

## Appendix C – Roadless Areas

### Purpose

The purpose of this appendix is to describe the individual roadless areas and the analysis factors used in evaluating roadless areas on the Chugach National Forest. For each roadless area it includes: (1) a description of the physical and biological features and current management; (2) capability of management as Wilderness or in an unroaded condition; (3) availability for management as Wilderness or in an unroaded condition; (4) Wilderness evaluation; and, (5) environmental consequences.

### Inventoried Roadless Areas

Roadless lands on the Chugach National Forest consist of 16 areas totaling 5,434,710 acres. There is no designated Wilderness on the Chugach National Forest. The 1,968,730-acre Nellie Juan-College Fiord Wilderness Study Area was established by Congress in 1980. Please also see Chapter 3, Wilderness and Roadless sections.

### Criteria

FSH 1909.12 Chapter 7 specifies that roadless areas be evaluated on the basis of the area's capability for Wilderness designation, availability of areas for Wilderness designation, and the need of the areas for Wilderness designation.

### Wilderness Capability

Capability is the degree to which the area contains basic characteristics that make it suitable for Wilderness designation, without regard to its availability. Areas were evaluated relative to the following criteria:

- solitude;
- naturalness;
- challenge;
- primitive recreation opportunity;
- education;
- scenic features;
- size; and,
- potential for manageable boundaries.

On the Chugach National Forest areas that were influenced by development (small areas surrounded or almost surrounded by roads called "Donuts" and transportation/utility corridors) were excluded from the roadless inventory.

Therefore, all of the roadless lands on the Chugach National Forest are capable of being designated as Wilderness.

### **Availability for Wilderness**

Availability for Wilderness is determined by considering the values and need for Wilderness compared to the values and need for other resources. To be available for Wilderness, the values of the wilderness resource, both tangible and intangible, should offset the values of resources that formal Wilderness designation would forgo. The following information was considered for each roadless area:

- recreation including tourism;
- information of fish wildlife species, populations, and management needs;
- timber;
- land uses;
- minerals; and,
- management considerations including fire, insects and disease, and presence of non-federal lands.

On the Chugach National Forest there is a need to maintain a mix of recreational opportunities including primitive, semi-primitive nonmotorized, semi-primitive motorized, and roaded settings. Wilderness would provide a part of this mix. There is a high degree of wildlife and fish habitat capability and diversity throughout the roadless areas. In general, (1) the amount of tentatively suitable timberlands is relatively low; most opportunities for timber management are adjacent to existing roads on the Kenai Peninsula, (2) mineral values vary widely, (3) many land uses are compatible with Wilderness designation and (4) most non-federal lands could be excluded from Wilderness by management area boundaries. Areas that were considered unavailable for Wilderness designation were excluded by buffering existing developments from Recommended Wilderness in alternative development.

### **Need for Wilderness**

For an area to be recommended for inclusion in the National Wilderness Preservation System, there should be a clear evidence of current and future public need for additional Wilderness designation. To determine need, the following factors were considered:

- nearby Wilderness;
- the extent that nonwilderness lands can provide opportunities for unconfined outdoor recreation experiences;
- the need to provide/protect certain ecosystems and biotic species; and,

- the need to balance management and local needs with Wilderness designation.

The need for Wilderness was tested through alternative development and analysis. A range of alternatives was developed for detailed study that recommended from 0 to 82 percent of the roadless lands for Wilderness designation. An alternative with all of the roadless lands recommended for Wilderness designation was considered but was dropped from detailed analysis (see Chapter 2). The Preferred Alternative recommends 1,866,280 acres for Wilderness designation.

### **Management Area Prescriptions**

Included in each individual Roadless Area Description is a table showing how the roadless area would be managed under each of the alternatives studied in detail. The following are prescriptions, which would provide administrative and/or congressional protection:

- 131 Recommended Wilderness.
- 134 ANILCA 501(b)-1 Recommended Wilderness.
- 134 Wild River in Recommended Wilderness.
- 140 Proposed Research Natural Area in Recommended Wilderness.

