.
5. **Trail River Campground** – The campground area is designated for non-motorized use.
6. **Motorized Community Access** – Motorized access would be allowed from the communities of Cooper Landing to Moose Pass and from the Sterling Y to Lower Summit Lake via the highway right of way (100 feet on either side of the centerline).
7. **Helicopter Skiing** – There are currently two areas, one in the Ptarmigan/Grant unit and one in the Snow River unit, where the issuance of a special use permit for guided helicopter skiing has been deferred pending the completion of this analysis. These two areas would be available for special use permits.

**Table 2-1 No Action Alternative: Percent of Units Designated Motorized and Non-motorized until/after the February 15 Mid-season Swap**

Unit	Percent Motorized	Percent Non-motorized
Hope	100	0
Resurrection	100/5	0/95
West Resurrection	100/12	0/88
Summit	44	56
Johnson Pass <sup>1</sup>	81	9
Tern Lake	46	54
Russian	79	21
Carter/Crescent	100	0
Ptarmigan/Grant	100	0
Lost Lake	92	8
Snow River	86	14
Tiehack/Mt Alice	94	6

### 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).
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 for non-motorized use (56 percent).
  - The west side is designated non-motorized at the Fresno Creek drainage and the slopes between the Seward Highway and the adjacent ridge to the Pass Creek drainage. The area 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> (The total area for the Johnson Pass unit does not equal 100 percent because 10 percent of the unit is available for guided helicopter skiing but closed to snowmachine use.)

- On the east side, the non-motorized area includes all of the 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 with the exception of the southeastern portion of the Center Creek drainage, which is designated for non-motorized use and guided helicopter skiing. The Center Creek drainage is 10 percent of the Johnson Pass unit area. In the summary tables for each alternative, we have left this 10 percent out of the tally for Johnson Pass unit. This feature for the Johnson Pass unit remains the same as the No Action Alternative across all alternatives.
  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 System 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 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. There are two non-motorized areas: the Black Mountain Research Natural Area 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 and non-motorized users would have access to nine cabins in the Resurrection unit based on the February 15 mid-season swap. Seven cabins in the Russian, Carter/Crescent, Lost Lake, and Snow River units would be accessible by motorized users every season. Non-motorized users could exclusively access one cabin in the Russian unit all winter season.

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

Unit	Cabin	Motorized	Non-motorized after February 15
Resurrection	Caribou Creek	✓	✓
	Fox Creek	✓	✓
	East Creek	✓	✓
	Devils Pass	✓	✓
	Swan Lake	✓	✓
	West Swan Lake	✓	✓
	Juneau Lake	✓	✓
	Romig	✓	✓
	Trout Lake	✓	✓
Russian	Barber		✓ <sup>1</sup>
	Aspen Flats	✓	
	Upper Russian	✓	
C/C	Crescent Lake	✓	
	Crescent Saddle	✓	
Lost Lake	Dale Clemens	✓	
Snow River	Lower Paradise	✓	
	Upper Paradise	✓	

<sup>1</sup> The Barber Cabin is available for exclusive non-motorized use at all times.

## 2.6. PROPOSED ACTION

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

This alternative minimizes confusion with a Season A/Season B scenario that alternates motorized and non-motorized use in the Resurrection and West Resurrection units each winter season (rather than mid-season, as currently exists). All other units are designated either motorized or non-motorized during the winter season.

The Carter/Crescent unit would remain designated for motorized use at all times while the designated non-motorized areas in the Summit, Russian, Snow River, and Tiehack/Mt Alice units would all increase in size. In winter seasons when the Resurrection and West Resurrection units would be designated motorized, 15 cabins would be available to motorized users. In the next winter season, 11 cabins would be available to non-motorized users exclusively. The existing designated non-motorized area in Lost Lake would be expanded slightly to the west to provide additional non-motorized opportunities near Long Lake and Grayling Lake.

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 includes 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 alternative provides a continuous motorized corridor connecting these communities.

The Seward Ranger District land base would be designated 67 percent motorized, 15 percent non-motorized, and 18 percent Season A/Season B scenario.

### 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). There would be 40 miles of trail for non-motorized use.
2. **Motorized Areas** – This alternative would increase the motorized areas in the Tern Lake and Snow River units and decrease motorized areas in the Summit, Russian, Lost Lake, and Tiehack/Mt Alice units (Table 2-3). There would be 122 miles of trails in areas designated motorized.
3. **Season A/Season B Scenario** – The Resurrection and West Resurrection units together would alternate (Season A/Season B) the type of access each winter season. That is, one winter season the Resurrection and West Resurrection units would be designated for motorized use and the following winter season they would both be designated for non-motorized use. In the season that the Resurrection and West Resurrection units are designated for motorized use, there would be 177 miles of trail motorized and 40 miles of trail designated for non-motorized use. In the next season, there would be 122 miles of trail motorized use and 95 miles of trail designated non-motorized.

4. **Access Corridors** – Two non-motorized access corridors are designated, one in the Carter/Crescent unit and one in the Lost Lake unit. The access corridor in the Carter/Crescent unit 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 the Lost Lake unit 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.

Motorized travel would be allowed up the South Fork of the Snow River to the Nellie Juan area (every year). This would only be a corridor along the river bottom. Where the river braids the boundary would be the outside edge of the river.

5. **Trail River Campground** – Trail River Campground would continue to be designated non-motorized, although grooming with motorized equipment would be permitted.
6. **Motorized Community Access** – Motorized access would be allowed from the communities of Cooper Landing to Moose Pass and from the Sterling Y to Lower Summit Lake.
7. **Helicopter Skiing** – The exploratory areas in the Ptarmigan/Grant and Snow River units would remain available for guided helicopter skiing permits.

**Table 2-3 Proposed Action: Percent of Motorized and Non-motorized Land by Unit, Compared to the No Action Alternative**

Unit	Percent Motorized	Percent Increase or Decrease Motorized	Percent Non-motorized	Percent Increase or Decrease Non-motorized
Hope	100	0	0	0
Resurrection	100A/1B	NA	0A/99B	NA
West Resurrection	100A/0B	NA	0A/100B	NA
Summit	18	-26	82	26
Johnson Pass <sup>1</sup>	81	0	9	0
Tern Lake	84	38	16	-38
Russian	41	-38	59	38
Carter/Crescent	100	0	0	0
Ptarmigan/Grant	100	0	0	0
Lost Lake	91	-1	9	1
Snow River	94	8	6	-8
Tiehack/Mt Alice	36	-58	64	58

<sup>1</sup> (The total area for the Johnson Pass unit does not equal 100 percent because 10 percent of the unit is available for guided helicopter skiing but closed to snowmachine use.)

### 2.6.3. Unit Descriptions – Proposed Action

1. **Hope** – This unit is designated for motorized use.
2. **Resurrection** – This unit would be part of a Season A/Season B scenario that alternates motorized and non-motorized use together with the West Resurrection unit each winter season.
3. **West Resurrection** – This unit would be part of a Season A/Season B scenario that alternates motorized and non-motorized use together with the Resurrection unit each winter season.
4. **Summit (west side and east side of the Seward Highway)**
  - The entire west side would be designated non-motorized, except for narrow strips of land along the highway corridor between the power line and the Seward Highway
  - The east side would be designated non-motorized except for the following areas: an area between Lower Summit Lake and Summit Lake bounded by State land near the highway and the 2000 foot elevation up the slope; all drainages south of Tenderfoot Creek drainage
5. **Johnson Pass** – The majority of this unit is designated for motorized use. The southeastern portion of the Center Creek drainage would be designated non-motorized, with the exception of guided helicopter skiing. The Center Creek drainage is 10 percent of the Johnson Pass unit. In the summary tables for each alternative, this 10 percent out of the tally for Johnson Pass unit. This feature of the Johnson Pass unit remains the same as the No Action Alternative across all alternatives.
6. **Tern Lake**

The following areas would be designated for motorized use:

- 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 designated non-motorized:

- The area west of the Seward Highway and west of the power line from Devils Creek Trail through and including the Slate 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 would be designated 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 designated for motorized use. The unit boundaries are 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. Guided helicopter skiing would be permitted in the deferred exploratory area of the Ptarmigan/Grant unit.
10. **Lost Lake** – The majority of this unit would remain designated for motorized use. There are two non-motorized areas: the Black Mountain Research Natural Area and all the National Forest System lands within the Grayling, Meridian, and Long Lake drainages west of the Seward Highway. The non-motorized 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. The Primrose Trail, Primrose Road, Primrose Campground, and the Seward Power Line adjacent to the Seward Highway would be designated motorized.
11. **Snow River** – The southern slopes of the South Fork of Snow River drainage would be designated non-motorized. The rest of the Snow River unit would be designated 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 designated motorized.

## 2.6.4. Cabin Availability – Proposed Action

Motorized users would have access to 15 cabins in Season A and 6 cabins in 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 in Season A and 11 cabins in Season B. Table 2-4 displays the cabins that would be available for motorized and non-motorized access in each geographic unit under the Proposed Action.

**Table 2-4 Cabin Access (Motorized and Non-motorized), Proposed Action**

Unit	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 Lake	✓		✓	
	Crescent Saddle	✓		✓	
Lost Lake	Dale Clemens	✓		✓	
Snow River	Lower Paradise	✓		✓	
	Upper Paradise	✓		✓	

## 2.7. MODIFIED PREFERRED ALTERNATIVE

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

This alternative was modified from the SEIS Preferred Alternative. The modifications made for this alternative make an effort to address the concerns expressed by the public about the alternatives in the DEIS and SEIS. Many comments requested a greater consideration of the need and desire for opportunities for quiet recreation. The concern was expressed that large areas for non-motorized use are needed to provide quiet. The Modified Preferred Alternative expands the existing designated non-motorized area in the Snow River unit and does not permit guided helicopter skiing in the Snow River area.

This alternative uses a Season A/Season B scenario that alternates motorized and non-motorized use in the Resurrection and West Resurrection units each winter season

(rather than mid-season, as currently exists). All other units are either motorized or non-motorized during the entire winter season.

The Carter/Crescent unit would remain designated for motorized use at all times. Most of the Tern Lake unit would be designated motorized for winter recreation. The areas designated for non-motorized use in the Summit, Russian, Snow River, and Tiehack/Mt Alice units would all increase in size. In years when the Resurrection and West Resurrection units would be designated for motorized use, 14 cabins would be available for motorized use. In the next year, 12 cabins would be available exclusively for non-motorized use. The existing designated non-motorized area in the Lost Lake unit 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 includes a motorized corridor from Cooper Landing and Moose Pass to Lower Summit Lake.

The Seward Ranger District land base would be 61 percent motorized, 21 percent non-motorized, and 18 percent Season A/Season B scenario.

## 2.7.2. Highlights – Modified Preferred Alternative

1. **Non-motorized Areas** – This alternative would increase the non-motorized areas in the Summit, Russian, Lost Lake, Snow River, and Tiehack/Mt Alice units (Table 2-5). There would be 41 miles of trail for non-motorized use.
2. **Motorized Areas** – This alternative would increase the motorized areas in the Tern Lake unit and decrease the motorized areas in the Summit, Russian, Snow River, and Tiehack/Mt Alice units (Table 2-5). It would also designate the Carter/Crescent unit for motorized use in winter. There would be 120 miles of trail for motorized use.
3. **Season A/Season B Scenario** – This scenario alternates motorized and non-motorized use in the Resurrection and West Resurrection units together each winter season. That is, one winter season the Resurrection and West Resurrection units would be motorized, the following winter season; both units would be non-motorized. In the season that the Resurrection and West Resurrection units are motorized, there would be 175 miles of trail for motorized use and 41 miles of trail for non-motorized use. In the next season, there would be 120 miles of trail for motorized use and 96 miles of trail for non-motorized use.
4. **Access Corridors** – Two non-motorized access corridors are designated, one in the Carter/Crescent unit and one in the Lost Lake unit. The access corridor in the Carter/Crescent unit 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 the Lost Lake unit 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.

Motorized travel would be allowed up the South Fork of the Snow River to the Nellie Juan area (every year). This would only be a corridor along the river bottom. Where the river braids the boundary would be the outside edge of the river.

5. **Trail River Campground** – Trail River Campground would continue to be designated for non-motorized use, although grooming with motorized equipment would be permitted.
6. **Motorized Community Access** – Motorized access would be allowed from the communities of Cooper Landing to Moose Pass and from the Sterling Y to Lower Summit Lake.
7. **Helicopter Skiing** – The exploratory area in the Snow River unit would not be available for guided helicopter skiing. The exploratory area in the Ptarmigan/Grant unit would be available for guided helicopter skiing.

**Table 2-5 Modified Preferred Alternative: Percent of Motorized and Non-motorized Land by Unit, Compared to the No Action Alternative**

Unit	Percent Motorized	Percent Increase or Decrease Motorized	Percent Non-motorized	Percent Increase or Decrease Non-motorized
Hope	100	0	0	0
Resurrection	100A/1B	NA	0A/99B	NA
West Resurrection	100A/0B	NA	0A/100B	NA
Summit	15	-29	85	29
Johnson Pass <sup>1</sup>	81	0	9	0
Tern Lake	79	33	21	-33
Russian	41	-38	59	38
Carter/Crescent	100	1	0	-1
Ptarmigan/Grant	100	0	0	0
Lost Lake	91	-1	9	1
Snow River	23	-63	77	63
Tiehack/Mt Alice	36	-58	64	58

### 2.7.3. Unit Descriptions – Modified Preferred Alternative

1. **Hope** – This unit is designated for motorized use.
2. **Resurrection** – This unit would be part of a Season A/Season B scenario that alternates motorized and non-motorized use together with the West Resurrection unit each winter season.

<sup>1</sup> (The total area for the Johnson Pass unit does not equal 100 percent because 10 percent of the unit is available for guided helicopter skiing but closed to snowmachine use.)

3. **West Resurrection** – This unit would be part of a Season A/Season B scenario that alternates motorized and non-motorized use together with the Resurrection unit each winter season.
4. **Summit**
  - The entire west side would be designated for non-motorized use.
  - On the east side, the non-motorized area includes all drainages from and including Tenderfoot Creek drainage north to the Hope Y. This includes all of the Mills Creek drainage and the upper portion of the Silver Tip Creek drainage. Motorized use areas include all drainages south of Tenderfoot Creek drainage to the southern unit boundary.
5. **Johnson Pass** – The majority of this unit is designated for motorized use. The Johnson Pass Trail and Trail Creek would provide a winter motorized route to access the Nellie Juan area. The southeastern portion of the Center Creek drainage is designated for non-motorized use, with the exception of guided helicopter skiing. The Center Creek drainage is 10 percent of the Johnson Pass unit total area. In the summary tables for each alternative, this 10 percent has been left out of the tally for the Johnson Pass unit. This feature of the Johnson Pass unit remains the same as the No Action Alternative across all alternatives.
6. **Tern Lake**

The following areas of this unit would be designated for motorized use:

- 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 entire east side of the Seward Highway from Tern Lake to Summit Lake

The following areas of this unit would be designated for non-motorized use:

- The area west of the Seward Highway from Devils Creek Trail through and including the Summit Creek drainage
7. **Russian** – The area designated for non-motorized use would include the Russian River drainage from the Upper Russian Cabin north to the Sterling Highway and all of the land between the Russian River and Cooper Creek/Cooper Lake. The Russian Lakes Trail would be the southern boundary of the non-motorized portion. Motorized use would be allowed east of Cooper Creek/Cooper Lake to the State land along Kenai Lake and south of the Russian Lakes Trail from Upper Russian Lake to Cooper Lake. The Russian Lakes Trail would be designated for winter motorized use.

8. **Carter/Crescent** – This entire unit would be designated for motorized use. 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 designated for motorized use. The unit boundaries are 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. Guided helicopter skiing would be permitted in the deferred exploratory area of the Ptarmigan/Grant unit.
10. **Lost Lake** – The majority of this unit would remain designated for motorized use. There are two designated non-motorized areas: the Black Mountain Research Natural Area and all of the National Forest System lands within the Grayling, Meridian and Long Lake drainages west of the Seward Highway. The non-motorized 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. The Primrose Trail, Primrose Road, Primrose Campground, and the Seward Power Line adjacent to the Seward Highway would be designated motorized.
11. **Snow River** – The entire North Fork of the Snow River would be designated for non-motorized use except the area immediately around the Upper Paradise Lake. Guided helicopter skiing would not be permitted in this unit. For the South Fork, 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. Motorized travel would be allowed up the South Fork of the Snow River to the Nellie Juan area (every year). This would only be a corridor along the river bottom. Where the river braids the boundary would be the outside edge of the river.
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 designated for motorized use.

## 2.7.4. Cabin Availability – Modified Preferred Alternative

Motorized users would have access to 14 cabins in Season A and 5 cabins in Season B. Non-motorized users may access all of the cabins during the motorized season. There would be exclusive non-motorized access to 3 cabins in Season A and 12 cabins in Season B. Table 2-6 displays the cabins that would be available for motorized and non-motorized access in each unit under the Modified Preferred Alternative.

**Table 2-6 Cabin Access (Motorized and Non-motorized), Modified Preferred Alternative**

Unit	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 1

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

As with the Proposed Action, this alternative would create a straightforward alternating (Season A/Season B) scenario between the Resurrection and Carter/Crescent units, closing the Carter/Crescent unit to motorized use every other winter season. 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 would be more than double what exists now, from 11 percent to 23 percent. The entire West Resurrection unit and most of the Russian unit 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 56 percent motorized, 23 percent non-motorized, and 21 percent Season A/Season B scenario.

## 2.8.2. Highlights – Alternative 1

1. **Non-motorized Areas** – This alternative would increase the non-motorized area in the West Resurrection, Summit, Russian, Snow River, and Tiehack/Mt Alice units and decrease the non-motorized use area in the Tern Lake unit. There would be 53 miles of trail for non-motorized use.
2. **Motorized Areas** – This alternative would increase the motorized area in the Tern Lake unit and decrease the motorized area in the West Resurrection, Summit, Russian, Snow River, and Tiehack/Mt Alice units. There would be 91 miles of trail for motorized use.
3. **Season A/Season B Scenario** – The Resurrection unit would alternate (Season A/Season B) motorized and non-motorized designation with the Carter/Crescent unit each winter season. This would be different from the Proposed Action and the Modified Preferred Alternative where the Carter/Crescent unit would be permanently motorized. In this alternative, when one unit is motorized, the other would be non-motorized. In the season that the Resurrection unit would be designated motorized, there would be 146 miles of trail for motorized use and 69 miles of trail for non-motorized use. In the next season, there would be 107 miles of trail for motorized use and 108 miles of trail for non-motorized use.
4. **Access Corridors** – No additional access corridors would be designated.
5. **Trail River Campground** – Trail River Campground would be designated non-motorized.
6. **Motorized Community Access** – Motorized access would be allowed from the communities of Cooper Landing to Moose Pass and from the Sterling Y to Lower Summit Lake.
7. **Helicopter Skiing** – The exploratory areas in the Ptarmigan/Grant and Snow River units would be available for guided helicopter skiing.

**Table 2-7 Alternative 1: Percent of Motorized and Non-motorized Land by Unit, Compared to the No Action Alternative**

Unit	Percent Motorized	Percent Increase or Decrease Motorized	Percent Non-motorized	Percent Increase or Decrease Non-motorized
Hope	100	0	0	0
Resurrection	100A/1B	NA	0A/99B	NA
West Resurrection	0	NA	100	NA
Summit	2	-42	98	42
Johnson Pass <sup>1</sup>	81	0	9	0
Tern Lake	95	49	3	-51
Russian	10	-69	90	69
Carter/Crescent	0A/100B	NA	100A/0B	NA
Ptarmigan/Grant	100	0	0	0
Lost Lake	91	-1	9	1
Snow River	68	-18	32	18
Tiehack/Mt Alice	36	-58	64	58

### 2.8.3. Unit Descriptions – Alternative 1

1. **Hope** – This unit is designated for motorized use.
2. **Resurrection** – This unit would be part of a Season A/Season B scenario that alternates motorized and non-motorized use with the Carter/Crescent unit each winter season. For example, when the Resurrection unit is non-motorized, the Carter/Crescent unit would be motorized and when the Resurrection unit is motorized, the Carter/Crescent unit 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 north of Frenchy Creek between the powerline 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 designated for motorized use. The southeastern portion of the Center Creek drainage is designated for non-motorized use, with the exception of guided helicopter skiing. The Center Creek drainage is 10 percent of the Johnson Pass unit total area. In the summary tables for each alternative, this 10 percent has been left out of the tally for the Johnson

<sup>1</sup> (The total area for the Johnson Pass unit does not equal 100 percent because 10 percent of the unit is available for guided helicopter skiing but closed to snowmachine use.)

- Pass unit. This feature of the Johnson Pass unit remains the same as the No Action Alternative across all alternatives.
6. **Tern Lake** – All of the Tern Lake unit would be motorized, except for two small areas. One area is located on the west 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 include the slope immediately east of the motorized corridor adjacent to the highway on the east side of the Seward Highway south of Summit Lake. For this alternative, two percent of the Tern Lake unit land would be managed as part of the Carter/Crescent unit Season A/Season B scenario. Land features are easier to identify than the actual unit boundary. The Season A/Season B boundary is extended northward from the Carter/Crescent unit on the northwest and northeast corners. The Crescent Creek trail serves as the northwest boundary and the ridgeline west of the Carter Trailhead serves as the northeast boundary (see Map A-2-4, Alternative 1).
  7. **Russian** – The entire Russian unit would be non-motorized.
  8. **Carter/Crescent** – This unit would be part of a Season A/Season B scenario that alternates motorized and non-motorized use with the Resurrection unit each winter season. For example, when the Carter/Crescent unit is non-motorized, the Resurrection unit would be motorized and when the Carter/Crescent unit is motorized, the Resurrection unit would be non-motorized.
  9. **Ptarmigan/Grant** – This entire unit is designated for motorized use. The unit boundaries are 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. Guided helicopter skiing would be permitted in the deferred exploratory area of this unit.
  10. **Lost Lake** – The majority of this unit would remain designated for motorized use. There are two non-motorized areas: the Black Mountain Research Natural Area 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. Guided helicopter skiing would be permitted in the deferred exploratory area of this unit.
  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.

## 2.8.4. Cabin Availability – Alternative 1

Motorized users would have access to 5 cabins in Season A and 12 cabins in Season B. Non-motorized users may access any of the cabins during the motorized season. There would be exclusive non-motorized access to 12 cabins in Season A and 5 cabins in 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**

Unit	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 Lake	✓			✓
	Crescent Saddle	✓			✓
Lost Lake	Dale Clemens	✓		✓	
Snow River	Lower Paradise	✓		✓	
	Upper Paradise	✓		✓	

## 2.9. ALTERNATIVE 2

### 2.9.1. General Overview (Map A-2-5)

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. All

other units would be either permanently motorized or non-motorized during the winter season.

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.

The Russian unit would be completely designated motorized on alternating years.

The Seward Ranger District land base would be designated 53 percent motorized, 11 percent non-motorized, and 36 percent Season A/Season B scenario.

## 2.9.2. Highlights – Alternative 2

1. **Non-motorized Areas** – This alternative would increase the non-motorized area in the Summit unit and decrease the non-motorized area in the Tern Lake unit (Table 2-10). There would be 15 miles of trail for non-motorized use.
2. **Motorized Areas** – This alternative would increase the motorized area in the Tern Lake unit and decrease the motorized area in the Summit, Russian, and Snow River units (Table 2-10). There would be 91 miles of trail for motorized use.
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 the Snow River unit each winter season. In the season that the Resurrection and West Resurrection units would be designated motorized, there would be 146 miles of trail for motorized use. In the next season, there would be 143 miles of trail for non-motorized use.

**Table 2-9 Motorized and Non-motorized Designations, Alternative 2**

Unit	Season A	Season B
<b>Resurrection</b>	Non-motorized	Motorized
<b>West Resurrection</b>	Non-motorized	Motorized
<b>Russian</b>	Motorized	Non-motorized
<b>Carter/Crescent</b>	Motorized	Non-motorized
<b>Snow River – North Fork of the Snow River east to the Paradise Lakes area</b>	Motorized	Non-motorized

4. **Access Corridors** – Two access corridors are designated in the Lost Lake unit. One motorized access corridor would be located 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 designated for motorized use.
6. **Motorized Community Access** – Motorized access would be allowed from the communities of Cooper Landing to Moose Pass and from the Sterling Y to Lower Summit Lake.

7. **Helicopter Skiing** – The exploratory area in the Ptarmigan/Grant unit would be available for guided helicopter skiing. The exploratory area in the Snow River unit would be closed to guided helicopter skiing.

**Table 2-10 Alternative 2: Percent of Motorized and Non-motorized Land by Unit, Compared to the No Action Alternative**

Unit	Percent Motorized	Percent Increase or Decrease Motorized	Percent Non-motorized	Percent Increase or Decrease Non-motorized
Hope	100	0	0	0
Resurrection	100A/1B	NA	0A/99B	NA
West Resurrection	100A/0B	NA	0A/100B	NA
Summit	6	-38	94	38
Johnson Pass <sup>1</sup>	81	0	9	0
Tern Lake	63	17	35	-19
Russian	10A/100B	NA	90A/0B	NA
Carter/Crescent	0A/100B	NA	100A/0B	NA
Ptarmigan/Grant	100	0	0	0
Lost Lake	91	-1	8	0
Snow River	33A/100B	NA	67A/0B	NA
Tiehack/Mt Alice	94	0	6	0

### 2.9.3. Unit Descriptions – Alternative 2

1. **Hope** – This unit is designated for motorized use.
2. **Resurrection** – This unit would be part of a Season A/Season B scenario as shown in Table 2-9.
3. **West Resurrection** – This unit would be part of a Season A/Season B scenario as shown in Table 2-9.
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 Pass Creek. The area from Pass Creek to the northern unit boundary would be motorized.
  - 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 designated for motorized use. The Johnson Pass Trail and Trail Creek would provide a winter motorized route to access the Nellie Juan area. The southeastern portion of the Center Creek

<sup>1</sup> (The total area for the Johnson Pass unit does not equal 100 percent because 10 percent of the unit is available for guided helicopter skiing but closed to snowmachine use.)

drainage is designated for non-motorized use, with the exception of guided helicopter skiing. The Center Creek drainage is 10 percent of the Johnson Pass unit total area. In the summary tables for each alternative, this 10 percent has been left out of the tally for the Johnson Pass unit. This feature of the Johnson Pass unit remains the same as the No Action Alternative across all alternatives.

6. **Tern Lake** – The non-motorized area would include 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 area would include the south facing slopes from Jerome Lake to where Trail Creek joins Upper Trail Lake and on the south side of the highway from the western end of Upper Trail Lake to the Crescent Creek Campground (this includes the Old Sterling Highway). There would also be designated motorized use on the north side of the Sterling Highway from Devils Creek Trail to the State land south of Langille Mountain. For this alternative, two percent of the Tern Lake unit land would be managed as part of the Carter/Crescent unit Season A/Season B scenario. Land features are easier to identify than the actual unit boundary. The Season A/Season B boundary is extended northward from the Carter/Crescent unit on the northwest and northeast corners. The Crescent Creek trail serves as the northwest boundary and the ridgeline west of the Carter Trailhead serves as the northeast boundary (see Map A-2-5, Alternative 2).
7. **Russian** – This unit would be part of a Season A/Season B scenario. See Table 2-9.
8. **Carter/Crescent** – This unit would be part of a Season A/Season B scenario. See Table 2-9.
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 would be designated motorized except for the Black Mountain Research Natural Area and a small section approximately 4 miles long in the Meridian, Grayling, and Long lakes area adjacent to the Seward Highway. For this alternative, one percent of the Lost Lake unit land area would be managed as part of the Russian unit Season A/Season B scenario. Land features of the area are easier to discern than the actual unit boundary. The Season A/Season B boundary is extended eastward from the Russian unit to the drainage that runs south from the Cooper Lake Trailhead (See Map A-2-5, Alternative 2).
11. **Snow River** – Most of the Snow River unit would be designated motorized 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 scenario between motorized and non-motorized uses. See Table 2-9. The area that alternates 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 would be designated motorized including all of the South Fork of Snow River drainage.

12. **Tiehack/Mt Alice** – This unit would remain the same as the No Action Alternative. The western slopes of Tiehack Mountain would be designated non-motorized. The rest of this unit would be designated motorized.

### 2.9.4. 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 exclusive non-motorized access to 7 cabins in Season A and 9 cabins in Season B. See Table 2-11.

**Table 2-11 Cabin Access (Motorized and Non-motorized) by Year, Alternative 2**

Unit	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		✓	✓	

## 2.10. 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.

### 2.10.1. Design Criteria for Access Corridor Management

Motorized and non-motorized access corridors are defined in the Modified Preferred Alternative, Proposed Action, and Alternative 2. No capital improvements (parking lots, trail heads, bridges, etc) will be constructed as a result of this FEIS or Record of Decision (ROD). Clearing and signing of access corridors will be permitted. The following design criteria are adapted from the 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 FEIS. 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.

## 2.11. 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.

### 2.11.1. 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 the West Resurrection and half of the Resurrection unit. 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 mid-season swap was not satisfactory. This was an attempt to provide both user groups with access to the Resurrection and West Resurrection units each season.

**Mid-season 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.

**Annual Swap** – This variation attempted to simplify the mid-season 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.

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 mid-season swap variation was more complicated than either the Forest Service or the public wanted.

### 2.11.2. Various Season A/Season B Scenarios

Numerous variations of alternating season (Season A/Season B) scenarios were drafted and discussed. Three were carried forward within the Proposed Action, Modified

Preferred Alternative, Alternative 1, and Alternative 2. Examples of other variations include:

1. The Resurrection and West Resurrection units Season A/Season B with the Snow River unit
2. The Resurrection and West Resurrection units Season A/Season B with the Carter/Crescent and Russian units
3. The Resurrection and West Resurrection units Season A/Season B with the Russian and Snow River units

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 the Russian and Snow River units 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 and 5 non-motorized one year and 8 motorized and 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 the Carter/Crescent and Russian units, 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 mid-season swap well known. As displayed in the Divide Resurrection Alternative, various alternatives were attempted that did not use the Season A/Season B scenario between these two units and other units.