Other management prescriptions are described in Chapter 2.

### **Proximity and Diversity Considerations**

36 CFR 219.17 requires that roadless areas be evaluated regarding their proximity to designated Wilderness, their potential contribution to the National Wilderness Preservation System, and their anticipated long-term changes in species diversity. The following addresses these considerations:

DeVelice and Martin (2001) provide a national summary of acreage in national forest roadless areas versus designated Wilderness, National Parks, and other areas primarily managed to maintain natural values (i.e., reserves). In Alaska, all but one of 15 ecoregions (as defined by Ricketts et al. 1999) has greater than 12 percent area in reserves. No other region in the country surpasses Alaska in ecoregional representation in reserves.

Based on Ricketts and others (1999) two ecoregions cover the Chugach National Forest, the Northern Pacific Coastal Forest and the Pacific Coastal Mountain Tundra and Ice fields (includes forested areas on the Kenai as well as tundra and ice fields). These two ecoregions extend from eastern Kodiak Island to the southern end of the Alaska panhandle. DeVelice and Martin (2001) indicate 19 percent of the Northern Pacific Coastal Forest and 37 percent of the Pacific Coastal Mountain Tundra and Ice fields ecoregion are in reserves. Both of these acreages are well above

the 12 percent threshold considered by some authorities (e.g., Conservation of Arctic Flora and Fauna 1994, World Commission on Environment and Development 1987) as the minimum area for representation. Since there is no designated Wilderness on the Chugach National Forest, all of this reserve acreage is outside the Chugach and include the Kenai National Wildlife Refuge Wilderness (adjacent to the Forest on the Kenai Peninsula), Wrangell-Saint Elias National Park (adjacent to the Forest northeast of the Copper River Delta), and National Parks and designated Wilderness areas in Southeast Alaska (over 100 miles east of the Chugach).

When the acreage of roadless areas is combined with reserves in the two ecoregions covering the Chugach, the percentage included in the Northern Pacific Coastal Forest and the Pacific Coastal Mountain Tundra and Ice fields ecoregions increases to 64 and 66 percent, respectively (DeVelice and Martin 2001). These values are in the 25-75 percent range Noss and Cooperrider (1994) argue is required to achieve representation, but are much higher than the 12 percent threshold cited earlier.

Long-term changes in species diversity, in excess of the expected range of variability (ERV), are not anticipated in roadless areas of the Chugach National Forest under the Preferred Alternative. As was discussed in the ERV section (Chapter 3, Biodiversity), the magnitude of the ERV greatly exceeds the magnitude of proposed vegetation treatments. Under all alternatives, vegetation treatments are proposed on less than two percent of the entire area of the Chugach National Forest over the 10-15 year life of the Revised Forest Plan. Since over 99 percent of the Chugach is roadless, treatment on two percent of the Forest over 10 years is not expected to effect species diversity values of roadless areas outside the ERV.



<b>Resurrection Roadless Area</b>
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**NAME:** 01 Resurrection

**GROSS ACRES:** 228,030                      **ACRES (NFS):** 224,460

**PROVINCE:** Alaska Mixed Forest Province

**ECOSECTION:** M213 Kenai Mountain Section

**ECOSUBSECTION:** M213Ba Turnagain Arm Subsection 2,400 acres;

M213Bb Western Kenai Mountains 225,630 acres

**A. Description**

**(1) Relationship to RARE II Areas:** This roadless area encompasses the RARE II roadless area 001B. It has a RARE II WARS rating of 25. It was recommended for roadless non-Wilderness designation in the RARE II EIS.

**(2) History:** This area lies south of the community of Hope and north of the community of Cooper Landing. The Resurrection Creek and Palmer Creek drainages were the site of extensive prospecting and placer mining starting in 1888. The community of Hope was originally a mining community. Placer mining still occurs in the area and several old lode mines exist.