### 2.11.3. 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 LRMP 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.

### 2.11.4. 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 also based on the LRMP. The LRMP 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).”

### 2.11.5. Maximize Non-motorized Areas

One alternative was considered that closed the north half of the Resurrection unit, all of the Russian and Carter/Crescent units to motorized use, as well as keeping the existing areas in the Summit, Tern Lake, Snow River, and Lost Lake units 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 LRMP. The LRMP 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 displayed in the All Motorized Alternative, the LRMP 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).”

### 2.11.6. 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.

### 2.11.7. 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 LRMP 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 Chugach National Forest does not want to impose additional controls, largely because they are particularly difficult to enforce.

### 2.11.8. 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.

### 2.11.9. 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 National Historic 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.

### 2.11.10. 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 the Carter/Crescent unit permanently would not provide a fair and balanced use of this unit.

### 2.11.11. Season A/Season B or Designate Lost Lake Non-motorized Permanently

Although designating the Lost Lake unit non-motorized 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 unit permanently or even through a Season A/Season B scenario was not considered a reasonable alternative.

## 2.11.12. Designate Russian Permanently as Motorized

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."

The Russian unit 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 the Russian unit permanently to motorized use (see 2.10.2.).

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

## 2.11.13. 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.

## 2.11.14. 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. Existing LRMP standards and guidelines were considered adequate (USDA-FS, 2002a, p. 3-35, #4).

## 2.12. COMPARISON OF ALTERNATIVES

Tables 2-12 and 2-13 provide summaries of the No Action Alternative and the four action alternatives.

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Table 2-12 Comparison of Alternatives

	No Action Alternative	Modified Preferred Alternative	Draft EIS Proposed Action	Alternative 1	Alternative 2
February 15 Mid-season Swap	Yes (Resurrection and West Resurrection units)	None	None	None	None
Season A/Season B Scenario (designation alternates each winter season)	None	The Resurrection and West Resurrection units, together, alternate between motorized and non-motorized use.	The Resurrection and West Resurrection units, together, alternate between motorized and non-motorized use.	The Resurrection unit alternates use with the Carter/Crescent unit.	The Resurrection and West Resurrection units, alternate use with the Russian unit, Carter/Crescent unit, and a portion of the Snow River unit.
Designated Access Corridors	None	2 non-motorized (1 in the Lost Lake unit and 1 in the Carter/Crescent unit)  Motorized travel allowed up the S. Fork of Snow River (every year) (Snow River unit)	2 non-motorized (1 in the Lost Lake unit and 1 in the Carter/Crescent unit)  Motorized travel allowed up the S. Fork of Snow River (every year) (Snow River unit)	None	2 in the Lost Lake unit (1 motorized and 1 non-motorized)
Trail River Campground	Non-motorized	Non-motorized, but grooming allowed	Non-motorized, but grooming allowed	Non-motorized	Motorized
Guided Helicopter Skiing in the Ptarmigan/ Grant and Snow River units	Yes – Pt/Grant Yes – Snow River	Yes – Pt/Grant No – 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>Modified Preferred Alternative</b>	<b>Draft EIS Proposed Action</b>	<b>Alternative 1</b>	<b>Alternative 2</b>
Cabins	<u>Motorized:</u> <ul style="list-style-type: none"> <li>• 7 all season</li> <li>• 9 until 2/15 mid-season swap in the Resurrection unit</li> </ul>	<u>Motorized:</u> <ul style="list-style-type: none"> <li>• 14 Season A</li> <li>• 5 Season B</li> </ul>	<u>Motorized:</u> <ul style="list-style-type: none"> <li>• 15 Season A</li> <li>• 6 Season B</li> </ul>	<u>Motorized:</u> <ul style="list-style-type: none"> <li>• 5 Season A</li> <li>• 12 Season B</li> </ul>	<u>Motorized:</u> <ul style="list-style-type: none"> <li>• 10 Season A</li> <li>• 8 Season B</li> </ul>
	<u>Non-motorized:</u> <ul style="list-style-type: none"> <li>• 1 all season</li> <li>• 9 after 2/15 mid-season swap in the Resurrection unit</li> </ul>	<u>Non-motorized:</u> <ul style="list-style-type: none"> <li>• 3 Season A</li> <li>• 12 Season B</li> </ul>	<u>Non-motorized:</u> <ul style="list-style-type: none"> <li>• 2 Season A</li> <li>• 11 Season B</li> </ul>	<u>Non-motorized:</u> <ul style="list-style-type: none"> <li>• 12 Season A</li> <li>• 5 Season B</li> </ul>	<u>Non-motorized:</u> <ul style="list-style-type: none"> <li>• 7 Season A</li> <li>• 9 Season B</li> </ul>

**Table 2-13 Percentage Acreage Designated Motorized and Non-motorized by Alternative**

Unit	No Action Alternative		Modified Preferred Alternative			Draft EIS Proposed Action			Alternative 1			Alternative 2		
	%	Non-motorized or Motorized	%	Non-motorized or Motorized	% Change	%	Non-motorized or Motorized	% Change	%	Non-motorized or Motorized	% Change	%	Non-motorized or Motorized	% Change
Hope	100	Motorized	100	Motorized	0	100	Motorized	0	100	Motorized	0	100	Motorized	0
	0	Feb. 15 Swap	0	Non-motorized	0	0	Non-motorized	0	0	Non-Motorized	0	0	Non-motorized	0
Resurrection	95	Feb. 15 Swap	99	Season A/ Season B	NA	99	Season A/ Season B	NA	99	Season A/ Season B	NA	99	Season A/ Season B	NA
	5	Motorized	1	Motorized	-4	1	Motorized	-4	1	Motorized	-4	1	Motorized	-4
West Resurrection	88	Feb. 15 Swap	100	Season A/ Season B	NA	100	Season A/ Season B	NA	100	Non-motorized	NA	100	Season A/ Season B	NA
	12	Motorized	0	Motorized	-12	0	Motorized	-12	0	Motorized	-12	0	Motorized	-12
Summit	44	Motorized	15	Motorized	-29	18	Motorized	15	2	Motorized	-42	6	Motorized	-38
	56	Non-motorized	85	Non-motorized	29	82	Non-motorized	85	98	Non-motorized	42	94	Non-motorized	38
Johnson Pass	9	Non-motorized	9	Non-motorized	0	9	Non-motorized	0	9	Non-motorized	0	9	Non-motorized	0
	81	Motorized	81	Motorized	0	81	Motorized	0	81	Motorized	0	81	Motorized	0
	10	Non-motorized w/ GHS <sup>1</sup>	10	Non-motorized w/ GHS	0	10	Non-motorized w/ GHS	0	10	Non-motorized w/ GHS	0	10	Non-motorized w/ GHS	0
Tern Lake	46	Motorized	79	Motorized	33	84	Motorized	38	95	Motorized	49	63	Motorized	17
	54	Non-motorized	21	Non-motorized	-33	16	Non-motorized	-38	2	Season A/ Season B	NA	2	Season A/ Season B	NA
									3	Non-motorized	-51	35	Non-motorized	-19

<sup>1</sup> GHS = Guided Helicopter Skiing

Unit	No Action Alternative		Modified Preferred Alternative			Draft EIS Proposed Action			Alternative 1			Alternative 2		
	%	Non-motorized or Motorized	%	Non-motorized or Motorized	% Change	%	Non-motorized or Motorized	% Change	%	Non-motorized or Motorized	% Change	%	Non-motorized or Motorized	% Change
Russian	79	Motorized	41	Motorized	-38	41	Motorized	-38	10	Motorized	-69	10	Motorized	-69
	21	Non-motorized	59	Non-motorized	38	59	Non-motorized	38	90	Non-motorized	69	90	Season A/ Season B	NA
Carter/ Crescent	100	Motorized	100	Motorized	0	100	Motorized	0	100	Season A/ Season B	NA	100	Season A/ Season B	NA
Ptarmigan/ Grant	100	Motorized	100	Motorized	0	100	Motorized	0	100	Motorized	0	100	Motorized	0
Lost Lake (includes the RNA, 1%)	92	Motorized	91	Motorized	-1	91	Motorized	-1	91	Motorized	-1	91	Motorized	-1
	8	Non-motorized	9	Non-motorized	1	9	Non-motorized	1	9	Non-motorized	1	1	Season A/ Season B	NA
												8	Non-motorized	0
Snow River	86	Motorized	23	Motorized	-63	94	Motorized	8	68	Motorized	-18	33	Motorized	-53
	14	Non-motorized	77	Non-motorized	63	6	Non-motorized	-8	32	Non-motorized	18	67	Season A/ Season B	NA
Tiehack/Mt Alice	94	Motorized	36	Motorized	-58	36	Motorized	-58	36	Motorized	-58	94	Motorized	0
	6	Non-motorized	64	Non-motorized	58	64	Non-motorized	58	64	Non-motorized	58	6	Non-motorized	0
Totals (RNA included in non-motorized totals)	17	Feb. 15 Swap	18	Season A/ Season B	NA	18	Season A/ Season B	NA	21	Season A/ Season B	NA	36	Season A/ Season B	NA
	72	Motorized	61	Motorized	-11	67	Motorized	-5	56	Motorized	-16	53	Motorized	-14
	11	Non-motorized	21	Non-motorized	10	15	Non-motorized	4	23	Non-motorized	12	11	Non-motorized	0

## 2.13. COMPARISON OF EFFECTS

**Table 2-14 Summary of Effects by Alternative and Issue Indicator**

	<b>No Action Alternative</b>	<b>Modified Preferred Alternative</b>	<b>Draft EIS Proposed Action</b>	<b>Alternative 1</b>	<b>Alternative 2</b>
<b>Recreation:</b>					
<b>Range of Opportunities</b>	72% Motorized 11% Non-motorized 17% February 15 Mid-season Swap	61% Motorized 21% Non-motorized 18% Season A/ Season B	67% Motorized 15% Non-motorized 18% Season A/ Season B	56% Motorized 23% Non-motorized 21% Season A/ Season B	53% Motorized 11% Non-motorized 36% Season A/ Season B
(1) Available terrain					
(2) Miles of winter trails or routes	Non-motorized – 26 miles all season  Motorized – 143 miles all season  <b>February 15 Mid-season Swap</b> Before/After: Motorized/Non-motorized – 47 miles	<b>Season A</b> Non-motorized – 41 miles Motorized – 175 miles  <b>Season B</b> Non-motorized – 96 miles Motorized – 120 miles	<b>Season A</b> Non-motorized – 40 miles Motorized – 177 miles  <b>Season B</b> Non-motorized – 95 miles Motorized- 122 miles	<b>Season A</b> Non-motorized – 69 miles Motorized – 146 miles  <b>Season B</b> Non-motorized – 108 miles Motorized – 107 miles	<b>Season A</b> Non-motorized – 70 miles Motorized – 146 miles  <b>Season B</b> Non-motorized – 143 miles Motorized- 73 miles
(3) Change in the range of winter opportunities	No Change	Same as Proposed Action	Most opportunities would be available. Some historical trapping and hunting opportunities (those who do not qualify for subsistence) would be affected.	Same as Proposed Action	Same as Proposed Action

	<b>No Action Alternative</b>	<b>Modified Preferred Alternative</b>	<b>Draft EIS Proposed Action</b>	<b>Alternative 1</b>	<b>Alternative 2</b>
<b>Cabins</b> (4) Number of cabins and season of use	<p><u>Motorized:</u></p> <ul style="list-style-type: none"> <li>• 7 all season</li> <li>• 9 until 2/15 mid-season swap</li> </ul> <p><u>Non-motorized:</u></p> <ul style="list-style-type: none"> <li>• 1 all season</li> <li>• 9 after 2/15 mid-season swap</li> </ul>	<p><u>Motorized:</u></p> <ul style="list-style-type: none"> <li>• 14 Season A</li> <li>• 5 Season B</li> </ul> <p><u>Non-motorized:</u></p> <ul style="list-style-type: none"> <li>• 3 Season A</li> <li>• 12 Season B</li> </ul>	<p><u>Motorized:</u></p> <ul style="list-style-type: none"> <li>• 15 Season A</li> <li>• 6 Season B</li> </ul> <p><u>Non-motorized:</u></p> <ul style="list-style-type: none"> <li>• 2 Season A</li> <li>• 11 Season B</li> </ul>	<p><u>Motorized:</u></p> <ul style="list-style-type: none"> <li>• 5 Season A</li> <li>• 12 Season B</li> </ul> <p><u>Non-motorized:</u></p> <ul style="list-style-type: none"> <li>• 12 Season A</li> <li>• 5 Season B</li> </ul>	<p><u>Motorized:</u></p> <ul style="list-style-type: none"> <li>• 10 Season A</li> <li>• 8 Season B</li> </ul> <p><u>Non-motorized:</u></p> <ul style="list-style-type: none"> <li>• 7 Season A</li> <li>• 9 Season B</li> </ul>
<b>Range of Opportunities</b> (5) Effects to both motorized and non-motorized users – <b>Season A</b>	No Change	<p><b>Season A</b> Non-motorized users would benefit most from the increased non-motorized acreage in the Summit, Snow River, and Tiehack/Mt Alice units.</p> <p>Motorized users would benefit most from the extended season, the increased cabin availability in the Resurrection unit and, the motorized acreage in the Carter/Crescent and Lost Lake units.</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.</p> <p>Motorized users would benefit most from the extended season, the increased cabin availability in the Resurrection unit, and the motorized acreage in the Carter/Crescent and Lost Lake units.</p>	<p><b>Season A</b> Non-motorized users would benefit most from the non-motorized acreage in the Resurrection, West Resurrection, Summit, Russian, Tiehack/Mt Alice and Snow River units.</p> <p>Motorized users would benefit most from the motorized acreage in the Carter/Crescent and Lost units.</p> <p>Motorized opportunity would be reduced as a result of the non-motorized designation in the Resurrection and West Resurrection units and cabins in the Resurrection unit.</p>	<p><b>Season A</b> Non-motorized users would benefit most from the non-motorized acreage in the Summit, Carter/Crescent, North Fork of Snow River, and the Russian units.</p> <p>Motorized users would benefit most from the motorized acreage in the Resurrection and West Resurrection units and the South Fork of Snow River (access to Nellie Juan).</p> <p>Motorized opportunity would be reduced as a result of the non-motorized designation in the Carter/Crescent unit.</p>

	<b>No Action Alternative</b>	<b>Modified Preferred Alternative</b>	<b>Draft EIS Proposed Action</b>	<b>Alternative 1</b>	<b>Alternative 2</b>
<p><b>Range of Opportunities</b></p> <p>(5) Effects to both motorized and non-motorized users – <b>Season B</b></p>	<p>No Change</p>	<p><b>Season B</b> Non-motorized users would benefit most from the increased acreage in the Resurrection, West Resurrection, Summit, Snow River, and Tiehack/Mt Alice units.</p> <p>Motorized opportunity would be reduced as a result of the non-motorized designation in the Resurrection and West Resurrection units 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 B</b> Non-motorized users would benefit most from the increased acreage in the Resurrection, West Resurrection, Summit, and Tiehack/Mt Alice units.</p> <p>Motorized opportunity would be reduced as a result of the non-motorized designation in the Resurrection and West Resurrection units 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 B</b> Non-motorized users would benefit most from the additional acreage in the Summit, Snow River, Tiehack/Mt Alice, and Carter/Crescent units.</p> <p>Motorized users would benefit most from the motorized acreage and cabin access in the Resurrection unit for the entire season.</p>	<p><b>Season B</b> Non-motorized users would benefit most from the non-motorized designation of the Resurrection and West Resurrection units and the expanded terrain in the Summit unit.</p> <p>Motorized users would benefit most from the acreage in the Carter/Crescent unit and would continue to utilize the Lost Lake, Ptarmigan/Grant, Johnson Pass, and Snow River units (when conditions are favorable). A new cabin opportunity would be available in the Russian unit.</p>

	<b>No Action Alternative</b>	<b>Modified Preferred Alternative</b>	<b>Draft EIS Proposed Action</b>	<b>Alternative 1</b>	<b>Alternative 2</b>
<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 - 4 units (Summit, Russian, Snow River, Tiehack/Mt Alice)</p> <p>Moderate to High Potential – 2 units (Resurrection and Carter/Crescent)</p> <p><b>Season B</b>                      Decrease - 4 units (Resurrection, West Resurrection, Summit, Snow River)</p> <p>Moderate to High Potential – 2 units (Lost Lake and Carter/Crescent)</p>	<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>
<p>(3) Change in safety-related conflicts as a result of encounters in the Lost Lake and Carter/Crescent units</p>	No Change	Reduced in both the Lost Lake and Carter/Crescent units	Reduced in both the Lost Lake and Carter/Crescent units	No Change	Reduced in the Lost Lake unit and no change in the Carter/Crescent unit

	<b>No Action Alternative</b>	<b>Modified Preferred Alternative</b>	<b>Draft EIS Proposed Action</b>	<b>Alternative 1</b>	<b>Alternative 2</b>
<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 the Resurrection and West Resurrection units after February 15th	<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> – 2 units (Russian and Snow River)</p> <p><b>Season B</b> – 4 units (Russian, Resurrection, West Resurrection, and Snow River)</p>	<p><b>Season A</b> – 4 units (Resurrection, West Resurrection, Russian, 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>					
Brown Bear	No Change	moderate impacts	moderate impacts	moderate impacts	moderate impacts
Moose	No Change	low-moderate impacts	low-moderate impacts	low-moderate impacts	low-moderate impacts
Mountain Goat	No Change	negligible impacts	negligible impacts	negligible impacts	negligible impacts
Gray Wolf	No Change	low-moderate impacts	low-moderate impacts	low-moderate impacts	low-moderate impacts
Lynx	No Change	low-moderate impacts	low-moderate impacts	low-moderate impacts	low-moderate impacts
Marbled Murrelet	No Change	moderate impacts	moderate impacts	moderate impacts	moderate impacts
River Otter	No Change	moderate impacts	moderate impacts	moderate impacts	moderate impacts
Wolverine	No Change	moderate impacts	moderate impacts	moderate impacts	moderate impacts
Bald Eagle	No Change	low-moderate impacts	low-moderate impacts	low-moderate impacts	low-moderate impacts
Northern Goshawk	No Change	low-moderate impacts	low-moderate impacts	low-moderate impacts	low-moderate impacts
Dall Sheep	No Change	negligible impacts	negligible impacts	negligible impacts	negligible impacts
Barren Ground Caribou	No Change	negligible impacts	negligible impacts	negligible impacts	negligible impacts
Black Bear	No Change	low impacts	low impacts	low impacts	low impacts
Small Mammals	No Change	low impacts	low impacts	low impacts	low impacts
Migratory Birds	No Change	low impacts	low impacts	low impacts	low impacts

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

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## 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 System 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-3-2) 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 FEIS (USDA-FS, 2004d), knowledge of recreation use by Forest Service 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. Land and Resource Management 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 LRMP. One area of emphasis that applies is the Recreational Opportunities, Access and Facilities section. Detailed descriptions of these issues may be found in the LRMP, pages 3-7 to 3-9 (USDA-FS, 2002a). The LRMP Recreation and Tourism standards and guidelines are found on pages 3-35 to 3-40 and 3-47 to 3-48. Map A-3-1 displays the LRMP management prescriptions that apply to the analysis area.

## Desired Conditions

The LRMP 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 LRMP Winter Motorized Recreation Access Map. There are no urban settings related to this project. In addition, a complete description of these classifications is included here and in the recreation specialist report in the project record.

Recreation Opportunity Spectrum (ROS) is 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. The classes found in the project area are:

Primitive (P) - An unmodified environment generally greater than 5,000 acres in size and generally located at least 3 miles from all roads and other motorized travel routes. A very low interaction between users (generally less than three group encounters per day) results in a very high probability of experiencing solitude, freedom, closeness to nature, tranquility, self-reliance, challenge, and risk. Evidence of other users is low. Restrictions and controls are not evident after entering the land unit. Motorized use is rare. Motorized activities are allowed for traditional and subsistence activities.

Semi-primitive non-motorized (SPNM) - A natural or natural-appearing environment generally greater than 2,500 acres in size and generally located at least 1/2 mile (greater or less depending on terrain and vegetation, but no less than 1/4 mile) but not further than 3 miles from all roads and other motorized travel routes. Concentration of users is low (generally less than 10 group encounters per day), but there is often evidence of

other users. There is a high probability of experiencing solitude, freedom, closeness of nature, tranquility, self-reliance, challenge, and risk. There is a minimum of subtle on-site controls. No roads are present in the area.

Semi-primitive motorized (SPM) - A natural or natural-appearing environment generally greater than 2,500 acres in size and generally located within 1/2 mile of primitive roads and other motorized travel routes used by motor vehicles; but not closer than 1/4 mile (greater or less depending on terrain and vegetation, but no less than 1/4 mile) from better-than-primitive roads and other motorized travel routes. Concentration of users is low (generally less than 10 group encounters per day), but there is often evidence of other users. There is a moderate probability of experiencing solitude, closeness to nature, and tranquility along with a high degree of self-reliance, challenge, and risk in using motorized equipment. Local roads may be present, or along saltwater shorelines there may be extensive boat traffic.

Roaded natural (RN) - Modification and utilization are evident, in a predominantly naturally appearing environment generally occurring within 1/2 mile (greater or less depending on terrain and vegetation, but no less than 1/4 mile) from better-than-primitive roads and other motorized travel routes. Interactions between users may be moderate to high (generally less than 20 group encounters per day), with evidence of other users prevalent. There is an opportunity to affiliate with other users in developed sites but with some chance for privacy. Self-reliance on outdoor skills is only of moderate importance with little opportunity for challenge and risk. Motorized use is allowed.

Roaded modified (RM) - Vegetative and landform alterations typically dominate the landscape. There is little on-site control of users except for gated roads. There is moderate evidence of other users on roads (generally less than 20 group encounters per day), and little evidence of others or interactions at campsites. There is opportunity to get away from others but with easy access. Some self-reliance is required in building campsites and use of motorized equipment. A feeling of independence and freedom exists with little challenge and risk. Recreation users will likely encounter timber management activities.

Rural (R) - The natural environment is substantially modified by land use activities. Opportunity to observe and affiliate with other users is important as is convenience of facilities. There is little opportunity for challenge and risk and self-reliance on outdoor skills is of little importance. Recreation facilities designed for group use are compatible. Users may have more than 20 group encounters per day.

### **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 analysis area 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 heading 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 and Public Facilities (ADOT&PF) 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 designated motorized.
- Access to some winter use areas occurs through private lands. For example, access to the Lost Lake Trailhead, which is located on National Forest System lands, occurs through a private subdivision.
- State lands provide key access to the Chugach 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 that are not part of the National Forest System.
- The available terrain in a unit may not all be desirable or usable terrain. Steep slopes or lack of access limits the amount of desirable or usable terrain in the project area.

## Recreation Analysis Issues

### 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 certain areas 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 users interested in recreating at cabins and in 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 National Forest System lands for a variety of activities (including using snow for access to gather firewood as well as for recreational use).

## Indicators

- Available terrain in acres and miles of trail or winter route for motorized and non-motorized uses
- Number of cabins available for reservation (The Forest Service manages 17 cabins on the Seward Ranger District that are available for reservation by recreation users)
- 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.

### Indicators

- Shared Use: 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
- Opportunity for Quiet: Narrative on the ability to experience quiet (natural quiet)

## 3.1.3. 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, skijorers, 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 mushers – 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 LRMP allows for snowmachine use in all geographic units with the exception of 1) the Resurrection and West Resurrection units after February 15 and 2) a portion of the Russian, Lost Lake, Tiehack/Mt Alice, Snow River, Tern Lake, and Summit units. Table 2-13 displays the percentage of land designated for motorized and non-motorized use in each alternative, compared to the existing condition. See also Map A-2-1, No Action Alternative.

Guided Helicopter 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 1996, a commercially guided helicopter skiing special use permit for 800 to 1,200 client 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 for the Commercially Guided Helicopter Skiing (CGHS) on the Kenai Peninsula FEIS (USDA-FS, 2004e, 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 in this Kenai Winter Access (KWA) FEIS for the Kenai Forest Plan Amendment. This will ensure the CGHS SUP will be compatible with any new direction from the KWA FEIS. The 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

Seward Ranger District observations indicate winter 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, the Carter/Crescent unit 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 and Russian units), 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 Seward Ranger 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 available parking for winter recreation (Map A-3-3, Recreation Infrastructure Map). Overall, there are approximately 216 miles of trail, winter routes, and gated or abandoned roads on National Forest System lands 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 and routes that are specifically managed for winter use include: 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 to the Lost Lake area. 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 from the public indicate that 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, because it is located 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 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 Lakes (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) are historical activities on the Seward Ranger District. The Seward Ranger 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 in that area would be desirable for winter recreation, but crossing Canyon Creek into this area is not 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 (USDA-FS, 2004d, 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 using round numbers:

- Of the 835,700 acres of National Forest System lands on the Seward Ranger District, about 300,000 acres occur on slopes greater than 51 percent. These areas are rarely used for general winter recreation.
- Over 300,000 acres occur on slopes between 21 percent and 50 percent. On these slopes, many opportunities for moderate to extreme winter recreation experience exist, but only if sufficient access is available.
- Over 250,000 acres occur on slopes up to 20 percent. It is in this category that the trailheads, parking lots, pullouts, and most of the trails are found.

When the existing recreation use data (noted above) and the associated map is compared to the 835,700 acre Seward Ranger District, the limitations for usable terrain become more apparent. The Existing Winter Recreation Use Map (Map A-3-2) displays the areas currently known to be used for winter recreation. Of the total acreage, winter recreationists currently use approximately 132,000 acres of terrain – about 15 percent of the total Seward Ranger District. Motorized and non-motorized users share approximately 14,000 acres of terrain. The units with the most shared use are 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. The 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, and the Carter/Crescent and Lost Lake units 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. The 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

- The Carter Crescent unit 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.

### 3.1.4. Environmental Consequences for the Range of Winter Recreation Opportunities

Three indicators are used in the analysis of this issue.

#### Indicators

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

## Methods

To display the environmental consequences, we will compare the percentage of terrain that is designated motorized and non-motorized 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 percent of the project area would be designated motorized, 11 percent would be designated non-motorized, and about 17 percent would be managed by splitting the winter season between motorized and non-motorized use in the Resurrection and West Resurrection units (February 15 mid-season swap) (see Table 2-13).

Of the 216 miles of available winter trails and routes, approximately 26 miles would continue to be solely available as non-motorized access all season. After February 15, non-motorized trails and routes would increase to approximately 73 miles because of the swap of the trails in the Resurrection unit. Overall, the majority of routes would continue to provide multiple use access with 143 miles of trails and routes available to motorized uses for an entire winter season.

Access to one cabin for exclusive non-motorized use would be available for the entire season. The number would increase to 10 when the Resurrection unit is designated non-motorized after February 15. For motorized uses, access to 7 cabins would be available for the entire winter season and 10 additional cabins available until the February 15 mid-season swap (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	Cabin	Motorized (Until Feb. 15 swap)	Non- motorized (After Feb. 15)
<b>Resurrection</b>	Caribou Creek	✓	✓
	Fox Creek	✓	✓
	East Creek	✓	✓
	Devils Pass	✓	✓
	Swan Lake	✓	✓
	West Swan Lake	✓	✓
	Juneau Lake	✓	✓
	Romig	✓	✓
	Trout Lake	✓	✓

Cabin Access, remaining units.

Unit	Cabin	Motorized	Non- motorized
<b>Russian</b>	Barber		✓
	Aspen Flats	✓	
	Upper Russian	✓	
<b>C/C</b>	Crescent Lake	✓	
	Crescent Saddle	✓	
<b>Lost Lake</b>	Dale Clemens	✓	
<b>Snow River</b>	Lower Paradise	✓	
	Upper Paradise	✓	

## Effects Common to All Action Alternatives

- Because non-motorized uses are not precluded in any unit, 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. This alternative does not include the February 15 mid-season swap between motorized and non-motorized use. The Proposed Action designates the Resurrection and West Resurrection units as motorized for the entire winter season in the first season and then non-motorized the entire winter season the second season (Season A/Season B).

In this alternative, approximately 67 percent of the project area would be designated motorized, 15 percent would be non-motorized, and 18 percent would be managed as an alternating Season A/Season B scenario (see Tables 2-3 and 2-13). In comparison to the No Action Alternative, the acreage available to motorized access decreases.

### Season A

Approximately 40 miles of winter trail and routes would be solely available to non-motorized users for an entire season, an increase (mostly from the Russian and Summit units) when compared to the No Action Alternative. The majority of available winter routes would be multiple-use with 177 miles of trails or routes designated motorized. Non-motorized users would benefit most from the increased non-motorized acreage in the Russian, 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 95 miles with the addition of the Resurrection and West Resurrection

units. The remainder of the winter routes would be multiple-use with 122 miles of trails designated for motorized use. Non-motorized users would benefit most with the increased acreage in the Resurrection and West Resurrection units in Season B.

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 motorized 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	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 Lake	✓		✓	
	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 Lower Summit Lake. Motorized travel to the Hope Y from Lower Summit Lake is possible but only within state lands or within 100 feet of highway on National Forest System lands.

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 designated non-motorized. Other use areas would have to be utilized.

## Modified Preferred Alternative

### 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. This alternative does not include a mid year swap between motorized and non-motorized use. The Modified Preferred Alternative designates the Resurrection and West Resurrection units as motorized for the entire winter season in the first season and then non-motorized the entire winter season the second season (Season A/Season B).

In this alternative, approximately 61 percent of the project area would be motorized, 21 percent would be non-motorized, and 18 percent would be managed as an alternating Season A/Season B scenario (see Tables 2-5, and 2-13). In comparison to the No Action Alternative, the acreage available to motorized access decreases.

### Season A

Approximately 41 miles of winter trail and routes would be solely available to non-motorized users for an entire season, an increase (mostly from the Russian, Tiehack/Mt Alice, and Summit units) when compared to the No Action Alternative. The majority of available winter routes would be multiple-use with 175 miles of trails designated motorized. Non-motorized users would benefit most from the increased non-motorized acreage in the Russian, Summit, Snow River, 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 3-3).

## **Season B**

The available trails and routes solely available for non-motorized users would increase to approximately 96 miles with the addition of the Resurrection and West Resurrection units. The remainder of available winter routes would be multiple-use with 120 miles of trails or routes motorized. Non-motorized opportunities would benefit most with the increased acreage in the Resurrection, Summit, Snow River, 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 Modified Preferred Alternative**

Local communities accustomed to using the cabins in the Carter/Crescent and Lost Lake units would continue to have motorized 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 3-3).

**Table 3-3 Cabin Access (Motorized and Non-motorized), Modified Preferred Alternative**

Unit	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 Lower Summit Lake. Motorized travel to the Hope Y from Lower Summit Lake is possible but only within state lands or within 100 feet of highway on National Forest System lands.

Some of 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 area in the Ptarmigan/Grant unit was authorized.

In both seasons, trapping (for those who do not qualify for subsistence) may be affected. 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 use. Some recreational trapping and hunting opportunities would be affected.

In this alternative, approximately 56 percent of the project area would be designated motorized, 23 percent would be non-motorized, and 21 percent would be managed as an alternating Season A/Season B scenario (see Tables 2-7 and 2-13). In comparison to the No Action Alternative, the acreage available to motorized access decreases.

### Season A

In this alternative, the Resurrection unit alternates motorized and non-motorized use in a Season A/Season B scenario with the Carter/Crescent unit. That is, in one year, the whole Resurrection unit would be designated non-motorized and the Carter/Crescent unit would be designated motorized. The next winter, the Resurrection unit would be motorized and the Carter/Crescent unit would be non-motorized. When the Resurrection unit is non-motorized, the amount of winter routes solely available to non-motorized users increases to 108 miles when compared to the No Action Alternative (26 miles). The remainder of the 108 miles of winter routes would be designated for multiple-use.

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 non-motorized in Season A), 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 in this alternative. This would further displace cabin users into the Carter/Crescent and Lost Lake units.

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 winter season of use (every other season) 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 69 miles. This is an increase when compared to the No Action Alternative (26 miles). However, the majority of winter trails and routes, approximately 147 miles, would continue to be multiple-use.

The Resurrection unit is the key unit that would remain designated motorized in Season B. 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, they are 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 3-4). 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 winter 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 the Carter/Crescent unit. 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 the 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 designated for motorized use.

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 3-4 Cabin Access (Motorized and Non-motorized), Alternative 1**

Unit	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

In this alternative, the Resurrection and West Resurrection units are involved in a Season A/Season B scenario with the Carter/Crescent, Russian, and the northern part of the Snow River units. That is, in the first year, the Resurrection and West Resurrection units would be designated non-motorized and the Carter/Crescent, Russian, and parts of the Snow River units would be designated motorized.

In this alternative, approximately 53 percent of the project area would be designated motorized, 11 percent would be non-motorized, and 36 percent would be managed as an alternating Season A/Season B scenario (see Tables 2-10 and 2-13). In comparison to the No Action Alternative, the acreage available to motorized access decreases.

Most opportunities (snowmachine, skiing, snowshoeing, 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 designated motorized on a permanent basis (not subject to the February 15 mid-season swap) decreases by 18 percent and remain unchanged for non-motorized use and access.

## **Season A**

In Season A, the amount of winter routes solely available to non-motorized users increases to 67 miles when compared to the No Action Alternative (26 miles). The remainder of the 146 miles of winter routes would be designated multiple-use. This alternative includes the addition of two non-motorized access corridors (totaling about 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.

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 the 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 and West 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 3-5).

The motorized opportunity would be reduced most by the inability to use the Carter/Crescent unit in Season A. The Resurrection, Lost Lake, Snow River, and Johnson Pass units are likely to receive more use in this season. 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 designated motorized.

Trapping (for those who do not qualify for subsistence) is an opportunity which may be affected in Season A. 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 motorized designation in the Resurrection unit may compensate for the loss of this unit.

## **Season B**

The trails and winter routes available for non-motorized users increase to approximately 70 miles with the addition of the Resurrection unit and the expanded terrain in the Summit unit. This is an increase when compared to the No Action Alternative. This number includes the addition of one motorized access corridor up Mt. Adair and non-motorized access corridor up from Meridian Lake area into Lost Lake 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 remainder of the 146 miles of winter routes would be multiple-use. It is likely that most non-motorized users would concentrate in the Resurrection and Summit units.

When the Resurrection and West Resurrection units are designated non-motorized, 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 the 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 designated non-motorized.

**Table 3-5 Cabin Access (Motorized and Non-motorized), Alternative 2**

Unit	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 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 Sterling Highway Realignment project in the Resurrection 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 Season A/Season B scenario, cabin use is likely to increase with the replacement 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 replacement of the Manitoba cabin in the Summit unit. Cumulatively, winter use is likely to increase from the existing level (particularly when the area is designated 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 Pass 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 proposed 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.

### 3.1.5. Affected Environment and Environmental Consequences for the Winter Recreation Experience

There are two elements considered for displaying the effects to the recreation experience, Shared Use and the Opportunity for Quiet.

#### Indicator

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

- Shared Use: 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 the Range of Opportunities Issue, displacement as it affects the potential for encounters (and conflict) is also considered here.

#### Affected Environment, Shared Use

Currently, the Carter/Crescent, Hope, and Ptarmigan/Grant units are 100 percent open to all uses and the majority of the Lost Lake, Snow River, Russian and Tiehack/Mt Alice units are designated motorized as well. However, only the units with established trailheads or parking areas, winter trails and 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 designated for motorized use, difficult access and terrain makes encounters between the two groups rare.

Most units have features such as roads, water bodies, 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 System lands designated as motorized located between non-motorized areas. In addition, there are State lands located adjacent to the National Forest System 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 System 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 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 or snowmachines descending the trail while skiers 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 common. Likewise, motorized users are concerned with the safety of shared use and may avoid trails where non-motorized use is concentrated.

## Environmental Consequences, 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 the Carter/Crescent unit would continue to be higher after the February 15 mid-season swap 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 the February 15 mid-season swap 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 15, 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, boundaries for areas designated for non-motorized use 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 possible.
- 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/Season B scenario management for recreationists to become familiar with most aspects of the plan.

## Proposed Action

### Direct and Indirect Effects

In this alternative, approximately 67 percent of the project area would be designated motorized, 15 percent would be designated non-motorized, and 18 percent would be managed as an alternating Season A/Season B scenario.

### Season A

The three units that would have the most decrease in the potential for encounters, compared to the No Action Alternative, would be the Summit, Russian, and Tiehack/Mt Alice units.

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 could 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 designated 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 could utilize the upper slopes away from this corridor. Management of the west side of the Seward Highway as one large contiguous area 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 and 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 National Historic Trail and provides easy access from the Seward Highway for non-motorized use. The potential for encounters would be reduced 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.

## Modified Preferred Alternative

### Direct and Indirect Effects

In this alternative, approximately 61 percent of the project area would be designated motorized, 21 percent would be designated non-motorized, and 18 percent would be managed as an alternating Season A/Season B scenario.

#### Season A

The four units that would reduce the potential for encounters the most, compared to the No Action Alternative, would be Summit, Russian, Snow River, and Tiehack/Mt Alice.

The Summit unit reduces the potential for encounters (and conflict) because motorized users would have to utilize a corridor immediately adjacent to the Seward Highway (all the way to the Hope Y) and non-motorized users could 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 may 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.

## **Season B**

The four units that would reduce the potential for encounters the most would be Resurrection, West Resurrection, Snow River, 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 have to utilize a corridor immediately adjacent to the Seward Highway and non-motorized users could utilize the upper slopes away from this corridor. Management of the west side of the Seward Highway as one large contiguous area 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 designated non-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 and 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 for accessing the Nellie Juan area.

### **Effects Common to both Season A and Season B for the Modified Preferred Alternative**

- The expanded non-motorized terrain in the Lost Lake unit encompasses the Iditarod National Historic Trail and provides easy access from the Seward Highway for non-motorized use. The potential for encounters would be reduced 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.

## **Alternative 1**

### **Direct and Indirect Effects**

In this alternative, approximately 56 percent of the project area would be designated motorized, 23 percent would be non-motorized, and 21 percent would be managed as an alternating Season A/Season B scenario.

## Season A

The six units that would reduce the potential for encounters the most 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 have to utilize a corridor immediately adjacent to the Seward Highway to Lower Summit Lake and non-motorized users could utilize the upper slopes away from this corridor.

Although both the Tiehack/Mt Alice and Snow River units would have acreage designated for motorized use, the potential for encounters would be reduced or low because key access from the Seward Highway would be designated for non-motorized use. 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 designated non-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 reduce the potential for encounters the most would be the Russian, Carter/Crescent, Summit, Tiehack/Mt Alice, and Snow River units.

The potential for encounters (and conflict) in the Russian, Carter/Crescent and Summit units would be eliminated. Even though the Summit unit would have a motorized corridor adjacent to the Seward Highway and extending to lower Summit Lake, the potential for encounters (and conflict) between groups should be reduced 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 designated for motorized use, the potential for encounters would be decreased or low because key access from the Seward Highway would be designated non-motorized. 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

In this alternative, approximately 53 percent of the project area would be designated motorized, 11 percent would be non-motorized, and 36 percent would be managed as an alternating Season A/Season B scenario.

#### 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 designated motorized, 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 the Resurrection unit.

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 could 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 users 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 could 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 non-motorized, conflicts between motorized users may also increase, particularly in South Fork of Snow River 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 both Season A and Season B for Alternative 2**

- 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. 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.
- There would be no encounters in the non-motorized portions of Tiehack/Mt Alice. Although this unit 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.

## Indicator

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

- Opportunity for Quiet: 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, Opportunity for Quiet

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 LRMP 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 3.8 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 smells 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, 2004d, 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, 2004d, p. 3-3). For comparative purposes, a normal conversation produces 60 dB and a rock music concert produces 115 dB. The LRMP 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-FS, 2005, Kenai Winter Access Collaboration Meeting).

Guided helicopter skiing 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 units. See Map A-2-1, the No Action Alternative, which displays the core and exploratory guided helicopter skiing units. The 2004 Commercially Guided Helicopter Skiing FEIS analyzed the effects of aircraft and snowmachine sound. 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, 2004d, 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, 2004d, p. 3-4).

## Environmental Consequences, 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 the February 15 mid-season swap.

#### 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, there is the potential to encounter subsistence users with snowmachines.
- 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.
- The Lost Lake unit 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 guided 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 snowmachine and highway traffic. Until skiers 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 guided helicopter skiing in the remote parts of this unit, there could continue to be times when helicopters, snowmachine, or both are heard.

## Proposed Action

### Direct and Indirect Effects

#### Season A

The opportunity for quiet would be best 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 designated motorized for the entire season. If non-motorized users choose this unit, the possibility of encountering snowmachines 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 be best found in three units - Resurrection, West Resurrection, and Russian. While the opportunity for quiet in the Resurrection and West 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 to 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 designated motorized 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 North 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 quiet would exist.

## Modified Preferred Alternative

### Direct and Indirect Effects

#### Season A

The opportunity for quiet would be best 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 Snow River unit would also provide increased opportunities for quiet recreation because of the expansion of non-motorized areas particularly in the North Fork of Snow River drainage.

The Resurrection unit would be designated motorized for the entire season. If non-motorized users choose this unit, the possibility of encountering snowmachines 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 be best found in three units - Resurrection, West Resurrection, and Russian. While the opportunity for quiet in the Resurrection and West 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.

The Snow River unit would also provide increased opportunities for quiet recreation because of the expansion of non-motorized areas particularly in the North Fork of Snow River drainage.

### Effects Common to both Season A and Season B for the Modified Preferred Alternative

- The Carter/Crescent unit 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 mostly designated non-motorized except for a motorized corridor up the South Fork. 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 North Fork of Snow River, the opportunity for quiet would be high.

- 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 be best found in four units - Resurrection, West Resurrection, Russian, and Tiehack/Mt Alice.

#### Season B

The opportunity for quiet would be best 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 designated motorized, there would likely 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 the West Resurrection unit, 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 an increase in 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 be best found in four units - Russian, Carter/Crescent, Snow River, and Tiehack/Mt Alice. Because Russian and Carter/Crescent are managed entirely for non-motorized use, 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, guided 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 River due to increased motorized use.

Although the majority of the Tiehack/Mt Alice unit would be designated motorized, 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 be best 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 the No Action Alternative). 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 motorized or non-motorized 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 units (USDA-FS, 2004d).

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 use 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

### Introduction

Recreation activities, both motorized and non-motorized, can cause disturbance or displacement to individual animals and affect use of their winter habitats. Commonly documented effects include facilitated access that can increase hunting or trapping pressure, animal disturbance, and displacement of wildlife or wildlife avoidance of areas.

Effects on individual animals would 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). Habituation can and does occur in certain situations. Our assumptions were that the greater the percent of motorized or non-motorized use within an alternative, the more likely the effects would be from that type of activity (See Table 3-6). Differences in allowed use by alternative are displayed in Table 3-7.

It was assumed that alternatives with a greater percentage of motorized use have greater effects to individual animals. This assumption was made because 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. In some cases non-motorized activities have the capacity to cause more disturbances to an animal, than motorized activities. These disturbances may be more localized. Motorized activities, because of the nature of a larger "foot print" may cause varying degrees of disturbances over greater areas. The acres of affected habitat remain generally the same for any particular species across alternatives. The allowed use (motorized or non-motorized), changes by alternative (See Tables 3-6 and 3-7).

Long-term impacts of how Season A/Season B use scenarios affect a species 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, when they are non-motorized, 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 criteria to estimate the level of effect and risk to populations that might result from any alternative was developed (see Table 3-6). 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 smaller or less stable the population, plus the amount of information that is unknown about the population or important habitat, the higher the risk of affecting the population.

Impacts to wildlife were categorized as negligible-low, low-moderate, moderate, or high based on ranked criteria (see Ranked Criteria on page 110). Mountain goat, Dall sheep, and Barren-ground caribou were selected as the species that could experience

negligible impacts and risk to the population. Species that could experience negligible-low impacts/risk include brown bears in spring (without cubs) after den emergence. Species that could experience low-moderate impacts/risk include brown bears in denning habitat and core areas<sup>1</sup>, moose, wolves, lynx, bald eagles, northern goshawks, black bears, small mammals, migratory birds, and marbled murrelet. Species that could experience moderate impacts/risk include brown bear and wolverine. No species are expected to experience high impacts (See Table 3-6).

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

In summary, effects by species category are as follows:

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

- There will be no direct, indirect, or cumulative effects to threatened, endangered, or proposed species because they do not occur within the permit area during the operating period.

### **Management Indicator Species**

- Direct, indirect, or cumulative effects may occur to individual brown bears, moose and mountain goats due to recreation activity. The risks of affecting the populations of these species range 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 recreation activity. Risks of affecting the populations is *low-moderate* for all species except wolverine, which is *moderate*.

## **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.

### **Indicators**

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

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<sup>1</sup> Core areas are identified in the LRMP. The intent of core areas is to manage habitat and meet population objectives for brown bears, and to reduce dangerous encounters between humans and bears (USDA- FS, 2002b, and pg 4-54).

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

### Methods

Natural history, habitat requirements, GIS, habitat models, consultation with State and Federal biologists, LRMP direction, and scientific literature were used to investigate the significance of potential disturbance to wildlife. Affected habitat was based on existing recreation use, which is our best estimate of accessible areas. An existing winter recreation use map was developed to serve as a baseline for the affected environment and cumulative effects analysis (Map A-3-2, Existing Winter Recreation Use Map). This map displays how and where people are recreating now, even if other uses are allowed. The intent was to focus the analysis on areas that are accessible and preferred, knowing that in the future recreation use may expand as access or equipment capability increases. The map was based on recreation use maps developed for the Chugach Powder Guides FEIS (USDA-FS, 2004d), 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).

### Units of Measure

#### 1. Percent of Motorized and Non-motorized Use within the Affected Habitat:

The percent of motorized and non-motorized use within the affected habitat displays the relative level of effect to individuals of a species.

**Assumption:** The acres of affected habitat remain the same for any species across alternatives, the allowed use (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. It is expected that alternatives with a greater percentage of motorized use, would have greater effects on 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 percentages of habitat affected by the use allowed are reported, no threshold values are available in the literature to determine if a certain value would be significant in affecting a species or population.

#### 2. Level of Effect and Risk to the population:

The level of effect and risk to the population 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 and critical the habitat is for survival, (3) whether the effect can impact reproduction or recruitment into the population or cause mortality, and (4) whether 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. Additionally, 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 was based on the professional judgment of the Chugach National Forest biologists and Alaska Department of Fish and Game (ADF&G) biologists. Habitat information for some species is limited and based on GIS cover types and ADF&G range maps. 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-Low Impacts**

- No species of concern are present, or present in low numbers. No or minor impacts expected.
- Affected habitat is less than 20 percent of available 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 Impacts-Moderate Impacts**

- Breeding or non-breeding animals of concern may be present for critical life stages.
- Affected habitat is less than 25 percent of available 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/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 percent of available on the Seward Ranger District or is unknown.
- Habitat may be critical for survival or reproduction, but is not limited to the analysis area.
- Population trends are considered declining or unknown.
- Mortality or 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 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 percent of available on the Seward Ranger District or is unknown.
- 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.

### Definitions:

*Regular:* Occurring at fixed intervals (annually)

*High:* Greater than normal or average numbers

*Low:* Less than normal or average numbers

*Minor impacts:* Impacts have no substantial effects on individuals or populations

*Core area:* Brown bear core areas provide for the seasonal needs of brown bears, plus provide connectivity for brown bear movements

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

Primary differences in level of effect and risk of affecting wildlife populations are displayed in Table 3-6.

**Table 3-6 Wildlife Summary of Direct and Indirect Effects and Level of Effect/Risk of Affecting the Population**

Species or Habitat	Effect/Risk to Population <sup>1</sup>	% Available Winter Habitat Affected <sup>2</sup>	Population Trend <sup>3</sup>	Important/Critical Habitat <sup>4</sup>	Recruitment <sup>5</sup>	Allowed Use	No Action % of Affected Habitat <sup>6</sup>	Modified Preferred % of Affected Habitat	Proposed Action % of Affected Habitat	Alt 1 % of Affected Habitat	Alt 2 % of Affected Habitat
<b>Brown Bear – spring with cubs</b>	M	43	unknown	Y	Y	Motorized	93	78	84	78	93
						Non-motorized	4	19	13	19	4
						Season A /Season B	0	3	3	3	3
						Mid-season swap	3	0	0	0	0
<b>Brown Bear – spring without cubs</b>	L	17	unknown	Y	N	Motorized	68	39	62	40	45
						Non-motorized	22	47	25	28	29
						Season A /Season B	0	13	13	32	27
						Mid-season swap	10	0	0	0	0

<sup>1</sup> See Ranked Criteria above

<sup>2</sup> Includes the percent of winter habitat on the Seward Ranger District potentially affected by winter recreation use. Affected habitat is based on current recreation use, which is our best estimate of accessible areas.

<sup>3</sup> Considers whether the population is stable, increasing, decreasing or trends are unknown.

<sup>4</sup> Includes areas that are thought to be very important to survival or reproduction within winter range. Habitat was identified as high importance in LRMP, LRMP FEIS, or was identified as important for supporting high numbers of animals by ADF&G, 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.

<sup>5</sup> Has the potential to affect recruitment of individual animals into the population because it could affect breeding or survival of young.

<sup>6</sup> A percentage of the percent winter habitat affected by alternative by allowed use.

Species or Habitat	Effect/ Risk to Population <sup>1</sup>	% Available Winter Habitat Affected <sup>2</sup>	Population Trend <sup>3</sup>	Important/ Critical Habitat <sup>4</sup>	Recruitment <sup>5</sup>	Allowed Use	No Action % of Affected Habitat <sup>6</sup>	Modified Preferred % of Affected Habitat	Proposed Action % of Affected Habitat	Alt 1 % of Affected Habitat	Alt 2 % of Affected Habitat
<b>Brown Bear – denning</b>	L-M	5	unknown	Y	Y	Motorized	77	66	65	56	57
						Non-motorized	18	28	29	36	28
						Season A/ Season B	0	6	6	9	15
						Mid-season swap	5	0	0	0	0
<b>Brown Bear – core</b>	L-M	14	unknown	Y	Y	Motorized	99	95	95	54	54
						Non-motorized	1	5	5	7	0
						Season A /Season B	0	0	0	38	46
						Mid-season swap	0	0	0	0	0
<b>Moose</b>	L-M	17	stable to declining	Y	N	Motorized	68	39	62	40	45
						Non-motorized	22	47	25	28	29
						Season A /Season B	0	13	13	32	27
						Mid-season swap	10	0	0	0	0

Species or Habitat	Effect/ Risk to Population <sup>1</sup>	% Available Winter Habitat Affected <sup>2</sup>	Population Trend <sup>3</sup>	Important/ Critical Habitat <sup>4</sup>	Recruitment <sup>5</sup>	Allowed Use	No Action % of Affected Habitat <sup>6</sup>	Modified Preferred % of Affected Habitat	Proposed Action % of Affected Habitat	Alt 1 % of Affected Habitat	Alt 2 % of Affected Habitat
<b>Mountain Goat</b>	N	2	declining	Y	N	Motorized	75	53	52	40	45
						Non-motorized	19	39	40	44	35
						Season A /Season B	0	7	7	16	20
						Mid-season swap	6	0	0	0	0
<b>Gray Wolf</b>	L-M	17	unknown	Y	N	Motorized	68	39	62	40	45
						Non-motorized	22	47	25	28	29
						Season A /Season B	0	13	13	32	27
						Mid-season swap	10	0	0	0	0
<b>Lynx</b>	L-M	20	unknown	Y	N	Motorized	74	59	68	56	52
						Non-motorized	14	27	18	28	16
						Season A /Season B	0	14	14	15	32
						Mid-season swap	13	0	0	0	0

Species or Habitat	Effect/ Risk to Population <sup>1</sup>	% Available Winter Habitat Affected <sup>2</sup>	Population Trend <sup>3</sup>	Important/ Critical Habitat <sup>4</sup>	Recruitment <sup>5</sup>	Allowed Use	No Action % of Affected Habitat <sup>6</sup>	Modified Preferred % of Affected Habitat	Proposed Action % of Affected Habitat	Alt 1 % of Affected Habitat	Alt 2 % of Affected Habitat
<b>Wolverine</b>	M	15	unknown	unknown	Y	Motorized	82	73	78	64	61
						Non-motorized	10	19	13	22	11
						Season A /Season B	0	9	9	15	27
						Mid-season swap	8		0	0	0
<b>Bald Eagle</b>	L-M	15	stable or increasing	Y	Y	Motorized	53	54	61	27	39
						Non-motorized	23	22	15	33	10
						Season A /Season B	0	24	24	39	50
						Mid-season swap	24	0	0	0	0
<b>Northern Goshawk</b>	L-M	16	unknown	Y	Y	Motorized	100	100	100	100	100
						Non-motorized	0	0	0	0	0
						Season A /Season B	0	0	0	0	0
						Mid-season swap	0	0	0	0	0

Species or Habitat	Effect/ Risk to Population <sup>1</sup>	% Available Winter Habitat Affected <sup>2</sup>	Population Trend <sup>3</sup>	Important/ Critical Habitat <sup>4</sup>	Recruitment <sup>5</sup>	Allowed Use	No Action % of Affected Habitat <sup>6</sup>	Modified Preferred % of Affected Habitat	Proposed Action % of Affected Habitat	Alt 1 % of Affected Habitat	Alt 2 % of Affected Habitat
<b>Dall Sheep</b>	N	<1	declining	Y	N	Motorized	84	44	44	44	43
						Non-motorized	1	12	12	12	1
						Season A /Season B	0	44	44	44	56
						Mid-season swap	15	0	0	0	0
<b>Barren Ground Caribou</b>	N	4	stable	Y	N	Motorized	0	0	0	0	0
						Non-motorized	0	0	0	0	0
						Season A /Season B	0	100	100	100	100
						Mid-season swap	100	0	0	0	0
<b>Black Bear – denning</b>	L	17	N/A	unknown	Y	Motorized	74	60	67	57	53
						Non-motorized	14	26	19	30	16
						Season A /Season B	0	14	14	13	32
						Mid-season swap	13	0	0	0	0

Species or Habitat	Effect/ Risk to Population <sup>1</sup>	% Available Winter Habitat Affected <sup>2</sup>	Population Trend <sup>3</sup>	Important/ Critical Habitat <sup>4</sup>	Recruitment <sup>5</sup>	Allowed Use	No Action % of Affected Habitat <sup>6</sup>	Modified Preferred % of Affected Habitat	Proposed Action % of Affected Habitat	Alt 1 % of Affected Habitat	Alt 2 % of Affected Habitat
<b>Small Mammals</b>	L	12	unknown	variable	Y	Motorized	76	64	70	60	57
						Non-motorized	13	24	18	27	16
						Season A /Season B	0	12	12	13	27
						Mid-season swap	11	0	0	0	0
<b>Migratory Birds<sup>1</sup></b>	L	12	variable	variable	Y	Motorized	76	64	70	60	57
						Non-motorized	13	24	18	27	16
						Season A /Season B	0	12	12	13	27
						Mid-season swap	11	0	0	0	0
<b>Marbled Murrelet</b>	M	unknown	stable	Y	Y	Motorized	unknown	unknown	unknown	unknown	unknown
						Non-motorized	unknown	unknown	unknown	unknown	unknown
						Season A /Season B	unknown	unknown	unknown	unknown	unknown
						Mid-season swap	unknown	unknown	unknown	unknown	unknown

<sup>1</sup> Courtship, nesting, survival of eggs or chicks.

Species or Habitat	Effect/ Risk to Population <sup>1</sup>	% Available Winter Habitat Affected <sup>2</sup>	Population Trend <sup>3</sup>	Important/ Critical Habitat <sup>4</sup>	Recruitment <sup>5</sup>	Allowed Use	No Action % of Affected Habitat <sup>6</sup>	Modified Preferred % of Affected Habitat	Proposed Action % of Affected Habitat	Alt 1 % of Affected Habitat	Alt 2 % of Affected Habitat
River Otter	M	unknown	unknown	Y	Y	Motorized	unknown	unknown	unknown	unknown	unknown
						Non-motorized	unknown	unknown	unknown	unknown	unknown
						Season A /Season B	unknown	unknown	unknown	unknown	unknown
						Mid-season swap	unknown	unknown	unknown	unknown	unknown

**Note:**

Motorized use occurs for 10 months in any 2 year period in units managed as a Season A/ Season B scenario.  
 Non-motorized use occurs for 10 months in any 2-year period in units managed as a Season A/ Season B scenario.  
 The February 15 mid-season swap occurs only in the West Resurrection and Resurrection units, and allows both motorized and non-motorized use for 5 months in any two-year period.  
 Totals may not equal 100 percent due to rounding. Decimal places are not shown.

The differences in alternatives compared to the No Action Alternative are displayed in Table 3-7. The differences relate to the potential to affect individual animals.

**Table 3-7 Comparison of Alternatives: Differences in Percent of Allowed Use Compared to the No Action Alternative**

Species or Habitat	Allowed Use	Modified Preferred % Difference from No Action	Proposed Action % Difference from No Action	Alt 1 % Difference from No Action	Alt 2 % Difference from No Action
<b>Brown Bear – spring with cubs</b>	Motorized	-15	-9	-15	0
	Non-motorized	15	9	15	0
	Season A/ Season B	3	3	3	3
	Mid-season swap	-3	-3	-3	-3
<b>Brown Bear – spring without cubs</b>	Motorized	-29	-6	-28	-23
	Non-motorized	25	3	6	7
	Season A/ Season B	13	13	32	27
	Mid-season swap	-10	-10	-10	-10
<b>Brown Bear – denning</b>	Motorized	-11	-12	-21	-20
	Non-motorized	10	11	18	10
	Season A/ Season B	6	6	9	15
	Mid-season swap	-5	-5	-5	-5

Species or Habitat	Allowed Use	Modified Preferred % Difference from No Action	Proposed Action % Difference from No Action	Alt 1 % Difference from No Action	Alt 2 % Difference from No Action
<b>Brown Bear core</b>	Motorized	-4	-4	-45	-45
	Non-motorized	4	4	6	-1
	Season A/ Season B	0	0	38	46
	Mid-season swap	0	0	0	0
<b>Moose</b>	Motorized	-29	-6	-28	-23
	Non-motorized	25	3	6	7
	Season A/ Season B	13	13	32	27
	Mid-season swap	-10	-10	-10	-10
<b>Mountain Goat</b>	Motorized	-22	-23	-35	-30
	Non-motorized	20	21	25	16
	Season A/ Season B	7	7	16	20
	Mid-season swap	-6	-6	-6	-6
<b>Gray Wolf</b>	Motorized	-29	-6	-28	-23
	Non-motorized	25	3	6	7
	Season A/ Season B	13	13	32	27
	Mid-season swap	-10	-10	-10	-10

<b>Species or Habitat</b>	<b>Allowed Use</b>	<b>Modified Preferred % Difference from No Action</b>	<b>Proposed Action % Difference from No Action</b>	<b>Alt 1 % Difference from No Action</b>	<b>Alt 2 % Difference from No Action</b>
<b>Lynx</b>	Motorized	-15	-6	-18	-22
	Non-motorized	13	4	14	2
	Season A/ Season B	14	14	15	32
	Mid-season swap	-13	-13	-13	-13
<b>Wolverine</b>	Motorized	-9	-4	-18	-21
	Non-motorized	9	3	12	1
	Season A/ Season B	9	9	15	27
	Mid-season swap	-8	-8	-8	-8
<b>Bald Eagle</b>	Motorized	1	8	-26	-14
	Non-motorized	-1	-8	10	-13
	Season A/ Season B	24	24	39	50
	Mid-season swap	-24	-24	-24	-24
<b>Northern Goshawk</b>	Motorized	0	0	0	0
	Non-motorized	0	0	0	0
	Season A/ Season B	0	0	0	0
	Mid-season swap	0	0	0	0

<b>Species or Habitat</b>	<b>Allowed Use</b>	<b>Modified Preferred % Difference from No Action</b>	<b>Proposed Action % Difference from No Action</b>	<b>Alt 1 % Difference from No Action</b>	<b>Alt 2 % Difference from No Action</b>
<b>Dall Sheep</b>	Motorized	-40	-40	-40	-41
	Non-motorized	11	11	11	0
	Season A/ Season B	44	44	44	56
	Mid-season swap	-15	-15	-15	-15
<b>Barren Ground Caribou</b>	Motorized	0	0	0	0
	Non-motorized	0	0	0	0
	Season A/ Season B	100	100	100	100
	Mid-season swap	-100	-100	-100	-100
<b>Black Bear – denning</b>	Motorized	-14	-7	-17	-21
	Non-motorized	12	5	16	2
	Season A/ Season B	14	14	13	32
	Mid-season swap	-13	-13	-13	-13
<b>Small Mammals</b>	Motorized	-12	-6	-16	-19
	Non-motorized	11	5	14	3
	Season A/ Season B	12	12	13	27
	Mid-season swap	-11	-11	-11	-11

<b>Species or Habitat</b>	<b>Allowed Use</b>	<b>Modified Preferred % Difference from No Action</b>	<b>Proposed Action % Difference from No Action</b>	<b>Alt 1 % Difference from No Action</b>	<b>Alt 2 % Difference from No Action</b>
<b>Migratory Birds</b>	Motorized	-12	-6	-16	-19
	Non-motorized	11	5	14	3
	Season A/ Season B	12	12	13	27
	Mid-season swap	-11	-11	-11	-11
<b>Marbled Murrelet</b>	Motorized	unknown	unknown	unknown	unknown
	Non-motorized	unknown	unknown	unknown	unknown
	Season A/ Season B	unknown	unknown	unknown	unknown
	Mid-season swap	unknown	unknown	unknown	unknown
<b>River Otter</b>	Motorized	unknown	unknown	unknown	unknown
	Non-motorized	unknown	unknown	unknown	unknown
	Season A/ Season B	unknown	unknown	unknown	unknown
	Mid-season swap	unknown	unknown	unknown	unknown

## Analysis Area

The Seward Ranger District is the bounds of wildlife analysis 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 and more detailed information, see the Wildlife Specialist Report located in the project record.