**(3) Location and Access:** This area is located on the Kenai Peninsula. It is bounded on the north by Turnagain Arm and the Hope Highway. The Palmer Creek road extends into the northern portion of the unit. It is bounded on the east by the Seward Highway; on the south by the Sterling Highway; and the west by the Kenai Wilderness Area and proposed Wilderness within the Kenai National Wildlife Refuge. There are numerous access points and trailheads into the area. Access is also provided by floatplane to the larger lakes in the area. The Resurrection Pass Trail, one of the most popular trails in Southcentral Alaska, runs down the middle of the area. Other trails leading into parts of the unit include the Gull Rock Trail and the Hope Point Trail.

**(4) Ecosystem**

**(a) Geography and Topography:** The topography consists of rounded, frost-churned mountaintops separated by valleys shaped by alpine glaciers. Elevations range from 100 to 5,000 feet. The bedrock consists of numerous types of marine slates and meta-sandstones, with minor occurrences of limestone.

**(b) Vegetation:** Characteristic needleleaf forest trees include white spruce, Lutz spruce, mountain hemlock, and occasional black spruce. Mountain hemlock occurs primarily on sideslopes at low to mid elevations while the spruces may dominate on both valley

bottoms and sideslopes. Paper birch is a dominant broadleaf forest species and a major component of the mixed forests. Sitka alder characterizes the tall scrubland. Natural and human caused fires are common and significantly affect forest vegetation succession in this area. The spruce bark beetle is currently causing extensive mortality within the spruce forests of this area. Undergrowth species common within the forest zone include: bluejoint reedgrass, rusty menziesia, early blueberry, devil's club, wood fern, lowbush cranberry, crowberry, splendid feathermoss, and Schreber feathermoss.

Broadleaf forests of black cottonwood and willow (especially Barclay and feltleaf) scrublands are normally found in the valley bottoms. Alpine vegetation consists of dwarf scrublands and herbaceous vegetation types often dominated by such species as: crowberry, starry cassiope, bog blueberry, luetkea, white mountain-avens, bluejoint reedgrass, and rough fescue.

**(c) Soils:** The soils on most sideslopes are formed in parent material originating from either bedrock or glacial drift, which is covered with a layer of volcanic ash. In general they are usually well or moderately well drained, and moderately deep to deep. Soils range from very acidic under well-developed forested stands to slightly acid on treeless sites. Normally the soils have a surface organic layer, which is thickest under a forest canopy or in wetter areas. Tree and plant roots are restricted to the surface organic layer or the upper few inches of the mineral soil.

Shallow, well-drained, moderately acid soils are normally found on tops or small hills and in the alpine. Frequently there is only a thin surface organic layer. Plant roots are restricted to the surface organic layer and the upper few inches of the mineral soil.

Flat plateaus and basins commonly have numerous areas where soil drainage is restricted, which affords the development of very poorly to poorly drained, very acidic, shallow to deep organic soils. These are most common in areas of high precipitation.

Soils in the valley bottoms are usually formed in alluvial deposits and are well to poorly drained, depending on the depth of the water table, and slightly acid. Rooting is normally in the thin surface organic layer and the mineral soils.

**(d) Fish Resource:** The fishery resource consists of many lakes and streams, containing chinook, sockeye, coho, pink and chum salmon; rainbow and lake trout, Dolly Varden char, and grayling. The following table displays the mapped (known) amount of habitat available.

Species	Habitat Quality	Spawning Habitat (miles)	Rearing Habitat (miles)
Chum	High	1.4	0
Chum	Moderate	0	0
Chum	Low	1.1	0
Coho	High	11.5	13.8
Coho	Moderate	7.1	7.1
Coho	Low	2.8	0.5
Dolly Varden	High	16.1	21
Dolly Varden	Moderate	3.7	2.2
Dolly Varden	Low	0.4	0
King	High	3.3	0.5
King	Moderate	9.8	13.3
King	Low	4.6	3.9
Pink	High	2.6	0
Pink	Moderate	5	0
Pink	Low	1.1	0
Sockeye	High	2.7	500 Acres

**(e) Wildlife Resource:** Moose, black and brown bears, some sheep, wolves, and coyotes are the dominate large wildlife in the unit. A small herd of caribou inhabits the northern half of the unit. Wolverine, fox, lynx, marten, mink, otter, red squirrel, grouse, ptarmigan, hare, bald eagle, owls, hawks and a variety of passerine birds contribute to the variety of wildlife resource.

A wildlife habitat model for forested lands was run to show relative values of different habitat types between roadless areas. This information is displayed on the following table. The model is based on a species list for the Kenai Peninsula and therefore is not totally accurate for the Prince William Sound and Copper River Delta ecosystems. Small changes in the habitat capability index are not significant. Changes of 0.1 or more show a definite difference in capability. Acreage figures for the different habitat types are more important than the habitat capability index. The following tables show species counts for each habitat type and habitat capacity and diversity for wildlife.

	Conifer/ Deciduous	Deciduous	Spruce	Spruce/ Hemlock	Hemlock
Land Birds	56	44	50	51	51
Aquatic Birds	6	7	8	8	8
Mammals	22	18	25	25	25

**Habitat capability and diversity of wildlife in the Resurrection Area (01).**

Land Cover	Percent	Area (Acres)	Animal Species Diversity Index	Habitat Capability for Forested Habitats			
				Land Birds	Aquatic Birds	Mammals	Combined
Hemlock/spruce	6.0	13,600	0.85	0.42	0.37	0.56	0.46
Noncommercial	0.0	0					
Seedling/sapling	5.1	700					
Midsuccessional	64.7	8,800					
Old-growth	30.1	4,100					
Hemlock	6.9	15,580	0.89	0.36	0.32	0.40	0.36
Noncommercial	70.6	11,000					
Seedling/sapling	0.6	100					
Midsuccessional	28.2	4,400					
Old-growth	0.5	80					
Spruce	5.3	12,000	0.85	0.43	0.34	0.53	0.45
Noncommercial	10.0	1,200					
Seedling/sapling	19.2	2,300					
Midsuccessional	43.3	5,200					
Old-growth	27.5	3,300					
Deciduous	3.4	7,720	0.65	0.45	0.13	0.45	0.37
Noncommercial	16.8	1,300					
Seedling/sapling	53.1	4,100					
Midsuccessional	29.8	2,300					
Old-growth	0.3	20					
Conifer/deciduous	1.4	3,100	0.76	0.28	0.20	0.37	0.33
Noncommercial	0.0	0					
Seedling/sapling	22.6	700					
Midsuccessional	74.2	2,300					
Old-growth	3.2	100					
Shrubs	18.2	41,100					
Nonshrub vegetation	48.4	109,200					
Lakes	0.4	800					
Other (e.g., rock, ice)	10.0	20,360					
<b>Total</b>	<b>100.0</b>	<b>224,460</b>	<b>0.47<sup>1</sup></b>				

<sup>1</sup> The combined diversity index includes shrub, nonshrub vegetation, lakes, rock, ice, and no data. It is not just the mean of the timbered habitats.