## Threatened, Endangered, and Sensitive Species

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

## Management Indicator Species, Species of Special Interest and Species of Concern

### 3.2.1. Brown Bear

#### 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.

The intent of core areas is to manage habitat and meet population objectives for brown bears, and to reduce dangerous encounters between humans and bears (USDA- FS, 2002b, and pg 4-54). Core areas occur in the Russian, Carter/Crescent, Ptarmigan/Grant, and Johnson Pass units. Currently, 9,997 acres, or 14 percent of the core areas overlap current winter recreation use areas. The greatest amount of current recreation use occurs in the Carter/Crescent area.

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 to 100 percent more likely to provide denning habitat, occurs on 15,283 acres or 5 percent 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 after den emergence and through the end of the winter recreation period.

Males depend on winter-killed moose and other animals for food, as other food sources are limited at this time of year (LeFranc et al., 1987; Farley, 2005). Affected habitat occurs on 17 percent of available foraging areas in the Resurrection, Summit, Russian, Snow, Ptarmigan/Grant, Hope, and Lost Lake units (see moose section).

Suring et al. (2005) 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 have summer salmon. 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. Suring's brown bear model determines the potential for habitat use in terms of probability. He estimates that the areas with a probability of 80 to 100 percent have the highest potential for use. Suring's brown bear model indicates that 636 acres of habitat with the highest potential for use by bears could be affected by winter recreation. That corresponds to about 43 percent of the brown bear winter habitat on the Seward Ranger District. This habitat occurs in the Ptarmigan/Grant, Johnson Pass, Snow, and Hope units, and some overlap in the Tern Lake, Resurrection, and Lost Lake units.

## 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. Denning allows brown bears to reside in a state of energy conservation; and, the concern is the 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 conflicts can 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 defense of life and property kills (DLPs). The No Action Alternative has the highest probability of affecting individuals, followed by Alternative 2, the Proposed Action, the Modified Preferred Alternative, and Alternative 1. The Modified Preferred Alternative may have additional effects related to disturbance to denning bears, foraging bears in the spring, and foraging bears during the summer in the core area due to the non-motorized access corridors in the Carter-Crescent and Lost Lake units.

## Cumulative Effects

Cumulative effects may occur to denning or foraging bears from other winter recreation activities such as guided helicopter skiing, 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 Alternative, 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 percent of the available denning habitat on the Kenai Peninsula. Vegetation treatments may also enhance foraging habitat.

## Level of Effect and Risk to the Population

The current population level and trends for brown bears is unknown. Important habitats such as core areas, denning and foraging habitats for bears with and without cubs are potentially affected (See Table 3-6). Recruitment into the population could be affected if mortality of cubs occurs due to den disturbance, displacement from high quality foraging areas, or DLPs. The risk of affecting brown bear populations due to disturbance or displacement in core areas is low, disturbance or displacement in denning habitat would be low-moderate, disturbance or displacement in spring foraging habitat for bears without cubs would be low, and disturbance or displacement in spring foraging habitat for bears with cubs would be 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, and unknown population levels and trends, and unknown dates of den emergence. Bear-human interactions resulting in DLPs may also affect 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.

### **3.2.2. Moose**

#### Affected Environment

Within the project area, there are 95,738 acres of moose winter range occurring in all geographic units. The affected environment constitutes 17 percent of the available moose winter range on the Seward Ranger District, and includes both foraging and cover areas. Most of the recreation use in moose winter range currently occurs in the Snow and Summit units. The Johnson Pass unit, which includes the West Bench Peak guided helicopter skiing unit, is also a primary recreation use area in moose winter range.

#### Environmental Consequences

Winter recreation may disturb or displace moose from bedding or foraging areas, cause energetically expensive flight, stress, habituation or tolerance, or allow increased access to predators such as wolves. In winter, most moose are restricted to specific geographic areas because of limited forage resources. To compensate, they have physiological and behavioral adaptations to reduce energy requirements. When in this condition, moose responses to human recreation range from apparent disinterest to flight (Colescott and

Gillingham, 1998, pg 329, 334-336; Canfield et al., 1999, pg 6.6). A number of reports do relate the negative aspects of snow machines, but at times snow machines can be less distressing than cross-country skiers (Canfield et al., 1999, pg 6.7). All forms of recreation can displace animals to less desirable habitat or increase animals habituation and tolerance of the activity (Canfield et al., 1999). Results depend on the predictability of the recreational event. The majority of affected habitat in all alternatives is in motorized areas, where both motorized and non-motorized effects can occur. The No Action Alternative has the highest probability of affecting individual moose, followed by the Proposed Action, Alternative 2, Alternative 1, and the Modified Preferred Alternative because of the decreasing amount of motorized use allowed in the affected habitat (see Tables 3-6 and 3-7).

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

## Cumulative Effects

Guided helicopter skiing can occur on approximately 956 acres in all alternatives.

Currently, 169 miles of road and approximately 129 miles of maintained 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 Hut-to-Hut System, which would add new trails and huts in the Mills Creek area, could disturb or displace moose in their winter range. The Seward to Girdwood Iditarod National Historic Trail would bisect three areas of winter range that 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 at lower elevations along streams within moose winter range. Mining activities may lower foraging quality by removing vegetation along stream banks.

## Level of Effect and Risk to the Population

The current population level and trends for moose are stable to declining because early seral habitat used for foraging is declining. On the Kenai Peninsula, limitations to 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 the 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 use of 17 percent of the available winter habitat on the Seward Ranger District. Calving occurs after April 30, so there should be no direct effect on juvenile survival. 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 would be low-moderate.

### **3.2.3. Mountain Goat**

#### **Affected Environment**

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

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

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

#### **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). Goats also appear adaptable and able to habituate to adverse stimuli if they are gradually acclimated, and no negative affects are associated with the activity (Penner, 1988). Compaction of snow caused by snowmachines may also increase access to goats from predators such as wolves (Claar et al., 1999) or hunting when open seasons overlap the winter recreation period.

The majority of effects on goats is expected to be from motorized recreation. The No Action Alternative has the highest probability of affecting individual goats, followed by the Modified Preferred Alternative, the Proposed Action, Alternative 2, and Alternative 1 (see Tables 3-6 and 3-7) 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.

#### **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 Alternative, the Proposed Action, and Alternative 1 may affect up to 652 acres in goat habitat, and Alternative 2 and the Modified Preferred Alternative would affect 642 acres. Future actions such as the proposed Mills Creek Iditarod Hut-to-Hut System project may affect mountain goats from aircraft within the Johnson and Summit units. Mitigation for aircraft to maintain 1500' AGL (above ground level) will minimize these effects (USDA-FS, 2004d).

## Level of Effect and Risk to the Population

The current population level and trends for goats indicate a gradual decline across the Kenai Peninsula for unknown reasons. Winter habitat is important but it is not limited to the Seward Ranger District. Carter/Crescent is an important habitat area identified by ADF&G. All alternatives would only potentially affect mountain goat use of 2 percent of the available winter habitat on the Seward Ranger District. Kidding occurs after April 30, so there should be no direct effects on juvenile survival. 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 would therefore be negligible.

## Species of Special Interest

### 3.2.4. Gray Wolf

#### Affected Environment

In 2001, 10 to 11 resident wolf packs were estimated within the project area, spread across all areas of winter recreation use (Spraker, 2001). From February 2007 to March 2007 aerial surveys to locate wolf packs found one, evidence of a second (only sign observed), and a small pack of three (Harris, 2007). Surveys occurred on roughly two-thirds of the Seward Ranger District.

Wolves forage 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 kills may be available (Shuster, 2005). Deep snow may limit access into other big game winter range (sheep and goats) outside of windblown ridges, unless compaction from recreation allows access, and wolves use this access. Foraging habitat (based on moose winter range) occurs on 95,738 acres in the Seward Ranger District (17 percent of available habitat) primarily in the Resurrection, Summit, Russian, Snow, Ptarmigan/Grant, Hope, and Lost Lake units with most of the winter recreation use in wolf foraging areas occurring in the Snow and Summit units.

## Environmental Consequences

Winter recreation may disturb or displace wolves from foraging areas, cause stress, allow increased access to 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 snowmachines. This may result in mortality (i.e. shooting and running over), increased physical exertion, and altered movements (Claar et al., 1999).

The No Action Alternative has the highest probability of affecting individual wolves, followed by the Proposed Action, Alternative 2, Alternative 1, and the Modified Preferred Alternative, based on the decreasing amount of motorized use allowed in the affected habitat (see Tables 3-6 and 3-7). Effects will be concentrated where motorized use would be allowed in alternatives with Season A/Season B scenarios during the motorized periods.

## 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 Hut-to-Hut System 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 Seward to Girdwood Iditarod National Historic Trail will bisect three areas of moose winter range.

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 Effect and Risk to the Population

The current population level and trends for wolves are unknown. Important habitat areas are considered big game winter range, which is not limited to the Seward Ranger District. All alternatives would potentially affect wolf use of 17 percent of the available winter foraging habitat on the Seward Ranger District. Wolves have young outside the winter recreation period so there will be no direct effects on juvenile survival. Mortality may occur at times because of recreation use or increased access. 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 would therefore be low-moderate.

### 3.2.5. Lynx

#### Affected Environment

Lynx may be affected on up to 20 percent of their foraging habitat on the Seward Ranger District. Lynx foraging habitat occurs in the Resurrection, Summit, Russian, Snow, Ptarmigan/Grant, Hope, and Lost Lake units on 316,187 acres on the Seward Ranger District.

#### 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 No Action Alternative has the highest probability of affecting individual lynx, followed by the Proposed Action, the Modified Preferred Alternative, Alternative 1, and Alternative 2. Primary affected areas are the Snow River and Summit units. Additional effects may occur in Alternative 2 because of the Mount Adair access corridor, which intersects lynx habitat for 0.5 mile, and the Grayling to Lost

Lake access corridor, which intersects lynx habitat for approximately 2.4 miles. This may reduce foraging opportunities and increase competition and predation from wolves.

## Cumulative Effects

The cumulative effects for this alternative, as it relates to guided helicopter skiing, would be on 14,963 acres in the No Action Alternative, Proposed Action, and Alternative 1, and on 99 acres less in Alternative 2 and the Modified Preferred Alternative.

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

Cumulative effects may also occur due to recreation disturbance or increased access to trappers along the Seward to Girdwood Iditarod National Historic Trail or the Mills Creek Iditarod Hut-to-Hut System trail system in Mills Creek in all alternatives.

## Level of Effect and Risk to the Population

The current population level and trends for lynx are unknown. Important habitat areas occur where snowshoe hare are found and are not limited to the Seward Ranger District. All alternatives would potentially affect lynx use of 20 percent of the available winter foraging habitat on the Seward Ranger District. Lynx do not den during the winter recreation period so there will be no direct effects on juvenile survival. Mortality because of 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 would therefore be low-moderate.

### 3.2.6. Marbled Murrelet

#### 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; Marshall, 1988) within 31 miles of the coast. In Alaska, nesting is initiated mid-March through July (Hamer and Nelson, 1995), 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 Tiehack/Mt Alice units. Murrelet nesting habitat is most likely to occur within the hemlock-spruce and Sitka spruce cover types in areas that are denser and not preferred by winter recreationists.

#### Environmental Consequences

Limited information is available on the effects of recreation activities on marbled murrelets. In a few places, marbled murrelets 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).

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

The Grayling-Lost Lake (Proposed Action, Modified Preferred Alternative) and Lost Lake (Alternative 2) access corridors may affect potential murrelet nesting habitat through disturbance to nesting birds during the beginning of the breeding season in April.

Based on units where potential nesting habitat exists, the No Action Alternative has the greatest potential to affect murrelets, followed by Alternative 2. The Modified Preferred Alternative, the Proposed Action, and Alternative 1 have the least potential to affect murrelets due to a reduction in motorized use in the Tiehack/Mt Alice, Lost Lake and Ptarmigan/Grant units.

## Cumulative Effects

Potential nesting habitat exists under the flight paths (but not likely in the skiing areas) in the guided helicopter skiing exploratory areas. Individuals may be disturbed or frightened by helicopter over flights. Mitigation to remain 1500' AGL (above ground level) should reduce potential effects (USDA-FS, 2004d). Cumulative effects of guided helicopter skiing may be less in the Modified Preferred Alternative and Alternative 2, which would not permit guided helicopter skiing in the Snow River exploratory area.

Cumulative effects may occur from mature and old growth habitat loss due to spruce bark beetle and associated hazardous fuel reduction treatments (Holsten et al., 1999), which would reduce the amount of available nesting habitat. Vegetation and hazardous fuel treatments have the potential to disturb murrelets during the breeding season in old growth habitats.

Some overlap between potential murrelet habitat and winter recreation is possible when the Seward to Girdwood Iditarod National Historic Trail is complete in the Grayling/Meridian Lakes area and near Bear Lake. The Mills Creek Iditarod Hut-to-Hut System project would not contain potential nesting habitat, so no cumulative effects would be expected.

## Level of Effect and Risk to the Population

Murrelet populations are thought to be stable on the Chugach National Forest (USDA-FS, 2002b). The percent of habitat affected in all alternatives by varying amounts of motorized and non-motorized use is unknown but is expected to be minimal as the denser areas preferred for nesting are not preferred by recreationists. Important habitat areas are potential nesting areas in old growth conifers within 31 miles of the coast, and are potentially located in the Lost Lake, Ptarmigan/Grant, and Tiehack/Mt Alice units. Important habitat is not limited to areas where winter recreation occurs, and again, habitats are denser and not preferred as winter recreation areas. Winter recreation does overlap the nesting season, so potential exists to affect reproduction. For the reasons listed above, the level of effect and potential risk to affect the population would be moderate.

## 3.2.7. River Otter

### 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 about 2 months old. During the 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, 2005). 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.

### 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).”

“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).” All alternatives are expected to have negligible effects to water quality and fish because snowmachine use on the Seward Ranger District is widely dispersed, occurs over relatively large frozen water bodies, and does not occur at concentrations that have been shown to cause adverse effects to water quality or aquatic organisms (see the fisheries specialist report in the project record).

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

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

Based on the amount of motorized use allowed in each alternative, and the assumption that habitat is fairly equally distributed in all units, the No Action Alternative has the greatest potential to cause effects, followed by the Proposed Action, the Modified Preferred Alternative, Alternative 1, and Alternative 2.

## Cumulative Effects

Otters may occur in the guided helicopter skiing exploratory areas under flight paths, but not likely in ski areas or aircraft landing zones. Individuals may be disturbed or frightened by helicopter over flights. Mitigation to remain 1500' AGL should reduce potential effects (USDA-FS, 2004d).

Vegetation and hazardous fuel treatments may have the potential to disturb otters.

Cumulative effects may occur on up to 11 acres of otter habitat as a result of construction of the Seward to Girdwood Iditarod National Historic Trail (USDA-FS, 2003c). Effects may occur in the Mills Creek Iditarod Hut-to-Hut System project in areas along suitable streams or lakes.

Cumulative effects may be greatest in the No Action Alternative, the Proposed Action and Alternative 1, which permit guided helicopter skiing in exploratory areas in both the Ptarmigan/Grant and Snow River units.

## Level of Effect and Risk to Population

Otter populations and trends are unknown on the Chugach National Forest, although they are considered a recovered population after being affected by the Exxon Valdez oil spill (USDA-FS, 2002b). 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 may 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. For the reasons listed above, the level of effect and potential risk to the population would be moderate.

### **3.2.8. Wolverine**

#### Affected Environment

Wolverines are thought to occur in low densities on the Kenai Peninsula, an estimated 2.95 per 386 square miles in 2004 (Golden, 2004).

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 the Resurrection, Carter/Crescent, Russian, and Snow units. Approximately 15 percent of wolverine foraging habitat may be affected by winter recreation. Wolverine denning habitat on the Seward Ranger District is unknown; however, based on past documentation, the denning areas are probably in the Resurrection, Carter/Crescent, Russian, and Snow units.

## Environmental Consequences

Hornocker and Hash (1981) state that human access on snowmachines 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). In many areas, wolverines prefer high elevation, north-facing talus slopes and occupy extensive snow tunnels that form a complex of dens (Heinemeyer et al., 2001; Magoun and Copeland, 1998). Wolverines may also abandon dens after human disturbance (Heinemeyer et al., 2001), which can lead to reduced reproduction or lower kit survival (Magoun and Copeland, 1998). Individual wolverines may be disturbed or frightened by winter recreationists, causing them stress that may alter foraging patterns or behavior. Human access to remote areas has the potential to displace wolverines, or disrupt foraging or traveling patterns.

Wolverines may be impacted if prey species alter their behavior because of recreation activity. Motorized and non-motorized winter recreation occurs in all ungulate winter ranges (sheep, goat, caribou, and moose) on the Seward Ranger District, potentially disturbing these animals and altering foraging behavior.

The No Action Alternative has the highest probability of affecting individual wolverines, followed by the Proposed Action, the Modified Preferred Alternative, Alternative 1, and Alternative 2 (see Tables 3-6 and 3-7) because of decreasing amounts of allowed motorized use over time and space. Effects will likely be concentrated in areas open to motorized use in alternatives with Season A/Season B scenarios.

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

## Cumulative Effects

Recreation activities such as guided helicopter skiing may result in the displacement of wolverines. Guided helicopter skiing may cause cumulative effects if the exploratory areas in the Ptarmigan/Grant and Snow River units are permitted in the future. Potential cumulative effects may occur on 34,007 acres in the No Action Alternative, the Proposed Action, and Alternative 1, and 32,950 acres in Alternative 2 and the Modified Preferred Alternative.

Because wolverines use the area of the proposed Mills Creek Iditarod Hut-to-Hut System project, there is potential to affect denning and foraging habitat in this area. Helicopters, 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 Seward to Girdwood Iditarod National Historic Trail, when constructed, would also add new trail access for trappers, and potential for disturbance.

Hazardous fuel and habitat improvement projects should benefit moose winter range and wolverines if they use these areas for foraging.

## Level of Effect and Risk to the Population

Wolverine populations and 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. For the reasons listed above, 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 would be moderate.

### **3.2.9. Bald Eagle**

#### Affected Environment

Bald eagles in Southcentral Alaska generally nest in old cottonwood trees near water and use the same nest each year (Daum, 1994). Bald eagle nest protection standards are outlined in an Interagency Agreement between the Forest Service and the U.S. Fish and Wildlife Service. The agreement includes a 330 foot limited use zone around nest locations (USDI-FWS, 2002; USDA-FS, 2002a). The nest season is generally from March 1 to August 31 (USDA-FS, 2002b).

Twenty-five nest sites are located where recreation use may be occurring within 330 feet of nest sites. The project area includes 15 percent of the habitat within nest limited use zones on the Seward Ranger District. The Resurrection and Carter/Crescent units have the majority of potentially affected nests.

#### Environmental Consequences

The effects of disturbance at nests and roost sites have been well studied (Buehler, 2000). Human disturbance is defined as any human activity that induces change in eagle behavior. Disturbance takes many forms, including the mere presence of humans and human recreational activities. Disturbance impacts increase with increasing duration and frequency of events. Eagle response 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. Increased energy demand reduces survival, especially during winter if food and quality foraging sites are limited. Once disturbed, eagles may abandon nests or have reproductive failure. This may affect individual pairs, although generally this is not significant at the population level (Buehler, 2000).

There is a wide range of sensitivity to disturbance across individuals and populations, as measured by experimental flushing studies. Where possible, bald eagles avoid areas of high human use to avoid disturbance of nesting, foraging, perching, and roosting (Buehler, 2000).

The disturbances being evaluated overlap temporally with pair bonding (which often occurs near the nest) and nest initiation. 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, 2005b).

The nest season is generally from March 1 to August 31 (USDA-FS, 2002b), so potential exists for winter recreation, both motorized and non-motorized, to disturb individual nesting eagles.

The Proposed Action has the highest probability of affecting individual bald eagles, followed by the Modified Preferred Alternative, No Action Alternative, Alternative 2, and Alternative 1 (see Tables 3-6 and 3-7) because of decreasing amounts of allowed motorized use. Effects will likely be concentrated in areas open to motorized use (when they are motorized) in alternatives with Season A/Season B scenarios. The areas with the greatest potential for effects would be the Resurrection and Carter/Crescent units.

## Cumulative Effects

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

The Seward to Girdwood Iditarod National Historic Trail will pass near four known nests, so additional disturbance may occur.

Many of the roads, trails, and campgrounds 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.

## Level of Effect and Risk to the Population

Bald eagle populations and trends are believed to be 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. For the reasons listed above, the potential risk to the population would be low-moderate.

### **3.2.10. Northern Goshawk**

#### **Affected Environment**

The northern goshawk is an uncommon forest raptor that feeds on small and medium sized mammals and birds (Iverson et al., 1996). They are year-round residents on the Forest (USDA-FS, 1984). The breeding-nesting season is March 1 through July 31.

The LRMP contains a guideline (USDA-FS, 2002a) 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 and 8 nests are potentially affected by winter recreation within 660 feet of the nest site. Recreation use occurs on 44 acres or 16 percent of known goshawk nest buffers. The Palmer Creek territory (Hope unit) is the territory with the most potentially affected acres.

## Environmental Consequences

Some types of human disturbances to goshawk nests have been a suspected cause of nest abandonment (Reynolds et al., 1992). Critical times include the nesting period and post fledgling periods for goshawks. All alternatives would affect 44 acres of goshawk habitat. Winter recreation has the potential to disturb or frighten birds. Nest abandonment could potentially occur. The Hope unit is the primary affected area. Recreation use would not change across alternatives in this area.

Overall, there may be short-term disturbance or displacement of individual goshawks, and the potential for nest abandonment. Allowed use is 100 percent motorized in affected habitat and does not change across alternatives.

Potential nesting habitat may exist along the access corridors in the Modified Preferred Alternative and Alternative 2. If so, then recreation activity has the potential to disturb nesting birds in March and April.

## Cumulative Effects

Known goshawk nests potentially affected by all alternatives do not occur within or near the Seward to Girdwood Iditarod National Historic Trail, Mills Creek Iditarod Hut-to-Hut System, or other known recreation projects, so cumulative effects are not expected. Potential nesting habitat occurs along the Seward to Girdwood Iditarod National Historic Trail and cumulative effects may occur if winter recreation use increases in these areas because of allowing access corridors in the Modified Preferred Alternative and Alternative 2.

Goshawks likely occur in both guided helicopter skiing exploratory areas, but not likely in areas used for skiing. If they are present, individuals may be disturbed or frightened by helicopter over flights, although mitigation to remain 1500' AGL should minimize effects. Alternatives, which allow guided helicopter skiing in Ptarmigan/Grant and Snow River, will have the greatest potential for cumulative effects (No Action Alternative, Proposed Action, and Alternative 1). The alternatives that do not open the Snow River exploratory area (Modified Preferred Alternative and Alternative 2) would have the least effects.

Cumulative effects may occur from mature and old growth habitat loss due to spruce bark beetle and associated hazardous fuel reduction treatments (Holsten et al., 1999), which would reduce the amount of available nesting habitat. Vegetation and hazardous fuel treatments in the Hope area may have the potential to disturb goshawks and cause cumulative effects in all alternatives.

Cumulative effects are expected to be minimal in all alternatives, due to the limited amount of affected habitat and mitigation measures to protect nests in past, present and foreseeable projects. Effects to individuals are likely greatest in the Modified Preferred Alternative and Alternative 2 due to the access corridors.

## Level of Effect and Risk to the Population

Goshawk populations and trends are unknown on the Chugach National Forest. Important habitat areas such as nest sites and 16 percent of the nest buffer areas, may be affected. Important habitat is not limited to areas where winter recreation occurs, and goshawk nests likely occur, which have not been located. Winter recreation does overlap the nesting period, and disturbance has the potential to affect reproduction. For the reasons listed above, the potential risk to the goshawk population would be low-moderate. All alternatives would have equal probability of affecting individuals.

## Other Species of Concern

### 3.2.11. Dall Sheep

#### Affected Environment

Dall sheep inhabit the mountain ranges of Alaska on open alpine ridges, meadows, and steep slopes with rugged terrain based on habitat data collected from annual harvest information and aerial surveys conducted between 1949 and 1984 (ADF&G, 1985). Current winter recreation use occurs on 103 acres or less than 1 percent of Dall sheep 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. Snow machine use occurs on the Tern Lake and Russian units.

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

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.

Based on the amount of allowed motorized use (see Tables 3-6 and 3-7), The No Action Alternative may have the greatest effect, followed by Alternative 1, the Proposed Action and the Modified Preferred Alternative with similar effects and Alternative 2 with the least effect.

## Cumulative Effects

Sheep may be affected on their winter range over time as helicopter-assisted recreation increases in amount and distribution. Projects such as the Mills Creek Iditarod Hut-to-Hut System, and Seward to Girdwood Iditarod National Historic Trail would not occur in Dall sheep habitat, so cumulative effects are not expected. Winter Dall sheep habitat occurs in the Snow River and Ptarmigan/Grant exploratory units, where motorized use may occur in all alternatives, but use is limited (likely due to accessibility). No-fly zones were created for sheep and mountain goats, so cumulative effects of helicopter-assisted recreation are expected to be minimal (USDA-FS, 2004d). Alternatives that allow guided helicopter skiing in the Ptarmigan/Grant and Snow units would have the greatest potential for cumulative effects (No Action Alternative, the Proposed Action, and Alternative 1). The alternatives that do not open the Snow River exploratory unit (the Modified Preferred Alternative and Alternative 2) would have the least effects.

## Level of Effect and Risk to the 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 percent of 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. For the reasons listed above, the potential risk to the population would be negligible. The No Action Alternative has the greatest probability of affecting individuals.

### **3.2.12. Barren Ground Caribou**

#### 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, primarily motorized, occurs adjacent to Hungry Creek on 4 percent of the available habitat on the Seward Ranger District.

#### Environmental Consequences

Snowmachine trails may affect caribou by increasing predator access. Extensive snow machine activity over important areas of winter forage makes catering (pawing through snow) 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).

Snowmachines create a hard-packed surface that may facilitate movement for predators such as wolves. Hard-packed trails allow predators to easily access sub-alpine foraging areas that are typically not available to them because of the deep snow (Webster, 1997). Wolf predation has been reported as an important factor in limiting caribou population numbers (Webster, 1997).

Some suggest ungulate management could be enhanced by use of snowmachines by improving mobility in poor snow conditions (Webster, 1997). Despite this possible benefit, many of the studies involving snowmachines and ungulates conclude that the machines stress the animals to some degree and trails and machines are generally avoided (Webster, 1997).

Motorized and non-motorized use in caribou habitat across all alternatives is shared. The only difference between alternatives is that the use is either part of the February mid-season swap (No Action Alternative) or a Season A/Season B scenario (action alternatives). It is unknown whether the Action Alternatives will have more or less effect on individuals than the No Action Alternative. It was assumed that the effects would be the same across all alternatives.

## Cumulative Effects

No cumulative effects are expected in any alternative. Guided helicopter skiing and foreseeable recreation projects such as the Seward to Girdwood Iditarod National Historic Trail and Mills Creek Iditarod Hut-to-Hut System would not occur in caribou habitat. No vegetation or fuel reduction projects are proposed or expected to occur in caribou habitat. No other past or present management actions have or are occurring in caribou habitat.

## Level of Effect and Risk to the Population

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

### **3.8.13. Black Bears**

#### 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 may be found from sea level to alpine areas (ADF&G, 2003). Cubs are born in their dens. Black bears tend to emerge around the same time as brown bears, beginning 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 percent of black bear habitat is potentially affected by primarily motorized recreation use. The majority of potential habitat occurs in the Lost Lake, Johnson Pass, and Summit units.

## 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). This could adversely affect individual fitness and reduce physical condition. Bears that abandoned dens in Alberta experienced greater over winter weight loss than those that did not (Goodrich and Berger, 1994).

Indirect evidence of den abandonment due to recreational disturbance was observed in the Sierra Mountains. Bears were sighted on ski runs bordering the study area on several occasions in early February and late December. Because these activities occurred several weeks before any of the radio-collared bears emerged from dens, it seems likely that the uncollared bears abandoned their dens, possibly due to human recreational disturbance (Goodrich and Berger, 1994). Goodrich and Berger, 1994 (pg 108) noted that two bears moved to new dens when their original dens were 0.09 kilometer (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; Linnell et al., 2000). These studies also report that when bears were flushed from dens, they re-denning at no apparent long-term harm.

The No Action Alternative has the greatest probability of affecting individuals, followed by the Proposed Action, the Modified Preferred Alternative, Alternative 1, and Alternative 2 (see Tables 3-6 and 3-7) because of decreasing amounts of allowed motorized use. Effects will likely be concentrated in areas when they are open to motorized use in alternatives with Season A/Season B scenarios.

## Cumulative Effects

Expanding winter motorized and non-motorized recreation in combination with other helicopter-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 Alternative, Proposed Action, and Alternative 1, and on 99 acres less in Alternative 2 and the Modified Preferred Alternative.

The Seward to Girdwood Iditarod National Historic Trail and Mills Creek Iditarod Hut-to-Hut System 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.

## Level of Effect and Risk to the Population

Black bear populations and trends are unknown on the Chugach National Forest. Affected habitat is fairly low (17 percent), but 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 to female bears taken during harvest periods do not indicate cause for population concerns (McDonough, 2005). For the reasons listed above, the potential risk to the population would be low.

### 3.2.14. Small Mammals

#### Affected Environment

Small mammals considered were those that use subnivean<sup>1</sup> spaces under the snow, and others such as hares, squirrels, and weasels that may use or avoid snowmachine or ski trails. Small mammals are likely to occur in all habitats, except snow and ice and water. Small mammal habitat may be affected by winter recreation on 12 percent of available habitat, primarily by motorized use and mainly alpine areas.

#### 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 through mortality of prey. While snowmachines, skis, and snowshoes all compact the snow, snowmachines compact the snow the most (Bury, 1978).

Snow compaction may also occur on the access corridors.

The No Action Alternative has the greatest probability of affecting individuals; followed by the Proposed Action, the Modified Preferred Alternative, Alternative 1, and Alternative 2 (see Tables 3-6 and 3-7).

#### Cumulative Effects

Small mammals may be affected by new recreation trails related to the Mills Creek Iditarod Hut-to-Hut System project and the Seward to Girdwood Iditarod National Historic Trail. Development of facilities, roads, and trails would contribute to habitat destruction or degradation. Cumulative effects may occur from mature and old growth habitat loss due to spruce bark beetle and associated hazardous fuel reduction treatments (Holsten et al., 1999), which would reduce the amount of available nesting habitat for some species. 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.

<sup>1</sup> The subnivean zone is in or under the snow layer. Subnivean animals such as mice, voles, and shrews move under the snow in the winter for protection from heat loss and predators. For smaller animals the snow cover must be at least 6 inches deep before the small mammals can build tunnels through it. The temperature under the snow stays about 32°F no matter how cold the temperature above the snow pack. These areas can be crushed by both motorized and non-motorized winter recreationists.

## Level of Effect and Risk to the Population

Small mammal populations and trends are unknown on the Chugach National Forest. Affected habitat is fairly low (12 percent), but is diverse and widespread, and available outside the analysis area. Breeding animals may be affected during the winter recreation period. Important habitat areas are unknown, but also likely widespread, diverse, and available outside the analysis area. For the reasons listed above, the potential risk to the population would be low.

### **3.8.15. Migratory Birds**

#### 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 may be affected by winter recreation on 11.6 percent of available habitat. Courtship and breeding begins near the end of the winter motorized recreation period.

#### Environmental Consequences

Recreation routes may 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 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 3-6. The No Action Alternative would have the greatest probability of affecting individuals, followed by the Proposed Action, the Modified Preferred Alternative, Alternative 1, and Alternative 2.

#### Cumulative Effects

Cumulative effects may occur from habitat loss due to spruce bark beetle 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.

## Level of Effect and Risk to the Population

Migratory bird populations and trends are unknown on the Chugach National Forest. Affected habitat is fairly low (12 percent), but is diverse and widespread, and available outside the analysis area. Breeding animals may be affected, as many birds start courtship or breeding at the winter recreation period. Important habitat areas are unknown, but also likely widespread, diverse, and available outside the analysis area. For the reasons listed above, the potential risk to the population would be low.

## 3.3. ECONOMICS

### 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:

- The reduction in currently-used snowmachine acres is 21 percent or less across the action alternatives.
- Non-local snowmachiners are believed to be 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.
- Winter economic activity is a small percentage of total annual economic activity in the economic analysis area.

### Analysis Area

This section presents a description of the economic environment that could be affected by the Proposed Action and the alternatives. 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.

#### 3.3.1. Affected Environment

This section contains two subsections. The first subsection further describes the economic analysis area. The second subsection examines current levels of economic activity in the economic analysis area, the Hope Sub-Subarea.

### Economic Analysis Area

The Alaska Department of Labor and Workforce Development (ADLWD) (2004) has developed classification system of communities that is used to report and compile information on employment. The ADLWD classification system assigns communities to Census Areas. The Census Areas are then divided into Census Subareas which are again divided into Sub-Subareas. 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 following towns or places are in the Hope SSA: 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.

## 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 to 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 snowmachine 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 through 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 7 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 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 (January through March) and fourth (October through December) 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**

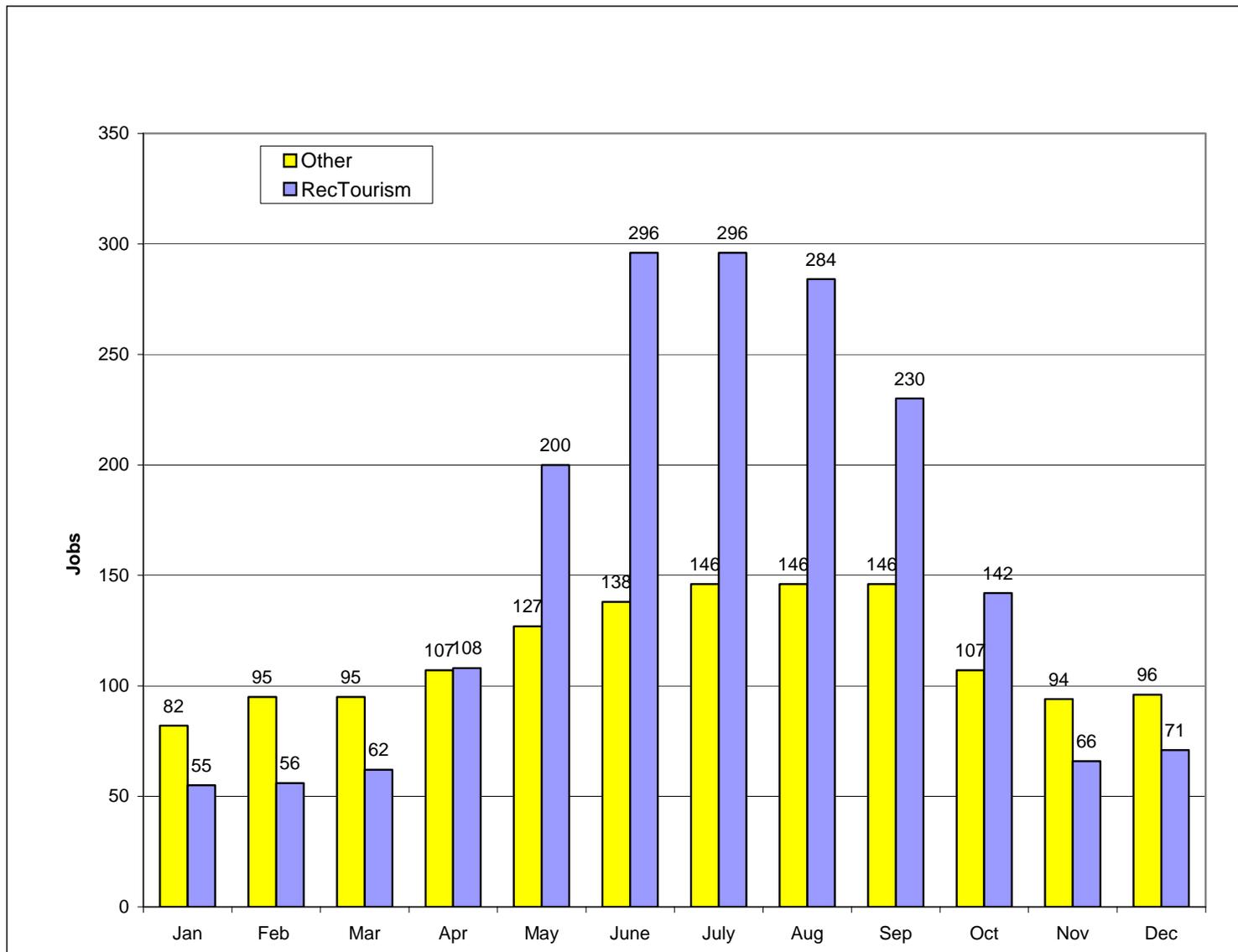
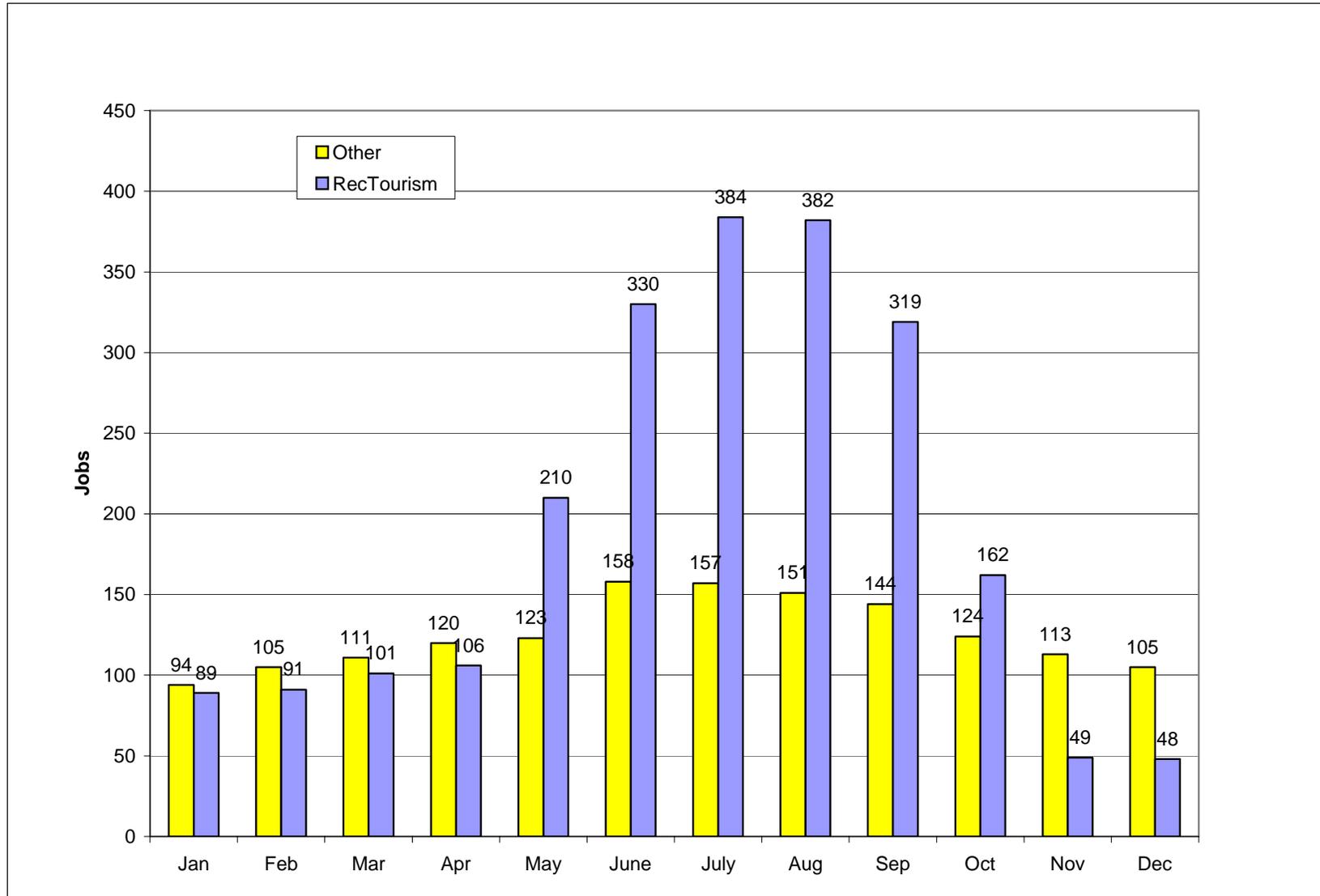
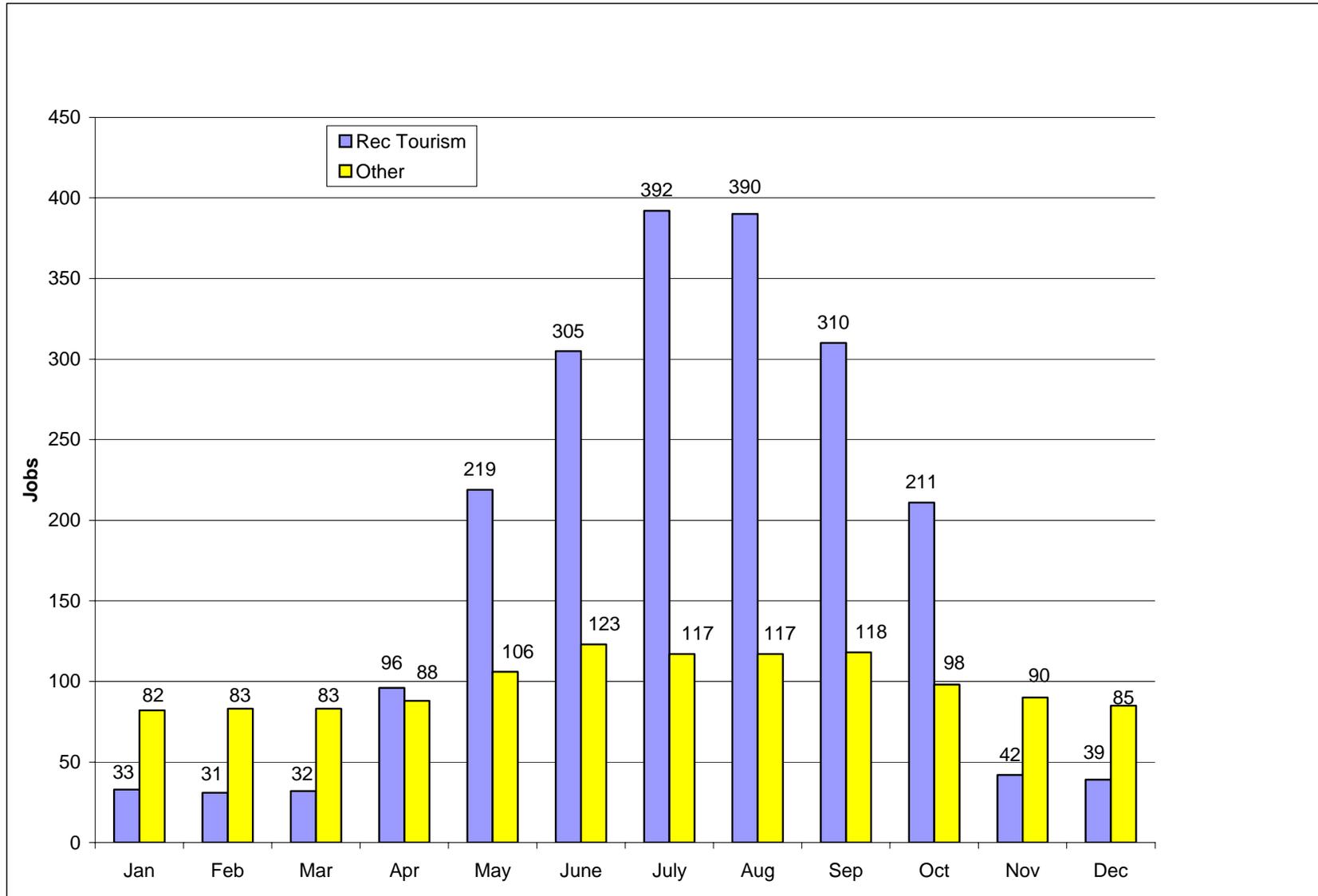


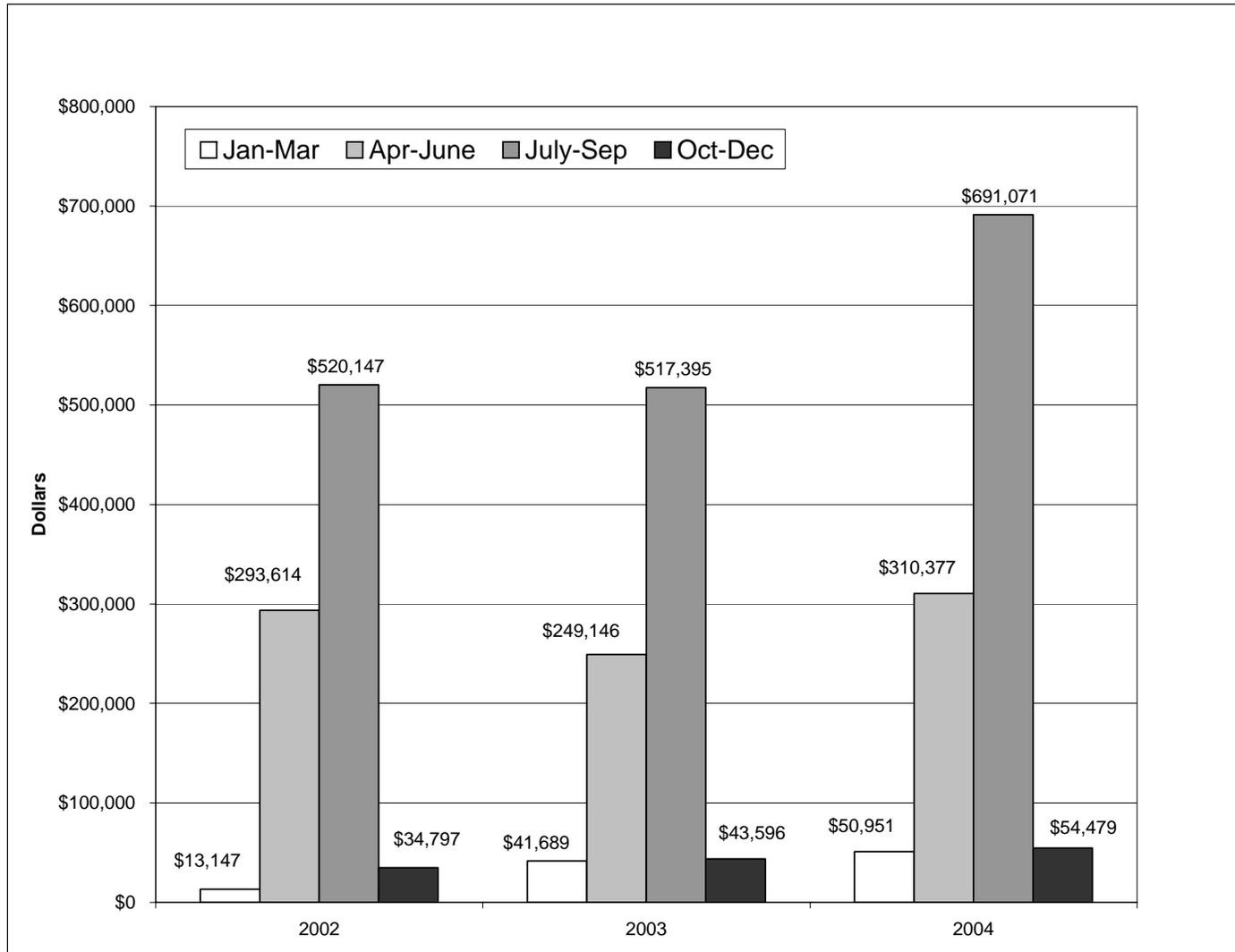
Chart 3-2 Economic Analysis Area 2003 Employment by Month



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



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



## 3.3.2. Environmental Consequences

### Response to Issues

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

It is not known how many snowmachiners are currently visiting the project area. The changes in the amount of snowmachiner visits to the area by alternative have not been able to be estimated. A proxy measurement was needed for this analysis. The amount of change in motorized use area is used to compare the relative difference between the action alternatives.

### Direct and Indirect Effects – All Alternatives

Alternative 2 has the largest percentage decrease in available motorized acres. Alternative 1 has the next largest percentage decrease in available motorized acres. The Proposed Action has the smallest decrease in the percentage of available motorized acres. The Modified Preferred Alternative decreases the available motorized acres by about 6 percent more than the Proposed Action. The effect of the Modified Preferred Alternative on the economic resources would be slightly more than the Proposed Action, but less than either Alternative 1 or 2.

Assuming that changes in the amount of acreage designated motorized is 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 some negative local economic impacts. 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). The Modified Preferred Alternative has slightly less area designated motorized and so could have slightly more affect on the local economy.

Alternative 2 also has the largest decrease in motorized trails of all the action alternatives. Alternative 1 has about 30 more miles of motorized trails in Season B compared to Alternative 1. The Proposed Action and the Modified Preferred Alternative offer more or less the same amount of motorized trails, about 175 miles in Season A and 120 miles in Season B.

These comparisons are 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.

## 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 Inn 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 cause relatively small potential cumulative impacts.

## 3.4. CULTURAL RESOURCES

### Legal and Administrative Framework

Numerous laws, regulations, and Forest Service policies direct the inventory, protection, restoration and interpretation of heritage resources. These include the National Historic Preservation Act, National Environmental Policy Act, National Forest Management Act, Alaska Native Claims Settlement Act, Archeological Resources Protection Act, Native American Graves Protection and Repatriation Act, American Indian Religious Freedom Act, 36 CFR 800, FSM 2300, Russian River Act, and Preserve America. Also included is 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."

#### 3.4.1. Affected Environment

##### Prehistoric Use

Prehistoric use on the Seward Ranger District has been documented 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 200BP) 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.

##### 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 (undated Manuscript). 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 areas.

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 roadhouses, homesteads, fox farms, tie hacking activities, trapping, and the establishment of recreation based activities (lodges, big game and fishing services and smaller recreation cabins).

## Cultural Resources

Field surveys and literature reviews have located 388 sites on the Seward Ranger District (Table 3-8). 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.

**Table 3-8 Heritage Sites, Acres Surveyed and Number of Sites Previously Monitored in the Winter**

Unit	Sites Total	Prehistoric Sites and Districts	Historic Sites and Districts	Historic Buildings	Historic Trails	Acres Surveyed	Winter Monitor
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	14	1	8	1	4	728	0
Tiehack/ Mt Alice	0	0	0	0	0	0	n/a

## 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 Iditarod National Historic Trail). The Hirshey Mine (SEW-00002) and Lauritsen cabin (SEW-00152) are listed on the National Register of Historic Places. 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 transportation route used to transport mail and supplies to communities from Seward to Nome during the early mining period. It was the first trail in the nation to be congressionally designated a National Historic Trail in 1978.

Of the remaining sites, 62 have been determined eligible and 14 have been determined ineligible, and 309 sites have not been evaluated for inclusion on the NRHP.

## 3.4.2. Environmental Consequences

### 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. There is a general lack of cultural resource survey coverage in the affected areas, and little to no winter monitoring has occurred. Only 2 percent of the Seward Ranger District has been intensively surveyed for cultural resources, and no survey has occurred in the Tiehack/Mt Alice unit. Of the buildings, only five have been monitored for winter use, all show evidence of intentional and unintentional impacts.

### Effects of the No Action Alternative

Currently there are trespass and vandalism impacts from winter use to historic structures on the Seward Ranger District (Yarborough 2004; Schick 2004). With no action, 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. With no action, additional erosion requiring trail maintenance would continue to occur.

### Effects of the Action Alternatives

The activities that have the potential to effect cultural resources are the Season A/Season B scenarios of the Resurrection and West Resurrection units and the proximity of the suggested trail corridor near Summit Lake. All of the action alternatives have these elements.

The early spring closure of the No Action Alternative has the benefit of alleviating trail damage currently caused by poor snow conditions.

The Season A/Season B scenarios for the Resurrection and West Resurrection units have the potential to alleviate known vandalism and looting to two historic buildings in the non-motorized year, but could increase the impacts because of the longer season in the motorized year. Monitoring would need to occur to document if the longer season increases impacts to cultural resources, or alleviates it with the year off.

### Cumulative Effects

Cumulative effects can include the destruction of cultural resources over time. There potentially could be an increase in the disturbance, vandalism, and looting of sites that are visible above the snow as a result of an increase in use and lack of monitoring.

Additionally, an increase in historic trail use could lead to additional trail maintenance and unintentional damage.

## Mitigation

Education of both user groups and other mitigation may be needed if future monitoring indicates impacts are occurring as a result of winter use on the Seward Ranger District. The type of mitigation addressing the specific impacts will be determined once the cause is identified.

The Modified Preferred Alternative has the potential to increase use and impacts to the historic Harry Johnson/Abernathy Cabin (SEW-00829), near the Resurrection Trail and the Lauritsen and Manitoba Cabins, but will not affect to the Michaelson Cemetery or historic trails. The cemetery is located outside the winter parking area and will be buried under snow. Closing the trails in the spring before the snow completely melts will mitigate impacts to the historic Resurrection Creeks and Johnson Pass Trails. The Harry Johnson Cabin is a popular recreation spot and will need to be monitored for adverse activities or vandalism on an annual basis.

## Monitoring

Monitoring of buildings and other sites likely to be damaged or looted during winter months should be conducted to determine if winter recreation is having a negative impact on cultural resources.

## 3. 5. ECOLOGY

### 3.5.1. Affected Environment

#### General Vegetation Composition, Structure, and Function

The Kenai Peninsula includes developed, altered, or disturbed areas. These developed areas include trails, campgrounds, remote campsites, pullouts, interpretive sites, fishing access points, cabin sites, recreation sites, powerline access areas, powerlines, parking areas, administrative sites, private structures, railroad and railroad access points, primary roads, secondary roads, and communities. Altered or disturbed areas include previously cut or managed areas, areas of previous fire, and areas of natural disturbance. Developments and other disturbance may have caused changes in the vegetation composition, structure, and function across the landscape as a whole. Many of these developments, alterations, or disturbances are concentrated in geographical areas suitable to residency, access, and use.

The Kenai Winter Access project 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. Changes to the overall forested and non-forested vegetation structure, composition, and function, in any of the five alternatives, will not be measurably different within the scale of this project.

On a small scale, the use of motorized vehicles on areas that do not have sufficient snow cover can cause significant vegetation damage. Sufficient cover can be defined as a foot or greater of complete coverage by snow, such that no part of a motorized vehicle touches any part of the ground, trail, or vegetation underneath the trail footprint. Inadequate snow cover directly leads to degradation of vegetation surrounding the trails, damage to mature or small trees adjacent to the trails, and soil compaction on the trails and in other areas of use, such as fields or meadows or cabin sites, preventing future growth and reestablishment of plants. The most severe trail damage usually occurs along the lower reaches of trails where snow cover melts out faster, or where snow becomes compacted to ice by continued use over a season. In addition, off-trail motorized use can introduce damage to previously untrammeled areas if use is continuous or particularly heavy. Use is often concentrated near parking areas and around cabin sites. Heavy use, motorized or non-motorized, causes degradation to all vegetation types, although high elevation vegetation types have a slower recovery potential. Trails, subject to heavy or regular motorized use, will show damage to vegetation on the margins of the trails.

Cutting or alteration of vegetation cover to accommodate passage of motorized vehicles or to allow better snow coverage of trails by snowfall negatively affects trailside vegetation or vegetation at heavy use areas, such as cabins. Branches are often trimmed or cut to provide greater snowfall to a trail for ease of passage. Trees that are considered in the way of easy passage are often cut. Most of these alterations are normal components of trail construction, although unsanctioned cutting will occur by users at times. Changes in trail designations, from non-motorized to motorized, may affect the level of trail development that is needed for passage and use.

Acreages in each of the alternatives, when relating 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 included for motorized or non-motorized use, and the number of cabins accessed in any of the alternatives for motorized or non-motorized use is also irrelevant given 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 forest; the different alternatives will not change the amount of use as it affects vegetation to a measurable degree. Units of measure have been included in case there is any possible need to monitor individual site damage over time.

## Soil Compaction

Concentrated use areas, including trails, cabins sites, favored camp sites or other destinations, and locations near parking areas will have the greatest degree of soil compaction from motorized use. Soil compaction has direct negative affects to vegetation growth. Annual forbs may not grow in areas of compaction. Revegetation of degraded areas is slowed. Recolonization by tree, shrub, or forb by seed is slowed or prevented. Continued growth and health of existing vegetation is compromised due to changes in local hydrology, oxygenation, and mineral uptake. Soil compaction will be addressed more thoroughly in the soil scientist specialist report.

## Fragile Environment Vegetation Degradation

Certain areas are more susceptible to degradation than others, including riparian zones, lakeshores, steep slopes, alpine areas, subalpine areas, and other unique geographical feature areas. The Kenai Peninsula encompasses a vast range of forested and non-forested cover types, geographical zones, and elevation changes. Vegetation 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, wet meadows, alpine meadows, sedge meadows, and rock and ice areas. Most areas of recreational use in the winter, both motorized and non-motorized, access different vegetation types. Favored areas, due to ease of passage because of a lack of trees, often include alpine or subalpine areas. Most of the major trail routes have at least part of the route in the alpine or subalpine zones. Winter weather conditions frequently include strong winds, which removes much or most of the snow in many of these areas, subjecting these fragile habitats to greater resource damage due to insufficient snow cover. Non-motorized use, in the volume that the Seward Ranger District 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 or 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, club mosses, and heath, can die as a result of this use and subsequent compaction.

## Sensitive Plant Habitat

Sensitive plant populations are measured by meander survey for presence or absence in a project area. There are several known populations of listed sensitive plants on the Regional Forester's 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 (2005) rare vascular plant tracking list. Habitat for sensitive and rare plants throughout the Seward Ranger District has been determined by a predictive model (USDA-FS, 2002b) which takes known habitat requirements for each species and determines suitable locations based on climatic, landcover, and landform variables. Several sensitive plant species are found in alpine or 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. With snow cover, winter use, motorized or non-motorized, will have a minimal effect on vegetation, including sensitive plants. Measurable changes to the sensitive plant populations and sensitive plant habitats are not expected within the scale of this project.

## 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. 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 on recreational equipment, camping gear, or on mechanized vehicles of any size. Given appropriate environmental conditions, seeds or plant fragments could grow in the spring after transport. The Chugach National Forest (USDA-FS, 2005c) has adopted an invasive species management plan, and any project implementation is expected to incorporate this plan as needed in the management of these species. Consistent with the invasive plant management plan, to help prevent the spread of invasive plants the public would be encouraged to inspect and clean seeds from their gear prior to entering the area. Measurable changes in non native invasive plant occurrences are not expected within the scale of this project.

## Units of Measure

Vegetation damage is measured by percent loss of vegetation cover by cover class, and by percent change in vegetation composition, in the area of interest, such as along a trail corridor, or at a specific site, such as a cabin. Change in trail conditions can be measured by the width of the trail or the condition of the site. Overall vegetation habitat can be assessed by a scale between one and five, from severely damaged to pristine.

Sensitive plant populations and non-native or invasive species are measured by presence or absence at surveyed sites of interest. Species and size of the population are recorded.

## 3.5.2. Environmental Consequences

### No Action Alternative

With no change to the current patterns of winter non-motorized and motorized use on the Kenai Peninsula, there will be no change to the vegetation, other than the expected degradation at areas of heavy use.

### Direct and Indirect Effects

Winter motorized use can cause, at individual site levels, changes to vegetation cover, as well as soil compaction, damage to fragile areas with heavy or repeated use, and possible introduction of non-native or invasive species. In addition, sensitive or rare plant habitat may be affected. These effects would be caused with any change, disturbance, alteration, or use within the Chugach National Forest on projects that involve development or use.

### Cumulative Effects

As part of the Chugach National Forest continued recreation management, project planning, and implementation, winter motorized and non-motorized use will be incorporated into the short and long terms plans for the Chugach National Forest. Vegetation is expected to remain the same over the forestwide scale.

## Proposed Action and Modified Preferred Alternatives

### Direct and Indirect Effects

The Season A/Season B scenario in this alternative may reduce the effects of motorized use in the Resurrection and West Resurrection units, although the amount of days that these units will be designated motorized will not differ dramatically from the current mid-season swap. Effects to vegetation, in terms of damage to trailside vegetation and degradation of fragile alpine vegetation, may be lessened as use will be lighter every winter season. The units proposed to be managed as a Season A/Season B scenario are already used heavily, and resource recovery of any sort, in terms of vegetation cover, sensitive plant habitat, or fragile alpine habitat conservation, is not expected.

The proposed motorized corridor from Cooper Landing to Moose Pass to Summit Lake (with potential tie-in to Hope and Girdwood) (Modified Preferred Alternative) and the proposed motorized corridor from Cooper Landing to Moose Pass to the Hope Y (Proposed Action) would introduce a concentrated area of use to a previous non-concentrated area. Resource damage would be expected to occur with trail improvement necessary to support a corridor of this length. Alpine areas are not expected to be affected due to the route of this corridor. Soil compaction and vegetation damage would occur along the length of the route.

## Alternative 1

### Direct and Indirect Effects

Less of the Kenai Peninsula would be designated for motorized use every other winter season with the Season A/Season B scenario. Most vegetated areas, such as those in the Season A/Season B units (Carter/Crescent), would not be expected to recover or change from a lowered use in one year.

Less open areas, including the Russian and West Resurrection units as permanent closures, would allow some recovery of vegetation in areas that have been affected by motorized winter use. Because these areas are not receiving the high volumes of other units, including Resurrection and Lost Lake, resources over the entire Kenai Peninsula will not be measurably changed.

## Alternative 2

### Direct and Indirect Effects

The Season A/Season B scenario in this alternative provides the greatest separation of user groups, but does not deviate in effects from the Proposed Action due to the percent of area designated as motorized, non-motorized, in a Season A/Season B scenario. Effects to vegetation, in terms of damage to trailside vegetation and degradation of fragile alpine vegetation, may be lessened as use will be lighter every year that areas are designated non-motorized. Designating the Russian unit for motorized use would have detrimental effects because this unit was not previously designated motorized.

Most of the units that will be part of the Season A/Season B scenario are already used heavily, and resource recovery of any sort, in terms of vegetation cover, sensitive plant habitat, or fragile alpine habitat conservation, is not expected.

Opening new areas to use is not recommended ecologically because of the changes that can occur, including vegetation damage and compaction to areas previously not subjected to use. Concentrated use is recommended rather than spreading out use to new areas for greatest resource protection in terms of vegetation.

### Cumulative Effects - All Action Alternatives

As part of the Chugach National Forest continued recreation management, project planning, and implementation, winter motorized and non-motorized use will be incorporated into the short and long terms plans for the Chugach National Forest. Vegetation is expected to remain the same over the forestwide scale.

Introduction of a new motorized corridor may introduce a new "trail" visible in times of the year other than winter if use is heavy, which may lead to use in other seasons.

## 3.6. SOIL

### 3.6.1. 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 uses 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 south 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 glaciations 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 that 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 can have an effect on streams and water quality, and will result in the removal of surface soil and gravel from the trail. One 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 an adequate depth 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 paddle track machines are particularly destructive because they dig and spit soil and gravel as they propel the snowmachine forward.

There is guidance in the LRMP, standards and guidelines for minimizing disturbance and loss 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, 2006). There are also numerous standard open and closure dates for different locations that are identified in the LRMP when there is sufficient snow cover to protect the vegetation as determined by Forest Service personnel (USDA-FS, 2002a, p.4-91 – 4-94).

### **3.6.2. 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.

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

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 LRMP 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.

#### **Cumulative Effects**

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.

## 3.7. WATER, RIPARIAN, AND WETLANDS

The Kenai Winter Access FEIS evaluates just over 835,000 acres of National Forest System lands, all of which are located on the Kenai Peninsula within the boundaries of the Seward Ranger District of the Chugach National Forest. Broad descriptions of the surface water, groundwater, riparian area, and wetland resources for the project area, as well as the Legal and Administrative Framework and protection measures for these resources on the Chugach National Forest are presented in the FEIS for the LRMP (USDA-FS, 2002b, p 3-22 to 3-31).

Detailed hydrologic and climatic data records have been compiled and summarized for portions of the project area in the following Forest Service produced Landscape Assessments and Hydrologic Condition Assessments (HCAs) completed or in progress on the Seward Ranger District:

- *Resurrection Creek Landscape Assessment* (USDA-FS, 2002e)
- *Resurrection Creek Watershed Association Hydrologic Condition Assessment* (USDA-FS, 2001)
- *Cooper Creek Watershed Analysis* (USDA-FS, 2002f)
- *Sixmile/Canyon Creek Landscape Assessment* (USDA-FS, 2002g)
- *Sixmile/Canyon Creek Hydrologic Condition Assessment* (USDA-FS, 2002h)
- *Russian River Landscape Assessment* (USDA-FS, 2004a)
- *Russian River Watershed Hydrologic Condition Assessment* (USDA-FS, 2004b)
- *Snow River Landscape Assessment* (USDA-FS, 2005d)
- *Snow River Hydrologic Condition Assessment* (USDA-FS, 2005e)
- *Trail River Landscape Assessment* (USDA-FS, in progress)
- *Trail River Hydrologic Condition Assessment* (USDA-FS, 2001b)

The Resurrection Creek, Copper Creek, and Russian River Landscape Assessments are available on the internet at: <http://www.fs.fed.us/r10/ro/policy-reports/>.

### 3.7.1. Affected Environment

#### Snow

The Kenai Winter Access FEIS 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 and Chugach Ranges. Within individual locales in the project area, the amount of annual precipitation generally increases with elevation, as well as the percent of precipitation that falls as snow. Wind, particularly above timberline, can redistribute winter snowpacks significantly in some locations, leaving barren ridges and deeply deposited snow in 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 falling as rain instead of snow, particularly at lower elevations. This increase in rain often results in shallower snowpacks and shorter snow access seasons, both of which are generally seen as detrimental to winter snow sports.

## Water Quality

Watersheds within the project area are mostly pristine, particularly in the upper reaches that are often 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 LRMP (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 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 shallow or the ground is unfrozen. This can be the case at lower elevation areas, including areas near trailheads and access points.

### 3.7.2. Environmental Consequences

The total percentage of the project area designated for motorized use does not change substantially between the five alternatives. These changes in the motorized and non-motorized acreages, when considered in relation to the water, riparian, and wetland resources across the Kenai Peninsula as a whole, are irrelevant given the nature of this resource and the scale of the project. Although changes in localized effects can occur between the different alternatives, over the project area, impacts to water resources would show little variation between the five alternatives. The effects displayed below are for all alternatives.

## Direct and Indirect Effects – Water Quality

The FEIS for the LRMP (USDA-FS, 2002b, p 3-8) indicates that 2-cycle snowmachine 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 LRMP (USDA-FS, 2002b, p. 3-37 to 3-38) indicates that fuel deposition on the snowpack has the potential to concentrate in the snowpack and runoff into surface and ground water during the spring snowmelt. Such runoff has been displayed in certain instances to have adverse impacts on aquatic organisms if concentrations of petroleum-related toxics reach high 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 designated for motorized use and the relatively dispersed motorized uses throughout the area can result in a wide dispersal of these pollutants. However, areas where highly concentrated winter motorized use occurs adjacent to water sources can likely be a detriment to water quality. Under all alternatives, the locations most susceptible to petroleum related water pollution would be centralized parking areas/trailheads and concentrated, narrow use corridors, particularly when such places are in immediate proximity to water sources.

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. However, potential increases in winter motorized use within the project area would result in more individual sources of petroleum deposition.

## Direct and Indirect Effects – Wetlands and Riparian Areas

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 shallow snowpack conditions on unfrozen ground can cause considerable vegetation damage, soil erosion, and stream channel and bank disturbance in certain instances, although the LRMP standards and guidelines provide protection (USDA-FS, 2002a, p. 3-22 and 3-35). Narrow track, high-horsepower snowmobiles with long paddles can cause a great deal of ground disturbance and excavation. Avoiding thin snow or 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.

Under the five alternatives, some localized increases and decreases in impacts to wetlands and riparian areas are probable. Places particularly susceptible to new water resource impacts would be new trailheads and narrow travel corridors. The proposed Season A/Season B scenario for motorized use in the Modified Preferred Alternative 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.

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. Winter-only corridors that follow a logical access corridor can often evolve into all-season trails over time, created by summer users. If the winter-only corridor crosses streams, riparian areas, floodplains, or wetlands, this can in some cases result in bank damage, vegetation damage, soil erosion, and stream sedimentation. Such damage can occur if the access corridor is used during shallow snowpack or unfrozen ground conditions, or if it is converted 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, 2006). Development and location of winter-only access corridors should be undertaken with the understanding of the potential of these trails to evolve to all-season trails over time.

## Cumulative Effects – Water, Riparian, Wetlands

The negligible impacts to water, riparian area, and wetland resources from winter recreation activities in conjunction with past actions and reasonably foreseeable future actions would not cause any cumulative impacts.

## 3.8. AIR QUALITY

### 3.8.1. Affected Environment

The Kenai Winter Access FEIS evaluates over 835,000 acres of Chugach National Forest System 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 LRMP FEIS (USDA-FS, 2002b, p.3-3 to 3-5). This section of the FEIS for the LRMP 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 LRMP FEIS, 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 that are often located away from highways and communities that might have some impacts on ambient air quality.

### 3.8.2. 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.

#### Direct and Indirect Effects

The LRMP 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 LRMP 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. Localized air quality impacts occur at parking lots, trailheads, and other areas of concentrated motorized use. Air pollutants related to motorized use and regulated by US Environmental Protection Agency (EPA) ambient air quality standards include carbon monoxide, fine particulates, and sulfur oxides. No air quality data have been collected to date within the project area to evaluate the presence of these 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. 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. However, potential increases in winter motorized use within the project area would result in more individual sources of exhaust emissions to the air.

## Cumulative Effects

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.

## 3.9. FISHERIES

### 3.9.1. Affected Environment

This section addresses the existing resource situation (affected environment) and the effects of the proposed alternatives (environmental effects) on federally listed, Forest Service Region 10 Regional Forester's Sensitive Species, Management Indicator Species, and Special Interest Species 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 (ADF&G, 2005a). There are almost 700 acres of resident fish lakes and an unknown number of resident fish streams (USFS, unpublished data). The Seward Ranger District manages 22 lakes used by recreational anglers. Eight are stocked by Alaska Department of Fish and Game with sterile rainbow trout (ADF&G, 2005b) and provide ice fishing opportunities.

There are no federally listed or Region 10 sensitive fish species on the Chugach National Forest or Seward Ranger District. Both Management Indicator fish species are found within the project area (Table 3-9). The one Species of Special Interest is not known to occur within the project area (Table 3-9). Table 3-9 also lists Alaska's sport or subsistence fishery species occurring within the project area.

Generally, all populations are considered robust and healthy within the project area, although there are several localized areas where human influences have adversely affected habitat and fish populations such as Cooper Creek, a tributary to the Kenai River. All species found in Table 3-9 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 National Forest are important for commercial fisheries occurring in salt water.

**Table 3-9 Amount of Available Habitat and Status of Fish Species Considered within the Kenai Winter Access Project Area**

Species	Status	Amount of Habitat in Project Area
<b>Anadromous Fish</b>		
Coho salmon ( <i>Oncorhynchus kisutch</i> )	Management Indicator Species	315 miles
Pink salmon ( <i>Oncorhynchus gorbuscha</i> )	Alaska Sport Fishery	161 miles
Chinook salmon ( <i>Oncorhynchus tshawytscha</i> )	Alaska Sport Fishery	160 miles
Sockeye salmon ( <i>Oncorhynchus nerka</i> )	Alaska Sport Fishery	121 miles
Chum salmon ( <i>Oncorhynchus keta</i> )	Alaska Sport Fishery	109 miles
Eulachon ( <i>Thaleichthys pacificus</i> )	Alaska Sport Fishery	Unknown
Dolly Varden char ( <i>Salvelinus malma</i> )	Management Indicator Species	Unknown
<b>Resident Fish</b>		
Arctic grayling ( <i>Thymallus arcticus</i> )	Alaska Sport Fishery	Unknown
Rainbow trout ( <i>Oncorhynchus mykiss</i> )	Alaska Sport Fishery	242 miles
Cutthroat trout ( <i>Oncorhynchus clarkii</i> )	Species of Special Interest	Unknown

#### 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 (ADF&G 2005a; USFS, unpublished data). The approximate amount of habitat used by these species is listed in Table 3-9.

#### Eulachon

These pelagic schooling smelts (common name Hooligan) live in marine environments offshore of the Chugach National Forest, and 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 (USFS, unpublished data).

#### 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 South Fork Snow River (ADF&G, 2005a).

#### Arctic Grayling

This fish species is not native to the Chugach National Forest. The 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 (USFS, unpublished data).

### 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 Lake, Long, Meridian, Upper and Lower Russian, Upper and Lower Paradise, Johnson, Cooper, Rainbow, Trout, Swan, Juneau, and Lost Lakes.

## **3.9.2. Environmental Consequences**

### **Direct and Indirect Effects**

The action alternatives do not differ significantly in the amount of area open to winter motorized and non-motorized access. Therefore, the four action alternatives, including the Modified Preferred, do 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 [3.6]). Similarly, there is a low risk of petroleum-based pollutants entering aquatic habitat (see Water Quality [3.7]).

There is little existing data regarding effects of snowmobiles on aquatic biota but, Adams, 1975 addressed the effects of high levels of lead and hydrocarbons from snowmachine exhaust on brown trout (*Salvelinus fontinalis*). His study found that that high-level exposure to lead and hydrocarbon can lower activity levels and feeding. The alternatives in this FEIS, including the Modified Preferred Alternative, are expected to have negligible effects to water quality and fish, including the Snow River unit, because snowmachine use on the Seward Ranger District is widely dispersed, occurs over relatively large frozen water bodies, and does not occur at concentrations that have been shown to cause adverse effects to water quality or aquatic organisms. The results of the Adams Study support this contention and state that the levels of hydrocarbons found in the study are “unrealistic for all but a few small lakes in well populated areas.”

No adverse effects to fish populations are expected as a result 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 fisherman. 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 (2006), provide 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 will protect fisheries resources from detrimental effects.

The protection measures apply to all alternatives. Changes in either the method of implementation or the protection measure will occur if either does not adequately protect the fisheries resource in the project area.

## Cumulative Effects

Because there are no effects of the proposed alternatives on the fisheries resource, there will be no cumulative effects.

## 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

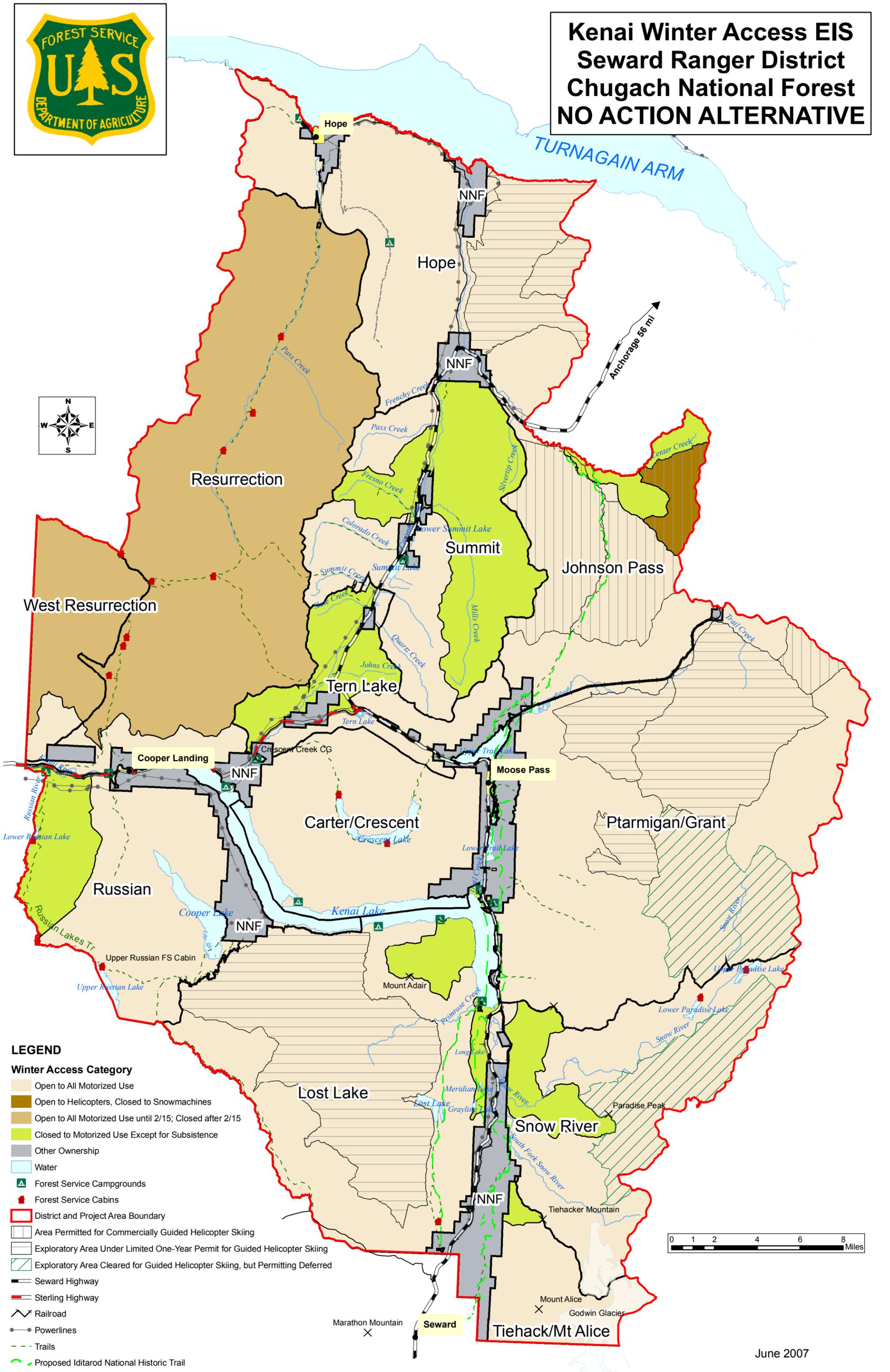
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## Map A-2-1 No Action Alternative



**Kenai Winter Access EIS  
Seward Ranger District  
Chugach National Forest  
NO ACTION ALTERNATIVE**

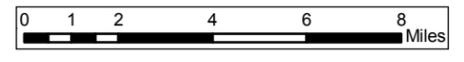


Anchorage 56 mi

**LEGEND**

**Winter Access Category**

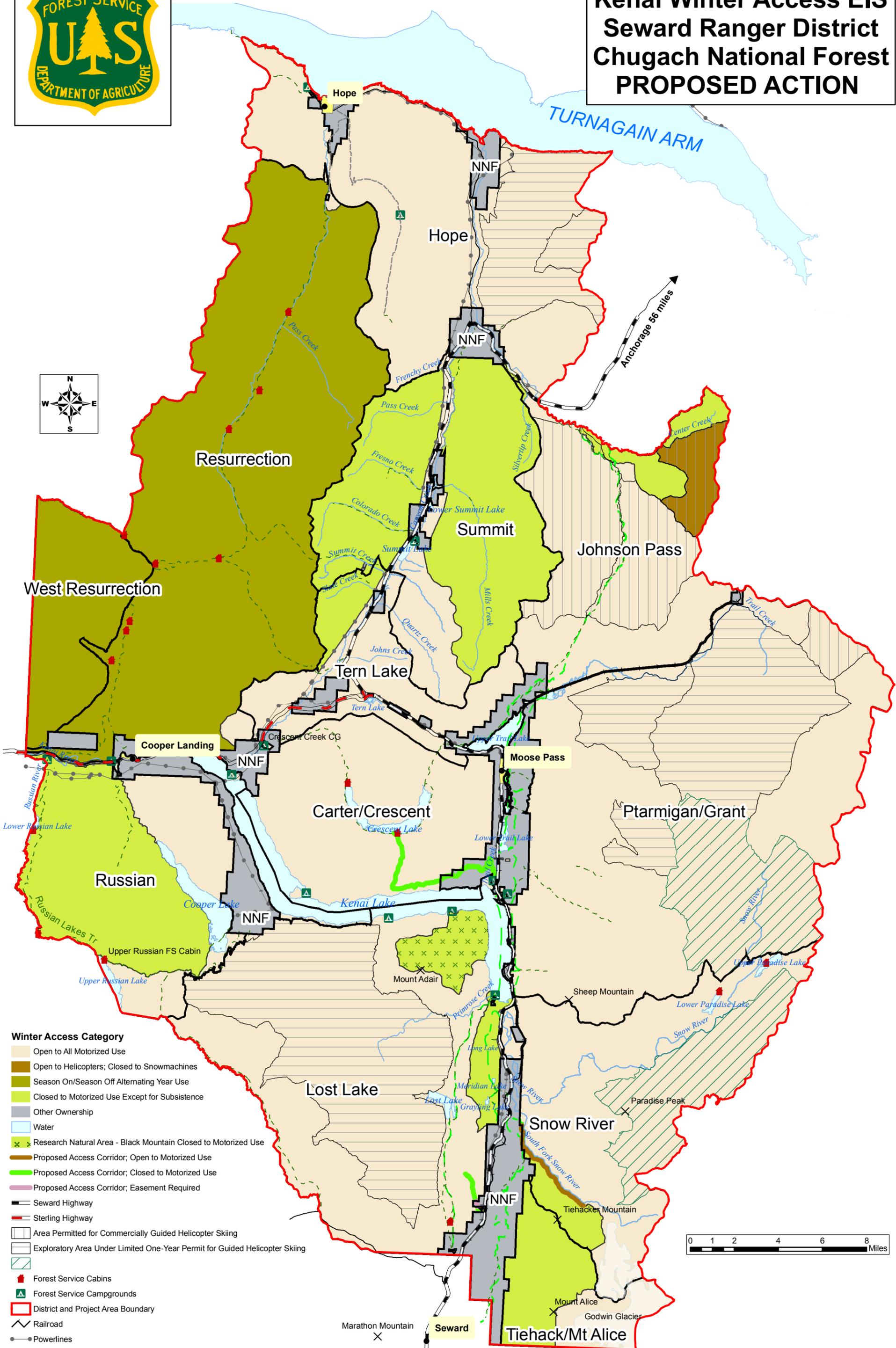
- Open to All Motorized Use
- Open to Helicopters, Closed to Snowmachines
- Open to All Motorized Use until 2/15; Closed after 2/15
- Closed to Motorized Use Except for Subsistence
- Other Ownership
- Water
- Forest Service Campgrounds
- Forest Service Cabins
- District and Project Area Boundary
- Area 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

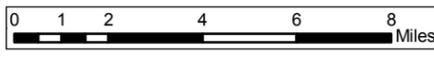


# Kenai Winter Access EIS Seward Ranger District Chugach National Forest PROPOSED ACTION



Anchorage 56 miles

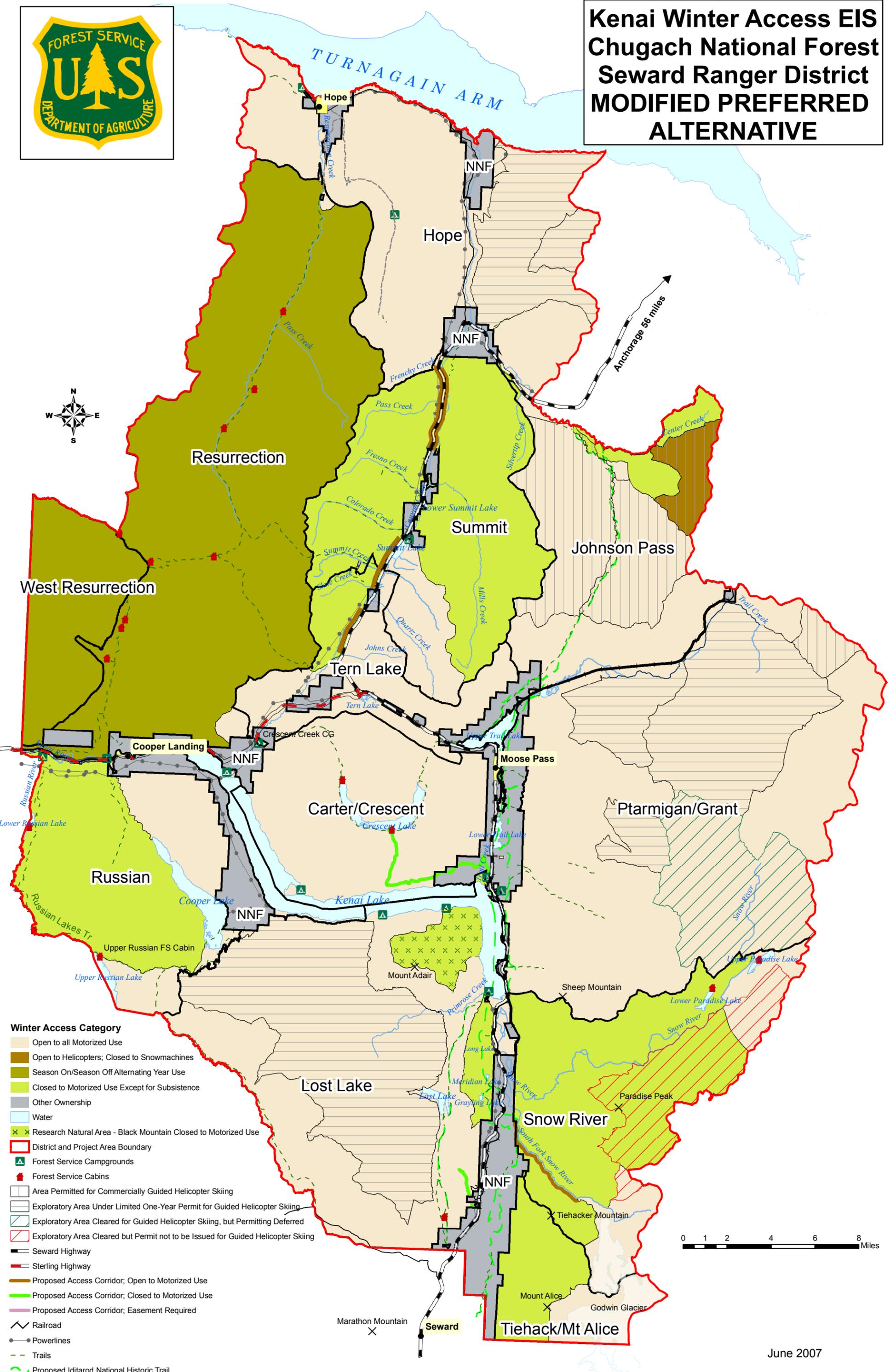
- Winter Access Category**
- Open to All Motorized Use
  - Open to Helicopters; Closed to Snowmachines
  - Season On/Season Off Alternating Year Use
  - Closed to Motorized Use Except for Subsistence
  - Other Ownership
  - Water
  - Research Natural Area - Black Mountain Closed to Motorized Use
  - Proposed Access Corridor; Open to Motorized Use
  - Proposed Access Corridor; Closed to Motorized Use
  - Proposed Access Corridor; Easement Required
  - Seward Highway
  - Sterling Highway
  - Area Permitted for Commercially Guided Helicopter Skiing
  - Exploratory Area Under Limited One-Year Permit for Guided Helicopter Skiing
  - Forest Service Cabins
  - Forest Service Campgrounds
  - District and Project Area Boundary
  - Railroad
  - Powerlines
  - Trails
  - Proposed Iditarod National Historic Trail



## **Map A-2-3 Modified Preferred Alternative**



# Kenai Winter Access EIS Chugach National Forest Seward Ranger District MODIFIED PREFERRED ALTERNATIVE



Anchorage 56 miles

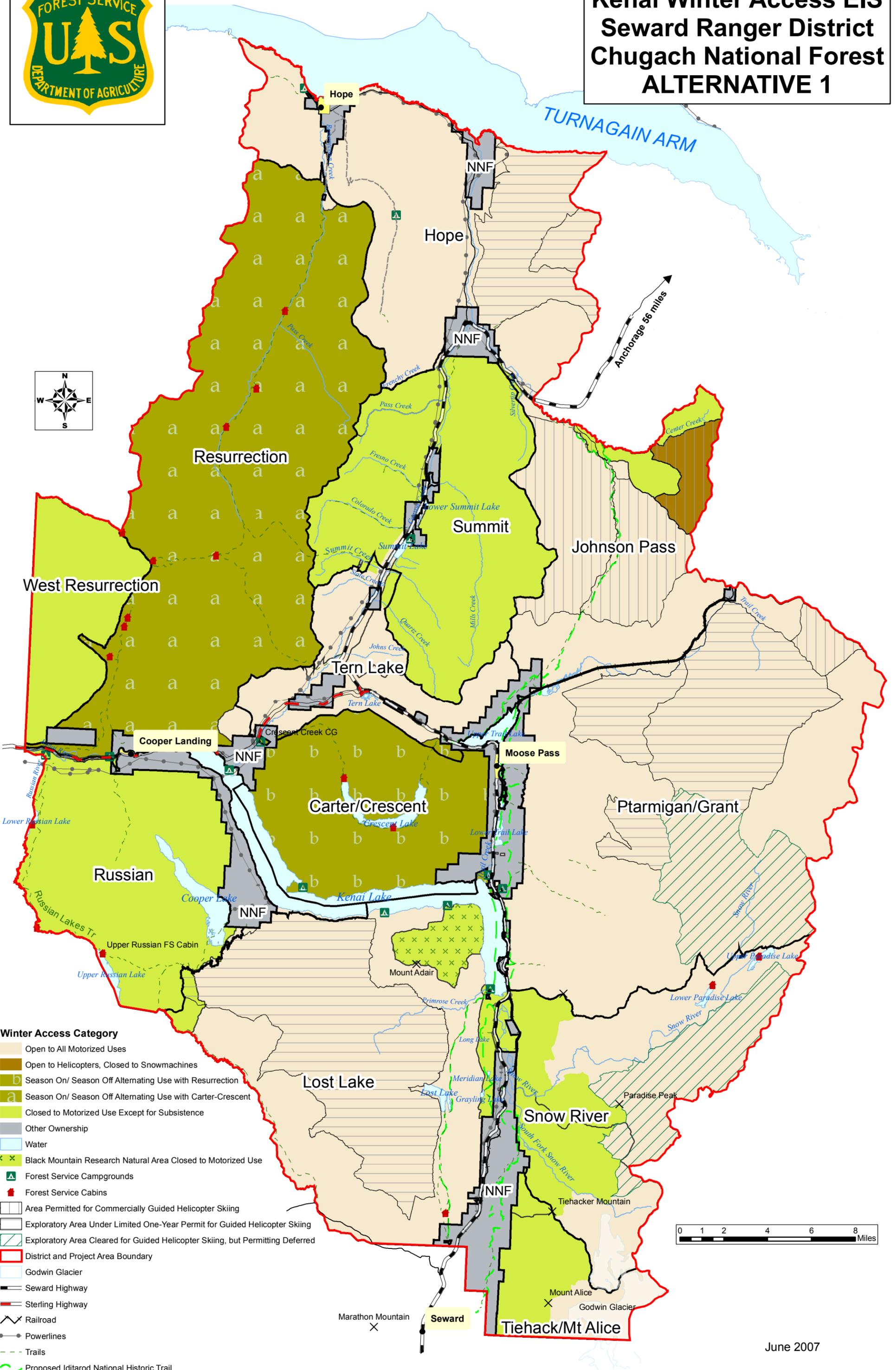
- Winter Access Category**
- Open to all Motorized Use
  - Open to Helicopters; Closed to Snowmachines
  - Season On/Season Off Alternating Year Use
  - Closed to Motorized Use Except for Subsistence
  - Other Ownership
  - Water
  - Research Natural Area - Black Mountain Closed to Motorized Use
  - District and Project Area Boundary
  - 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
  - Seward Highway
  - Sterling Highway
  - Proposed Access Corridor; Open to Motorized Use
  - Proposed Access Corridor; Closed to Motorized Use
  - Proposed Access Corridor; Easement Required
  - Railroad
  - Powerlines
  - Trails
  - Proposed Iditarod National Historic Trail



## Map A-2-4 Alternative 1

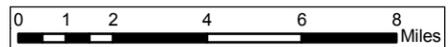


# Kenai Winter Access EIS Seward Ranger District Chugach National Forest ALTERNATIVE 1



### Winter Access Category

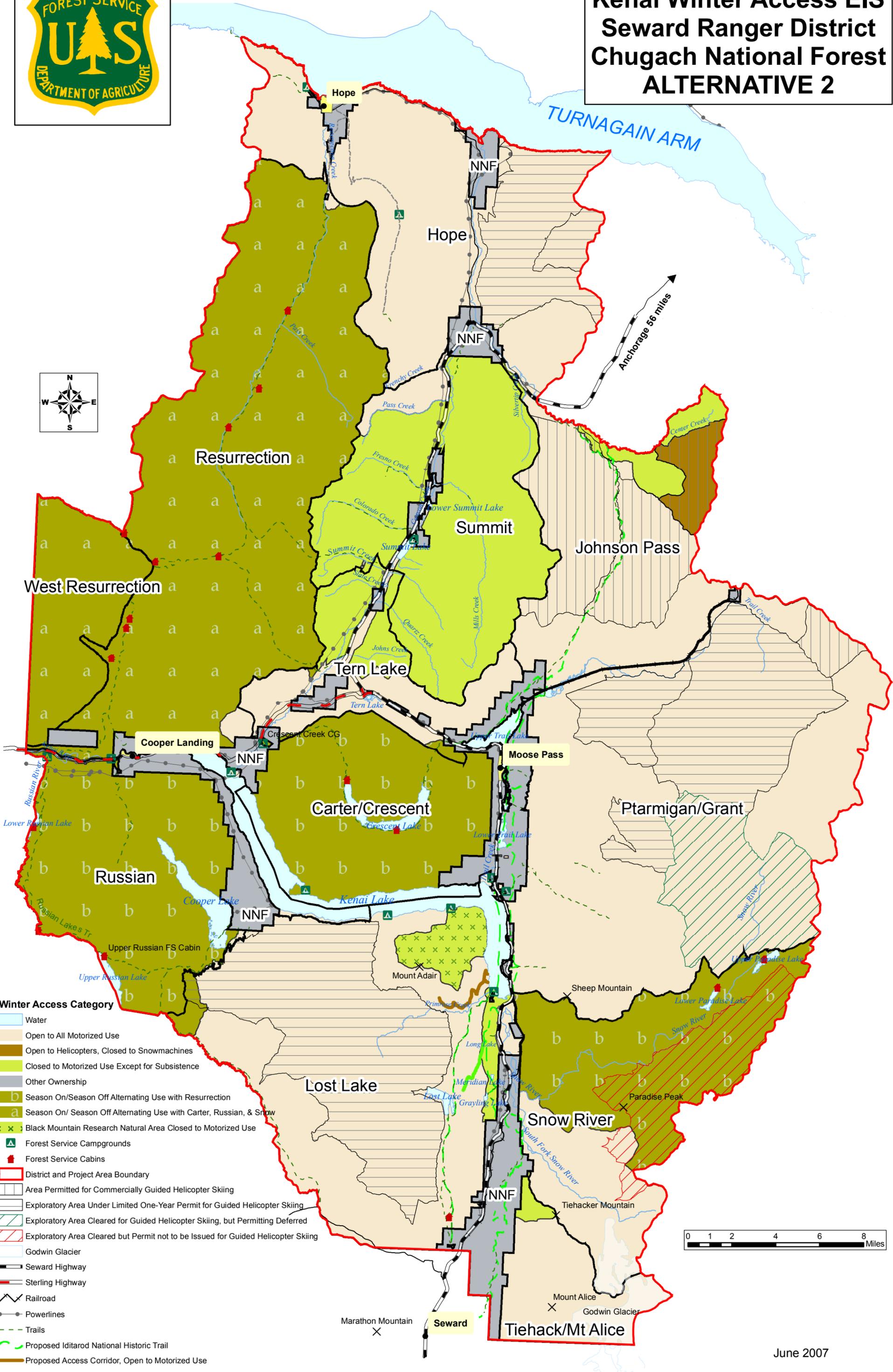
- Open to All Motorized Uses
- Open to Helicopters, Closed to Snowmachines
- Season On/ Season Off Alternating Use with Resurrection
- Season On/ Season Off Alternating Use with Carter-Crescent
- Closed to Motorized Use Except for Subsistence
- Other Ownership
- Water
- x Black Mountain Research Natural 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



## Map A-2-5 Alternative 2

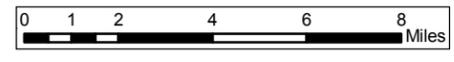


# Kenai Winter Access EIS Seward Ranger District Chugach National Forest ALTERNATIVE 2



Anchorage 56 miles

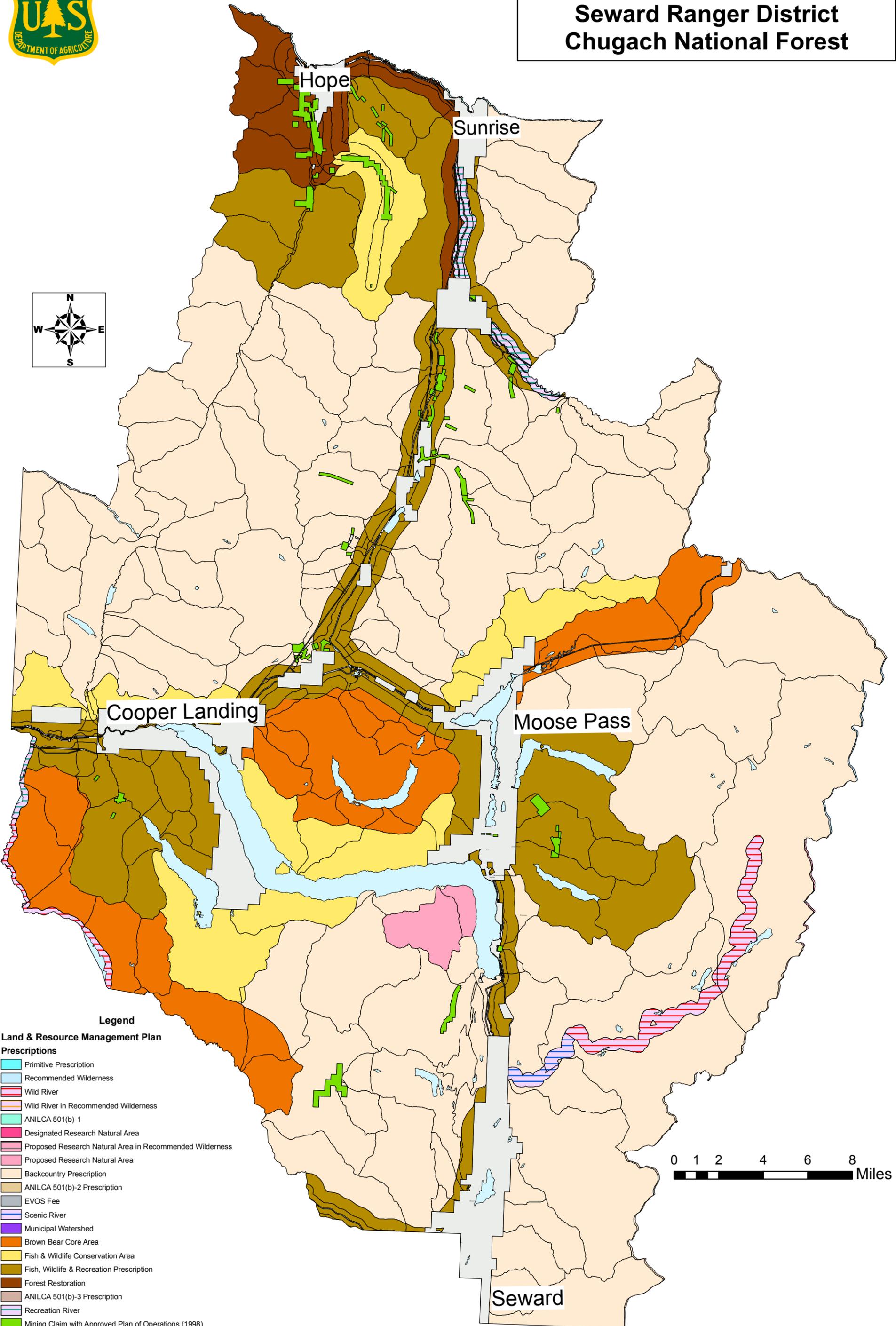
- Winter Access Category**
- Water
  - Open to All Motorized Use
  - Open to Helicopters, Closed to Snowmachines
  - Closed to Motorized Use Except for Subsistence
  - Other Ownership
  - b** Season On/Season Off Alternating Use with Resurrection
  - a** Season On/ Season Off Alternating Use with Carter, Russian, & Snow
  - x** Black Mountain Research Natural Area Closed to Motorized Use
  - 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
  - Exploratory Area Cleared but Permit not to be Issued for Guided Helicopter Skiing
  - Godwin Glacier
  - Seward Highway
  - Sterling Highway
  - Railroad
  - Powerlines
  - Trails
  - Proposed Iditarod National Historic Trail
  - Proposed Access Corridor, Open to Motorized Use
  - Proposed Access Corridor, Closed to Motorized Use



## **Map A-3-1 Land and Resource Management Plan, Management Prescriptions**



# Management Area Prescriptions Seward Ranger District Chugach National Forest

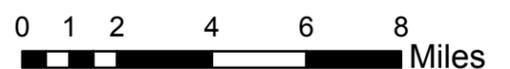


### Legend

#### Land & Resource Management Plan

#### Prescriptions

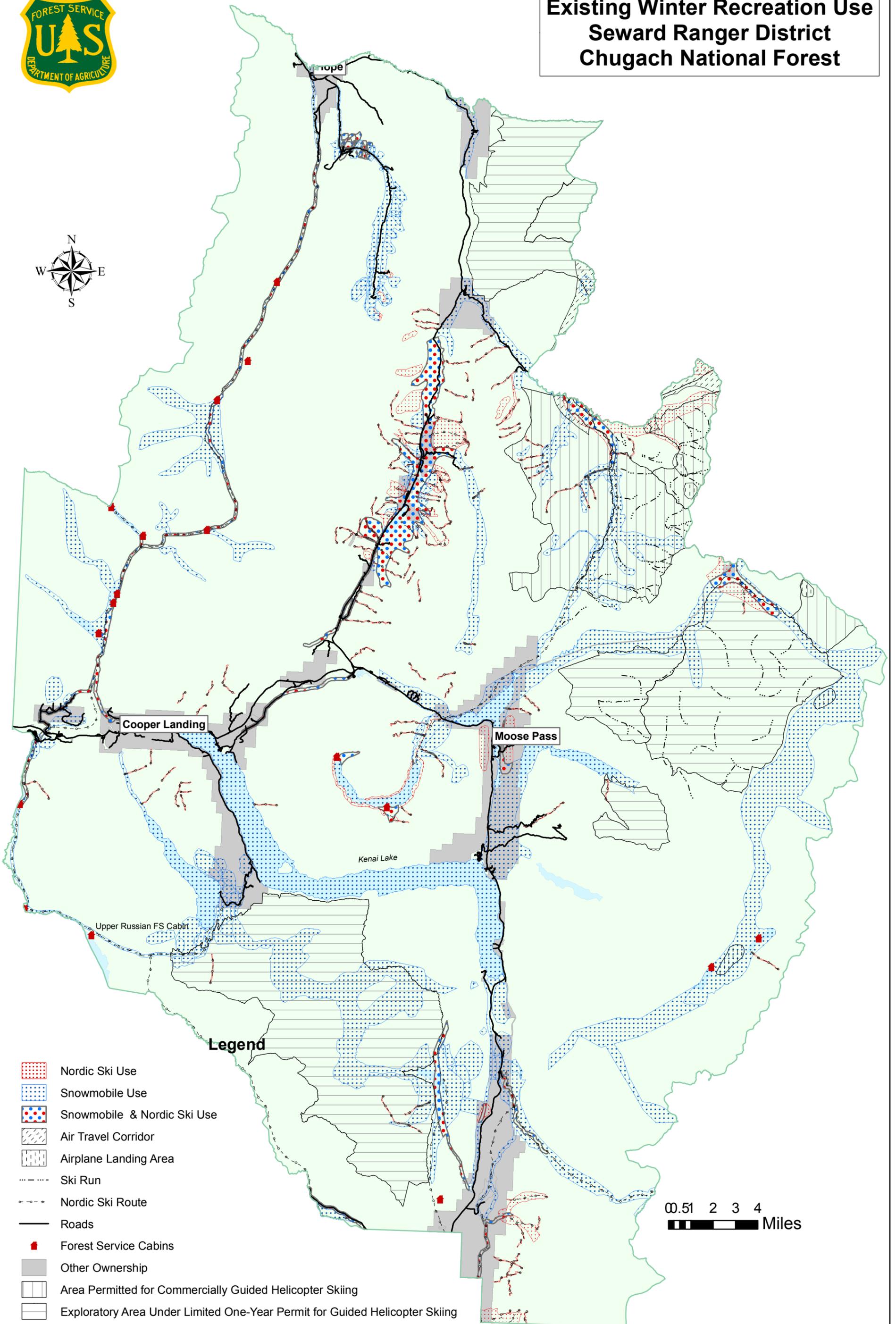
-  Primitive Prescription
-  Recommended Wilderness
-  Wild River
-  Wild River in Recommended Wilderness
-  ANILCA 501(b)-1
-  Designated Research Natural Area
-  Proposed Research Natural Area in Recommended Wilderness
-  Proposed Research Natural Area
-  Backcountry Prescription
-  ANILCA 501(b)-2 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 Existing Winter Recreation Use



# Existing Winter Recreation Use Seward Ranger District Chugach National Forest



## Legend

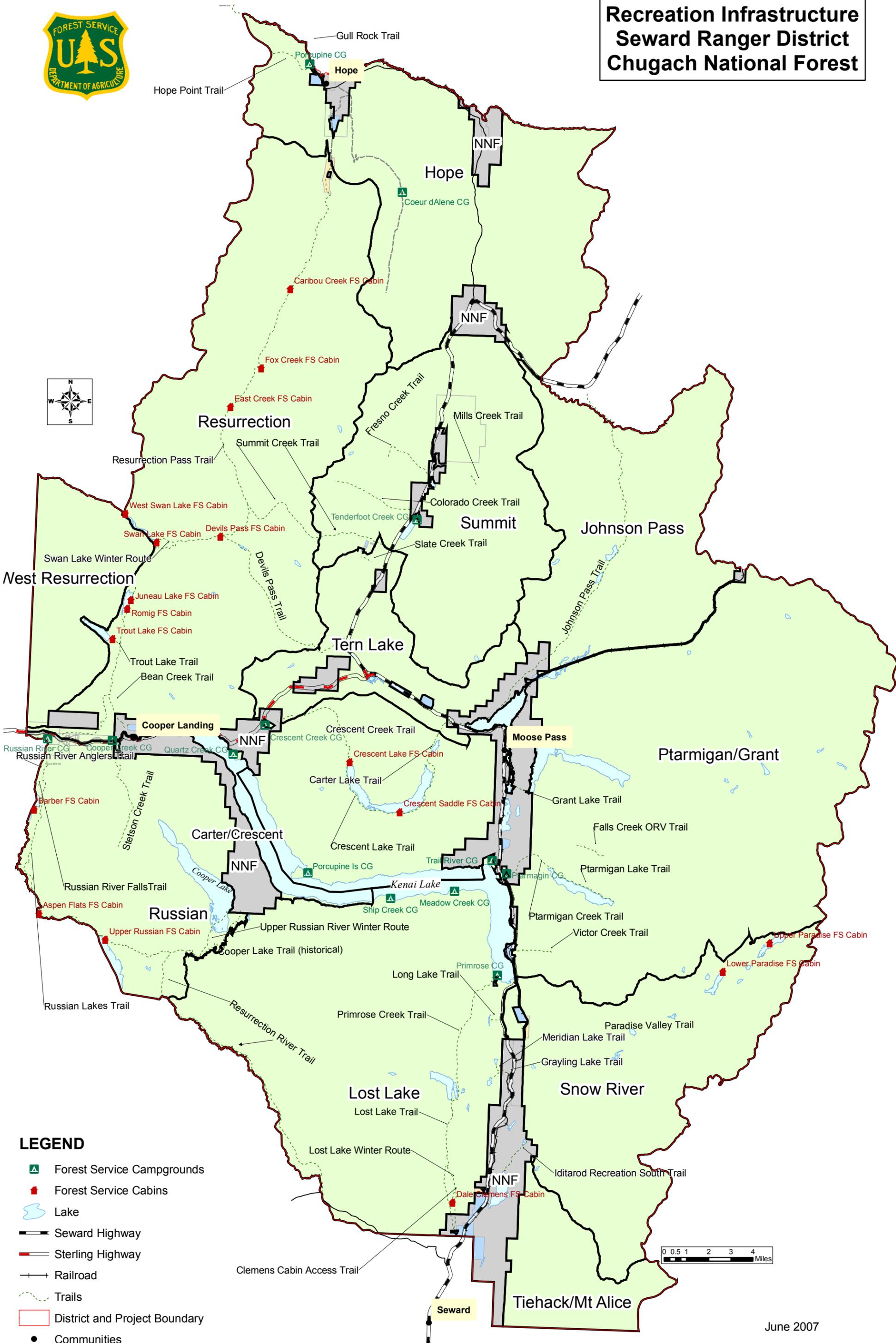
- Nordic Ski Use
- Snowmobile Use
- Snowmobile & Nordic Ski Use
- Air Travel Corridor
- Airplane Landing Area
- Ski Run
- Nordic Ski Route
- Roads
- Forest Service Cabins
- Other Ownership
- Area Permitted for Commercially Guided Helicopter Skiing
- Exploratory Area Under Limited One-Year Permit for Guided Helicopter Skiing

0.5 1 2 3 4  
Miles

## Map A-3-3 Recreation Infrastructure



# Recreation Infrastructure Seward Ranger District Chugach National Forest



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Kristen Thrall	Writer/Editor
Gregg B. Walker	Community Collaboration
Linda Yarborough	Heritage Resources

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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
<b>FSH</b>	Forest Service Handbook
<b>FSM</b>	Forest Service Manual
<b>GIS</b>	Geographic Information System
<b>IDT</b>	Interdisciplinary Team
<b>LRMP</b>	Chugach National Forest Revised Land and Resource Management Plan
<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.

## C

**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).”

**Core Area:** Core areas are identified in the forest plan to manage habitat and meet population objectives for brown bears, and to reduce dangerous encounters between humans and bears (USDA- FS, 2002b, pg 4-54).

**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.

**Cratering:** Digging by animals.

**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.

## D

**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.

<b>E</b>
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**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

**Final Environmental Impact Statement (FEIS):** A Final Environmental Impact Statement document. A FEIS is prepared after review and comment by the public on the Draft Environmental Impact Statement (DEIS).

**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:** See National Forest Land and Resource Management Plan

**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 National 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.

## N

**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.

## O

## P

**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.

**Preserve America:** A White House initiative to direct Federal agencies to inventory and promote greater use of historical sites in partnership with State, Tribal and local governments.

**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

**Russian River Land Act:** Passed in 2002, ratifies an agreement to resolve the Native land claims of the Cook Inlet Region Incorporated regarding lands adjacent to the Russian River.

**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.

**Subnivean:** The subnivean zone is in or under the snow layer. Subnivean animals such as mice, voles, and shrews move under the snow in the winter for protection from heat loss and predators. For smaller animals the snow cover must be at least 6 inches deep before the small mammals can build tunnels through it. The temperature under the snow stays about 32°F no matter how cold the temperature above the snow pack. These areas can be crushed by both motorized and non-motorized winter recreationists.

## 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

**Undertaking:** In cultural resources, any project, activity or program that can result in changes in the character or use of historic properties, if any such properties are located

in the area of potential effects. The project, activity or program must be under the direct or indirect jurisdiction of a Federal agency or be licensed or assisted by a Federal agency. Undertakings include new and continuing projects, activities or programs and any of their elements not previously considered under Section 106, National Historic Preservation Act of 1966, as amended.

**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.

**X**

**Y**

**Z**

## Appendix E – Biological Assessment and Evaluation for Threatened, Endangered, Candidate, Proposed, or Sensitive Species and other Wildlife Information

### Chugach National Forest - Biological Evaluation

Date: 19 July, 2005

Project Name: Kenai Winter Access for Winter Recreation

District: Seward Districts

Project Type: Recreation: Winter Motorized and Non-Motorized Use

Location: Seward District.

Project Actions: Allowances for motorized and non-motorized use in all areas from 12-15 through 4-30 annually.

Vegetation/Habitat Type: All habitats and vegetation types (see specialist report).

**Table E-1. Threatened, Endangered, Proposed, or Sensitive Species of the Chugach National Forest**

Species	Scientific Name	TEP	SEN	Analyzed Further	Rational For No Additional Analysis
Dusky Canada Goose	<i>Branta canadensis occidentalis</i>	X		No	No habitat in analysis area
Humpbacked Whale (Endangered)	<i>Megapteris novaeangliae</i>	X		No	No habitat in analysis area
Montague Island Tundra Vole	<i>Microtus oeconomus elymocetes</i>	X		No	No habitat in analysis area
Osprey	<i>Pandion haliaetus</i>		X	No	Uncommon or absent during analysis time period
Peale's Peregrine Falcon	<i>Falco peregrinus</i>		X	No	Uncommon or absent during analysis time period
Steller Sea Lion (Endangered)	<i>Eumetopias jubatus</i>	X		No	No habitat in analysis area
Trumpeter Swan	<i>Cygnus buccinator</i>	X	X	No	Uncommon or absent during analysis time period
Steller's Eider (Threatened)	<i>Somateria fischeri</i>	X		No	No habitat in analysis area
Kittlitz's Murrelet	<i>Brachyramphus brevirostrus</i>	X		No	No habitat in analysis area
Cook Inlet Beluga Whale (Candidate)	<i>Delphinapterus leucas</i>	X		No	No habitat in analysis area

**Table E-2. Biological Evaluation**

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

### HABITAT

- 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 Table E-1.

### 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 (Comely 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), and potentially in Resurrection River, Snow River and Trail 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.
- Steller's Eiders are threatened species, that 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 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.
- The Cook Inlet beluga whale has recently been added as a candidate for listing under the Endangered Species Act (ESA). Beluga whales are distributed throughout seasonally ice-covered arctic and subarctic waters of the Northern Hemisphere (Gurevich, 1980). During spring and summer months, beluga whales in Cook Inlet typically concentrate near river mouths in northern Cook Inlet (Rugh et al., 2000). Although knowledge of the winter distribution of this stock is limited, there is evidence that some, if not all, of this population may inhabit Cook Inlet year-round (Hansen and

Hubbard, 1999). A review of beluga distribution data suggest there has been a reduction in offshore sightings in upper Cook Inlet and a dramatic reduction in sightings in lower Cook Inlet (Rugh et al., 2000). This species does not occur in the winter recreation use area, so there are no direct, indirect or cumulative effects expected.

- The Kittlitz's Murrelet is a small diving seabird that inhabits Alaskan coastal waters. During the breeding season, this species prefers habitat near tidewater glaciers, and to a lesser extent, offshore of remnant high-elevation glaciers and deglaciated coastal mountains. Breeding habitat requirements are less well known. Available information indicates this species nests in unvegetated scree fields, coastal cliffs, barren ground, rock ledges, and talus above timberline in coastal mountains, generally in the vicinity of glaciers, cirques near glaciers, or recently glaciated areas. During the breeding season they are often found in mid-bay waters and within 200 m of shore. During the non-breeding season they often occur farther offshore. The Service and U.S. National Park Service conducted seabird surveys in the Kenai Fjords National Park and adjacent coastline in July of 1976, 1986, 1989, 1990, and 2002. Surveys were conducted in near shore waters only, with the shoreline divided into segments in 1986 and in subsequent survey years. In 1989, only 25 percent of the shoreline segments were randomly selected for survey. Those segments were surveyed again in 2002. Population estimates from a July 2002 survey of the Kenai Fjords did not indicate large numbers of Kittlitz's murrelets. Breeding and non-breeding habitat does not exist in the project area. The breeding season is May through August, so breeding birds are not expected to be present in the analysis areas during the winter recreation period. Winter habitat is "offshore waters", so birds are not expected to be within the analysis area during the winter recreation period. Winter recreation should have no direct, indirect or cumulative effects on this species, or effects on individuals or populations.

## **DISCUSSION OF CUMULATIVE EFFECTS**

- Winter recreation 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 winter recreation 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**

- None of the alternatives are expected to have an adverse effect on vertebrate endangered, threatened or endangered species or their habitats.
- None of the alternatives are expected to impact sensitive species or their habitats.

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## Appendix F – Response to Public Comments and Agency Letters Received

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### **Recreation Experience**

#### Comment

Some commenters felt that the DEIS Proposed Action does not adequately provide for natural quiet on the Seward Ranger District. Commenters felt that additional motorized closures were necessary in order to provide for an appropriate level of natural quiet.

#### Response

The FEIS recognizes the importance of natural quiet to the quality of the non-motorized recreation experience, and treats natural quiet as an analysis issue (FEIS pp. 22 through 23). The FEIS also recognizes that a non-motorized user's recreation experience diminishes when they hear motorized noise (FEIS pg. 22). The FEIS further recognizes that generally opportunities for natural quiet increase as more acres or areas are closed to motorized use (See FEIS pp. 101 through 106). The FEIS displays these differences among the alternatives (FEIS pg. 64). However, the FEIS also recognizes that most units, motorized or non-motorized, have heavy timber or vegetation and non-motorized users can move beyond hearing snowmachine noise by traveling where snowmachines are not able to travel (FEIS pp. 101).

The FEIS analyzes Alternative 1 and Alternative 2 that provide more opportunities for quiet recreation than the Proposed Action and the FEIS evaluates the benefit of these opportunities (FEIS pp. 64, 101 through 102, and 104 through 106). The FEIS Modified Preferred Alternative also responds to this issue by eliminating motorized use from the majority of the Snow River unit, prohibiting helicopter skiing in the Snow River unit, and expanding the non-motorized area in the Summit and Russian units.

In addition, the FEIS also analyzes how non-motorized recreation opportunities and experiences will likely change under these alternatives as a result of increasing or decreasing opportunities for quiet recreation (FEIS pp. 62 through 64 and 72 through 106). Although the FEIS recognizes the importance of natural quiet to non-motorized recreation and that additional motorized closures will benefit natural quiet; alternatives that proposed additional motorized closures were eliminated from detailed study because it would be inconsistent with the Forest Plan goal to maintain quality settings for motorized recreation opportunities (FEIS pg. 52).

#### Comment

Some commenters specifically recommend a motorized closure of the Snow River Unit in its entirety and the southern half of the Ptarmigan/Grant Unit, particularly the area surrounding the upper North Fork of the Snow River. Commenters felt that closures in these areas will provide for additional opportunities for natural quiet. In addition, some commenters felt the Snow River Unit should be closed to motorized use because of its eligibility for inclusion as a "wild river" under the Wild and Scenic Rivers Act.

### Response

The FEIS recognizes the effects of motorized closures on natural quiet (see response above). In particular, the FEIS discusses the Modified Preferred Alternative which closes the majority of the Snow River Unit to motorized uses while allowing for a motorized corridor (FEIS pg. 39). The FEIS recognizes that this alternative will increase natural quiet in the majority of the Snow River Unit, particularly along the North Fork of the Snow River and when snow conditions do not allow for motorized use of the corridor (FEIS pp. 103 through 104).

None of the alternatives contemplate any non-motorized closures in the Ptarmigan/Grant Lake Unit because this unit receives little use from either user group and there are little if any conflicts (FEIS pg. 53). Therefore, a motorized closure of this area would not result in any meaningful increase in natural quiet for non-motorized users.

The Chugach Revised Forest Plan ROD recommends that the upper 18.7 miles of the north fork of the Snow River be classified “wild” and the lower 5.1 miles classified as “scenic.” The selection of any alternative will not affect the outstanding remarkable values that are the basis for this recommendation and will not result in these rivers becoming ineligible for inclusion in the National Wild and Scenic Rivers System (See Forest Plan ROD pp. A-4 and A-5).

### Comment

Some commenters felt that the SEIS Preferred Alternative provided an inappropriate southern boundary for the Russian unit. Commenters felt that allowing motorized use on the Russian Lakes Trail would effectively remove any high quality non-motorized recreation experience in the Russian unit.

### Response

The majority of the Russian unit was closed to motorized use in the SEIS Preferred Alternative and also in the FEIS Modified Preferred Alternative to provide a large area for non-motorized quiet recreation. Public comment and Forest Service observations indicated that the Russian unit is not a particularly popular area for motorized use (FEIS pg. 76). In addition, as most non-motorized winter recreation occurs within 3.5 miles from trailheads or roads, this area does not receive frequent non-motorized recreation use either (FEIS pg. 70).

The Russian Lakes Trail was chosen as the boundary for this unit because it provides an identifiable and enforceable boundary for this unit. There is no indication that motorized use is frequent along the Russian Lakes Trail and the selection of the Russian Lakes Trail as the southern boundary for this unit will not meaningfully reduce opportunities for quiet in this unit (FEIS pp. 101 through 106).

### Comment

Some commenters felt that the DEIS did not examine the direct, indirect, and cumulative impacts of noise from snowmachines, helicopters, and over-the-snow machines (ATVs in winter) on those seeking a quiet recreation experience. Commenters were concerned that the EIS analysis on this issue is inconsistent with 36 CFR § 219.21.

### Response

The FEIS discusses the effects of motorized uses on the opportunities for quiet and solitude (see responses above). This analysis includes an examination of the direct and indirect impacts and cumulative impacts on opportunities for quiet and solitude, including the effects of backcountry hut development in the Johnson Pass and Summit units and the future implementation of the Seward to Girdwood Iditarod National Historic Trail (FEIS pp. 101 through 106).

36 CFR § 219.21 lists social and economic elements the Responsible Official should consider when making forest planning decisions, including this Forest Plan amendment. The FEIS recognizes that the predominate effect on opportunities for quiet and solitude occurs from closure of areas to motorized use and from other reasonably foreseeable projects, such as the Mills Creek Iditarod Hut-to-Hut System and the Seward to Girdwood Iditarod National Historic Trail (FEIS pp. 101 through 106). The FEIS analysis focuses on those activities that have an important relationship to the opportunity for quiet recreation.

### Comment

Some commenters felt that the Snow River motorized access corridor in the SEIS Preferred Alternative would eliminate the opportunity for natural quiet in the South Fork of the Snow River.

### Response

The FEIS recognizes that natural quiet would not always be attainable with a motorized corridor along the South Fork of Snow River (FEIS pp. 103 through 104).

## **Recreation Uses and Patterns**

### Comment

Some commenters felt that the Forest Service does not possess sufficient information regarding past, present, or future recreation uses and patterns. Commenters felt that the EIS should disclose how information regarding winter recreational use patterns was obtained.

### Response

The FEIS states that the majority of the information on winter recreation uses and patterns is the result of Seward Ranger District observations and public input (FEIS pp. 19 through 20, and 73). Based these observations and input, the FEIS recognizes that both motorized and non-motorized recreationists desire certain areas, terrain features, and recreation opportunities (FEIS pp. 76 through 77). In addition, the FEIS recognizes that recreation use can increase or decrease based upon weather and time of year (FEIS pp. 69 through 70). Further, the FEIS discloses recreation use assumptions, which were also the subject of public comment (FEIS pp. 60 through 61).

Although a comprehensive winter recreation use study has not been completed, Forest Service observations and the public involvement for this analysis provide the best assessment of where winter recreation is occurring on the Seward Ranger District.

Although some commenters feel that a comprehensive study should be completed before an informed decision can be made, Seward Ranger District observations of winter recreation use and public input is the best information available.

Comment

Some commenters felt that the Forest Plan EIS predicts that cross-country skiing participation will increase in the near future and snowmachine recreation participation will remain constant on the Chugach National Forest. Commenters felt that more of the project area should be devoted to non-motorized use in order to accommodate increasing non-motorized participation.

Response

The Chugach National Forest Plan EIS uses a population based model to project participation of Alaska adults in recreation activities out to 2020. This model projects that cross country skiing participation is expected to increase at a greater rate than snowmachine recreation participation (Forest Plan EIS 3-330 through 3-332). However, this model has two constraints that limit its applicability to this project.

First, this model projects recreation participation among Alaskan adults and are not projections of the actual number of visits by cross country skiers and snowmachine users to the project area. Second, cross country skiing and snowmachine technology has increased in recent years and this model does not account for changes in participation or use due to new recreation technology. (See Forest Plan EIS 3-330 through 3-332).

Regardless of the applicability of the Forest Plan EIS recreation participation model, all action alternatives increase areas for non-motorized recreation and the FEIS discusses the effects of the alternatives on motorized and non-motorized recreation opportunities and experiences (FEIS pp. 52 through 55 and 67 through 89).

Comment

Some commenters felt that recreation allocation decisions were inappropriately based upon existing recreation use patterns and did not account for displacement of non-motorized users from motorized units. Commenters felt that the EIS did not adequately recognize that non-motorized users value areas that are currently allocated to motorized use, but choose not to recreate in those areas because motorized use is permitted.

Response

The FEIS recognizes that a quality recreation experience is important to both motorized and non-motorized users and that neither group wants their recreation experience impacted by conflict with other users (FEIS pp. 21 through 23, 70 through 72). The FEIS also recognizes that both user types desire a large contiguous area with a variety of low and high elevation terrain (FEIS pg. 75). In addition, the FEIS recognizes that certain units are valued by both user groups for these reasons; including, Carter Crescent unit, Lost Lake unit, Summit unit, Resurrection unit, and West Resurrection unit (FEIS pp. 66 through 67). Further, the Forest Plan EIS recognizes that as motorized uses have

expanded, there has been a certain amount of displacement of non-motorized users from areas traditionally used (Forest Plan EIS 3-358).

Although the FEIS recognizes that motorized and non-motorized users desire similar areas and that some displacement of non-motorized users may occur, public comment and District observations do not indicate that displacement is extensive.

## **Alternatives**

### Comment

Some commenters felt that the EIS inappropriately eliminated from detailed study an alternative to “maximize non-motorized areas” or only considered alternatives that were predominately motorized.

### Response

The FEIS eliminated from detailed study an alternative to “maximize non-motorized areas” because it does not respond to Forest Plan desired conditions for the Kenai Peninsula Geographic Area to provide winter motorized recreation over most of the Kenai Peninsula (FEIS pg. 52).

## **Wildlife and Biological Resources**

### Comment

Some commenters felt that the Forest Service cannot conduct a proper NEPA analysis due to inadequate baseline data for wildlife resources.

### Response

The Forest Plan ROD specifies that implementation of the Forest Plan will maintain viable populations of existing native and desired non-native vertebrate species and provide for diversity of plant and animal communities and tree species (Forest Plan ROD pp. 38 through 40). The Plan specifies management area prescriptions for the Chugach National Forest and standards and guidelines for species with concerns including; Brown Bear, Dall Sheep, Mountain Goat, Eagles, and goshawks, and all alternatives are consistent with the Forest Plan (Forest Plan pp. 3-28 through 3-31). In addition, the Forest Service monitors wildlife populations at the Forest level and the Forest Plan specifically mentions monitoring for brown bear, moose, wolves, wolverine, Townsend’s warbler, and goshawk (Forest Plan pp. 5-9 through 5-11).

This FEIS more specifically discusses wildlife responses to motorized and non-motorized winter recreation (FEIS pp. 107 through 124). The FEIS uses natural history, GIS, habitat models, consultation with State and Federal Biologists, Forest Plan direction, and scientific literature (FEIS pg. 109). The FEIS analyzes the effects of the alternatives on wildlife species by examining the percentage of motorized and non-motorized uses within wildlife habitat and the level of effect and risk to populations for each species in the analysis area (FEIS pp. 109 through 123 and Section 3.2 of the FEIS). This analysis accounts for whether the current population trend is stable, increasing, declining, or unknown (FEIS pp. 107 and 109 through 111). Although, the Forest Service recognizes that there will always be a need to improve our wildlife

knowledge, the FEIS analysis uses the best information available to evaluate the alternatives and discloses limitations (FEIS pp. 109 through 110).

Comment

Some commenters felt that the EIS inappropriately displays effects to wildlife because effects are similar across all alternatives. Commenters felt that those alternatives with a greater percentage of motorized use should have greater effects to wildlife.

Response

The FEIS evaluates the effects to wildlife resources (FEIS pp. 107 through 144). The FEIS explains that common effects include disturbance or displacement to individual animals and wildlife avoidance of areas (FEIS pg. 107). The FEIS also recognizes that alternatives with a greater percentage of motorized use can have greater effects to individual animals because a greater percentage of both motorized and non-motorized users and effects may be present (FEIS pg. 107). The FEIS uses a ranked approach to categorize impacts to wildlife species (FEIS pp. 110 through 111). Although the alternatives provide different allocations of motorized use, the differences do not result in effects of a magnitude that would cause the effects to that species to change categories.

Comment

Some commenters felt that the EIS should recognize that brown bears are particularly sensitive to winter motorized recreation. Commenters were especially concerned with winter motorized recreation overlapping with den emergence.

Response

The FEIS recognizes brown bears can be affected by winter motorized recreation and that effects to brown bears are specific to denning and post-denning time periods (FEIS pp. 124 through 126). The FEIS also recognizes that brown bears with cubs are particularly sensitive to winter recreation during the post denning time period (FEIS pg. 124). However, winter recreation is not viewed as causing irreversible or permanent harm to the brown bear population (FEIS pg. 126).

Comment

Some commenters felt the DEIS and SEIS did not accurately portray the adverse effects of snowmachine use on water quality and fish, particularly in the Snow River unit. Commenters felt that snowmachine use can adversely affect water quality causing physiological effects to fish and reducing their stamina. Commenters cite a 1975 study (Adams Study) on the effects of lead and hydrocarbons from snowmobile exhaust on brook trout to support this contention (Adams 1975).

Response

The FEIS recognizes that snowmachine engines generally bypass about 20 through 33 percent of their gasoline/oil mixture unburned out the exhaust (FEIS pg. 170). Some of this unburned fuel is directly vaporized into the atmosphere, while the remainder is deposited as liquid droplets on the snowpack (FEIS pg. 170). The FEIS recognizes 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 and can cause adverse effects to fish and other aquatic organisms if concentrations are high enough (FEIS pp. 168 and 174 through 175)

The alternatives in the FEIS are expected to have negligible effects to water quality and fish, including the Snow River unit, because snowmachine use on the Seward Ranger District is widely dispersed, occurs over relatively large water bodies, and does not occur at concentrations that have been shown to cause adverse effects to water quality or aquatic organisms (FEIS pg. 174). The results of the Adams Study support this contention and state that the levels of hydrocarbons found in the study are “unrealistic for all but a few small lakes in well populated areas.”

### Comment

Some commenters felt that the ecological effects analysis is incomplete and does not adequately address soil compaction and its resulting effects on vegetation.

### Response

The Forest Plan specifies that the winter motorized use season is from December 1 through April 30; however, the season can be extended or shortened to respond to snow conditions. (Forest Plan 3-35). The winter motorized use season is extended or shortened in order to ensure adequate snow cover and to ensure that winter motorized use does not adversely affect vegetation and degrade trails. The FEIS states that there is typically minimal or no affect by winter recreation vehicles on the soil or vegetation so long as there is adequate snow cover (one foot or greater) (FEIS pp. 159 and 164).

Although there is typically no effect to soil resources from winter motorized recreation, the FEIS discloses that soil compaction can commonly occur in concentrated use areas, including trails, cabin sites, favored camp sites, and other destinations and location near parking areas (FEIS 160). In addition, vegetation can be damaged, at the small scale, when motorized use occurs during inadequate snow cover which can cause annual forbs to grow poorly and slow re-vegetation (FEIS pp. 159 through 160).

## **Roadless Areas**

### Comment

Some commenters felt that the Forest Service is legally required to analyze the direct, indirect, and cumulative effects of the KWA project on the wilderness character of the roadless areas.

### Response

The KWA project does not contemplate timber removal or road-building and will not alter existing roadless designations. In addition, the FEIS analyzes relevant roadless area characteristics, including habitat for wildlife species, motorized and non-motorized classes of dispersed recreation, and naturally appearing landscapes. The Forest Plan also requires that the Nellie Juan-College Fiord wilderness study area be managed to preserve its eligibility for the National Wilderness Preservation System (Forest Plan pg. 3-11).

**ANILCA**  
Comment

Some commenters requested the Forest Service to change the definition of “traditional activities” in the Forest Service Manual for Region 10 as it relates to ANILCA Section 1110.

Response

The decision to be made by the Responsible Official is to determine what areas should be available to motorized and non-motorized recreation use in the project area. The decision on whether to change the definition of “traditional activities” in the Forest Service Manual for Region 10 is outside the scope of the this decision.

**Boundaries and Enforcement**  
Comment

Some commenters felt that motorized and non-motorized boundaries should be clearly identified. Commenters felt that clearly identified boundaries would assist enforcement and allow for a more effective separation of users.

Response

The FEIS recognizes the importance of clearly identified unit boundaries and one of the stated goals of the decision to be made is to create closures or restrictions that are feasible to enforce (FEIS pg. 15). Two alternatives were eliminated from further analysis, in part, because unit boundaries would be unclear (FEIS pp. 50 and 52).

**Cumulative Impacts**  
Comment

Some commenters felt that the cumulative effects analysis was generally not adequate. Commenters felt that the cumulative effects analysis should consider uses outside of the winter recreation season and consider impacts from motorized uses occurring adjacent to the project area.

Response

The cumulative effects analysis includes relevant past, present, and reasonably foreseeable actions that can affect winter recreation activities and overlap in time and space with those activities. These actions include backcountry hut development, guided helicopter skiing, Sterling Highway realignment, expansion of the parking area on Snug Harbor Road, construction of the Seward to Girdwood Iditarod National Historic Trail, hazardous fuel reduction treatments, and future public use cabin construction (FEIS pp. 12 through 14).

Actions that do not occur during the winter recreation season or do not affect winter recreation were not considered. This is because information about the cause-and-effect relationship between winter recreation access and related resources indicates that any potential cumulative environmental changes occur primarily in the winter. The FEIS

analysis of the past, present, and reasonably foreseeable actions described above overlap either spatially or temporally with the alternatives.

### **Mitigation Measures**

#### **Comment**

Some commenters felt that the DEIS failed to provide mitigation measures to reduce the direct, indirect, and cumulative impacts of motorized uses on wildlife and opportunities for natural quiet.

#### **Response**

The FEIS recognizes that motorized winter recreation can affect opportunities for natural quiet and that winter recreation can affect wildlife (FEIS pp. 100 through 108). The FEIS does not provide specific mitigation measures for natural quiet because unit boundaries and motorized and non-motorized allocations were designed to allow for different levels of natural quiet (FEIS pg. 64). The FEIS does not provide mitigation measures for wildlife because boundary enforcement would be impossible and existing Forest Plan standards and guidelines are adequate to protect wildlife population viability (FEIS pg. 54).

### **Economics**

#### **Comment**

Some commenters felt that the economic effects analysis was generally inadequate.

#### **Response**

Economic effects were evaluated for the alternatives (FEIS pp. 146 through 154). The economic effects of all alternatives are expected to be relatively small because: (1) the reduction in currently-used motorized acres is 21 percent or less across the alternatives; (2) non-local motorized use is only a fraction of the customers who frequent recreation and tourism related businesses in the project area; and (3) winter economic activity is a small percentage of total economic activity in the project area (EIS pg. 146). Although the Forest Service does not know precisely how many motorized or non-motorized users are currently visiting the project area and no comprehensive economic study has been completed for the project area, the best available information indicates that the majority of economic activity occurs outside of the winter recreation use season (FEIS pg. 148). For these reasons, the economic effects of the alternatives are expected to be relatively small.

### **Safety**

#### **Comment**

Some commenters felt that it was important that motorized and non-motorized trail use be separate because of safety concerns. Commenters felt that when motorized and non-motorized uses occur on the same trail at the same time, there is a risk that snowmachines can collide with skiers causing injury.

## Response

The FEIS recognizes that when motorized and non-motorized uses are occurring on the same trail, there can be safety concerns (FEIS pp. 91 through 92). The FEIS also recognizes that this is one of the several reasons that non-motorized users desire separate areas (FEIS pg. 92). Alternatives 1 and 2 respond to this concern by designating several units for non-motorized recreation, including their associated trails (FEIS pp. 40 through 48). In addition, the Proposed Action and the Modified Preferred Alternative provide for separate non-motorized access trails in the Carter/Crescent and Lost Lake units in part to alleviate safety concerns (FEIS pp. 94 through 95).

## **Motorized and Non-Motorized Preferences**

### Comment

Many commenters expressed a preference for a specific alternative, for a specific area to be motorized or non-motorized, or provided information on areas that were valued for motorized and non-motorized recreation.

### Response

The FEIS recognizes motorized and non-motorized preferences and the range of alternatives considered for this analysis contains a mix of motorized and non-motorized opportunities. Briefly summarized, these commenters expressed the following:

- Some commenters felt that mid-season swap management of the Resurrection and West Resurrection units under the No Action Alternative was more appropriate than a year motorized/year non-motorized management proposed under the action alternatives.
- Some commenters felt that the action alternatives should provide a motorized/non-motorized unit or trail to alternate with the seasonal motorized/non-motorized management of the Resurrection and West Resurrection units. Commenters recommended the Carter Crescent or Snow River units or Russian Lakes Trail alternate with the Resurrection and West Resurrection units.
- Non-motorized users especially commented on the value of the Snow River, Summit, Ptarmigan/Grant, Carter Crescent units, and the Trail River Campground. Motorized users especially commented on the value the Lost Lake, Carter/Crescent, Snow River, and Summit units.
- Some commenters requested that in the Summit unit, the boundary between Mills Creek and Lower Summit Lake be moved from the top of Sugar Ridge to the top of Raven's Ridge to accommodate non-motorized use in the area. Some commenters also suggested the Forest Service use the highway as the boundary between motorized and non-motorized users from Frenchy Creek to Fresno Creek and Summit creek to Colorado creek in the Summit unit in order to accommodate non-motorized use and reduce conflicts.

## Agency Letters Received



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
**REGION 10**  
1200 Sixth Avenue  
Seattle, WA 98101

December 18, 2006

Reply To  
Attn. Of: ETPA-088

Ref: 05-024-AFS

Joe Meade, Forest Supervisor  
Chugach National Forest  
3301 C Street, Suite 300  
Anchorage, AK 99503

Dear Mr. Meade,

The U.S. Environmental Protection Agency (EPA) has reviewed the Supplement to the Draft Environmental Impact Statement (Draft SEIS) for the proposed Kenai Winter Access project (CEQ No. 20060434) on the Seward Ranger District of the Chugach National Forest on Kenai Peninsula in Southcentral Alaska. Our review was conducted in accordance with our responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act.

The Draft SEIS assesses and discloses the potential environmental impacts of a new Preferred Alternative, which includes elements that were not fully analyzed in the original Draft EIS. According to the Draft SEIS, public comments on the Draft EIS for the project were used to create the new Preferred Alternative. The new Preferred Alternative would alter areas of motorized and non-motorized use within certain areas of the Chugach National Forest, which would result in a revised mix of opportunities for recreational motorized use, quiet recreation, potential encounters between motorized and quiet recreation, and wildlife impacts. According to information presented in the Draft SEIS, notable changes in environmental effects include an increase in potential encounters due to the expansion of the motorized terrain to the east of the Seward Highway and the area around Summit Lake, and a projected reduction in the percent of habitat affected by motorized use and potential affects to individuals of several wildlife species due to decreased motorized use in other areas.

EPA's written comments on the original Draft EIS included a rating of LO (Lack of Objections), recommendations for improving the descriptions of existing environmental conditions, the need for additional detail regarding mitigation measures and best management practices that would be implemented and monitored to avoid adverse impacts to soil, water, riparian and wetlands habitats, and the need to revise conclusions on cumulative effects. According to the Draft SEIS, the comments we submitted previously will continue to be used in the Kenai Winter Access analysis.

On the basis of our review of the draft SEIS, EPA has no further comments and has assigned the document a rating of LO. This rating and a summary of our comments will be published in the Federal Register.

EPA appreciates the opportunity to review and provide comments on the Kenai Winter Access Draft SEIS. If you have any questions or comments concerning this review, please contact me at (206) 553-1601. Please also feel free to contact Colleen Burgh in our Alaska Operations Office at (907) 271-1481.

Sincerely,

/s/

Christine B. Reichgott, Manager  
NEPA Review Unit

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY****REGION 10**  
1200 Sixth Avenue  
Seattle, WA 98101

June 9, 2006

Reply To  
Attn. Of: ETPA-088

Ref: 05-024-AFS

Sharon Randall  
Chugach National Forest  
3301 C Street, Suite 300  
Anchorage, AK 99503

Dear Ms. Randall,

The U.S. Environmental Protection Agency (EPA) has reviewed the draft Environmental Impact Statement (EIS) for the proposed **Kenai Winter Access** project (CEQ No. 20060136) on the Seward Ranger District of the Chugach National Forest on Kenai Peninsula in Southcentral Alaska. Our review was conducted in accordance with our responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act. Section 309, independent of NEPA, specifically directs EPA to review and comment in writing on the environmental impacts associated with all major federal actions. Under our policies and procedures we evaluate the document's adequacy in meeting NEPA requirements.

EPA commends the Forest Service (FS) for the public outreach and participation opportunities it provided during the development of the Kenai Winter Access draft EIS and during its public review period. We were particularly pleased with the collaborative learning format used in the draft EIS review of workshops, which were held in Anchorage and in Kenai Peninsula communities. Based on our participation in the Anchorage workshop, the FS and the consultants did an excellent job of providing information about the proposed action and alternatives to the public, and fostering discussion, feedback and substantive comments from the public.

The Draft EIS assesses and discloses the potential environmental impacts of a plan for winter access on the Seward Ranger District of the Chugach National Forest that addresses the need for forest management, public access and recreation use. The plan was developed in response to the withdrawal of the 2002 Chugach National Forest Land and Resource Management Plan (Forest Plan) decision regarding winter motorized access for the Carter-Crescent Lakes unit; once a plan is adopted, it will amend the Forest Plan.

The draft EIS includes a Proposed Action, No Action, and two action alternatives for the allocation of winter recreation use across the Seward Ranger District. Key features of the Proposed Action include designating two non-motorized access corridors, one in the Lost Lake unit and one in the Carter-Crescent unit, and a motorized access corridor along the South Fork of the Snow River. According to the draft EIS, the Proposed Action

also includes a motorized corridor from Cooper Landing and Moose Pass to north of Summit Lake with the potential to tie in to Hope and Girdwood communities principally along established corridors. The Proposed Action and the two action alternatives would use a Season A/Season B scenario that alternates winter motorized and non-motorized use in different specific areas. Under the No Action alternative, the 2002 Forest Plan management strategy would apply; however, winter use of the Carter-Crescent unit would remain motorized, as outlined in the 1984 Forest Plan. The two action alternatives, Alternatives 1 and 2, include variations on motorized access for the planning area; Alternative 1 would more than double the existing percentage of the Seward Ranger District that would be designated non-motorized, including the entire Russian and West Resurrection units. Alternative 2 proposes a more complex structure for alternating motorized and non-motorized use, compared to the other alternatives. Trail construction or other site specific improvements (capital improvements) for corridors that are included in the Proposed Action or alternatives, other than clearing of access corridors and signing of corridors, would not be implemented by the draft EIS and would be subject to additional analysis before any improvements would be constructed.

On the basis of our review, we have assigned a rating of LO (Lack of Objections) to the draft EIS. A summary of the rating system we used in conducting our review of the draft EIS is enclosed for your reference.

Although EPA has no objections to the proposed action and the draft EIS document, the final EIS and Record of Decision (ROD) should include revisions to some sections of the draft EIS as indicated below.

**Section 3.5 – Soil.** EPA recommends that the final EIS include a more detailed description of soils and potential impacts to this resource ~~soil~~ from all alternatives. The draft EIS concludes that there would be minimal, if any, direct or indirect impacts to soil resources because the Forest Plan Standards and Guidelines would be applied and because winter recreation would occur on snow. We recommend that Section 3.5 describe which standards and guidelines would be used to protect soil resources, how compliance with the standards and guidelines would be monitored and enforced, and the mitigation measures that would be implemented if negative impacts to vegetation and soil do occur as a result of winter recreation activities, e.g. snowmachine use and insufficient use and insufficient snow cover.

**Section 3.6 – Water, Riparian and Wetlands.** Section 3.6.1 correctly states that motorized winter use in low snow conditions on unfrozed ground can cause considerable vegetation damage, soil erosion, and stream channel and bank disturbance in certain instances. EPA recommends that the Final EIS and ROD include additional detailed information regarding the specific best management practices (BMPs), standards or guidelines that the Forest Service would use to avoid or minimize potential adverse impacts to water, riparian and wetlands resources; the monitoring and enforcement that would be conducted; and mitigation measures that would be implemented if adverse impacts are documented.

**Cumulative Effects.** EPA recommends that the discussions in Sections 3.5-3.8 regarding cumulative effects to soil, water, riparian, wetlands, air quality and vegetation acknowledge that there is insufficient data necessary to concluded that there would be negligible impacts from the proposed project's winter recreation activities in conjunction

with past and reasonably foreseeable future actions. Significant adverse cumulative impacts would not be expected if winter recreation activities are dispersed and conducted with adequate snow and frozen ground cover, and if seasonal use schedules (Season A/Season B) are used. On the basis of information presented in the draft EIS and prior to monitoring the effectiveness of the proposed Season A/Season B schedules and other BMPs for managing motorized and non-motorized use, it is difficult to conclude that no cumulative impacts would occur, especially at trailheads and within narrow travel corridors and if increased, concentrated motorized use occurs over time.

EPA appreciates the opportunity to review and provide comments on the Kenai Winter Access draft EIS. If you have any questions or comments concerning this review, please contact me at (206) 553-1601. Please also feel free to contact Colleen Burgh in our Alaska Operations Office at (907) 271-1481.

Sincerely,

Christine B. Reichgott, Manager  
NEPA Review Unit