**(f) Threatened, Endangered and Sensitive Species:** No federally listed threatened or endangered species occur within the area. The following Alaska Region sensitive species are known or suspected to occur within the area:

Crucifer, no common name ( <i>Apragmus escholtzianus</i> )	known
Norberg arnica ( <i>Arnica lessigii</i> ssp. <i>norbergii</i> )	known
Goose-grass sedge ( <i>Carex lenticularis</i> var. <i>dolia</i> )	known
Northern rockcress ( <i>Draba borealis</i> var. <i>maxima</i> )	suspected
Kamchatka rockcress ( <i>Draba kamtschatica</i> )	known
Tundra whitlow-grass ( <i>Draba kananaskis</i> )	known
Truncate quillwort ( <i>Isoetes truncata</i> )	suspected
Calder lovage ( <i>Ligusticum calderi</i> )	suspected
Pale poppy ( <i>Papaver alboroseum</i> )	known
Choris bog orchid ( <i>Platanthera chorisiana</i> )	suspected
Smooth alkali grass ( <i>Puccinellia glabra</i> )	known
Kamchatka alkali grass ( <i>Puccinellia kamtschatica</i> )	suspected
Unalaska mist-maid ( <i>Romanzoffia unalascensis</i> )	suspected
Circumpolar starwort ( <i>Stellaria ruscifolia</i> ssp. <i>aleutica</i> )	suspected

**(5) Current Use and Management:** The Resurrection Pass and Devil's Pass Trails are heavily used by recreation users. There are eight public recreation cabins within the area, seven of them along the trail system. The cabins receive extensive use throughout the year. Most of the area (202,060 acres) falls within 1984 Forest Plan Management Area 3, Resurrection Pass. The primary management goals for the management area are to maintain and improve dispersed recreation opportunities, enhance wildlife habitat, and improve fish habitat. Twenty-two thousand four hundred acres along the Seward, Hope, and Sterling Highway fall within Management Area 1, Road Corridor. Primary management goals for this area are to increase and improve dispersed and developed recreation opportunities, maintain landscape character, and maintain and enhance wildlife and fish habitat. Timber management is recognized as a primary management practice in this management area.

**(6) Historic Motorized Use:** Motorized use has been regulated in the area since the mid 1970s. Snowmobile use is allowed on the Devil's Pass and Resurrection Pass Trails from December 1 to February 15, snow cover permitting. There are no restrictions on the use of motorboats or aircraft.

**(7) Appearance (Apparent Naturalness):** Most of the area appears unmodified. Minor inclusions such as the recreation cabins and trails are evident when one is close to them. The timber salvage operations that have occurred within and adjacent to the southern end of the unit near Cooper Landing are evident from a distance. There are 3.5 miles of private road, 2.7 miles of yarder road and 1.8 miles of local road within the area.

The area exists in a predominantly natural condition. Overall, the area provides spectacular scenery. Relatively large fires dating from about 1924 and prescribed burns from the 1980s do not detract from the natural condition. The table below displays the scenic integrity for the mapped acres of the roadless area.

Scenic Integrity	Acres
Very High	21,743
High	2,400
Moderate	4,600
Low	20
Very Low	10

The majority of this roadless area, 97 percent, is natural appearing, where only ecological change has occurred (Scenic Integrity Very High). One percent has a scenic integrity of High, where human activity has occurred but is not apparent to the average viewer. Scenic Integrity Moderate, where evidence of human activity is apparent makes up 2 percent. Scenic Integrity low, and Very Low where change in the natural appearance is dominant, account for 0.1 percent.

**(8) Surroundings (External Influences):** The area is bounded on three sides by heavily used highways. Small communities abut the north and south boundary of the unit. The sounds of highway traffic, residential, and commercial activities can be heard for several miles up the Resurrection Pass Trail near Cooper Landing. The unit lies on the eastern edge of the Kenai Wilderness Area. The northeast edge, from the Chickaloon River drainage north, borders proposed Wilderness currently being managed for its wilderness values.

**(9) Attractions and Features of Special Interest:** The Resurrection Pass Trail is a National Recreation Trail and is one of the most popular trails in Southcentral Alaska. The opportunity to hike, cross-country ski, snowmobile, horseback ride, mountain bike, hunt, fish and view wildlife make it an attractive area for recreation users. Its accessibility by road contributes to its recreation value Recreation classification.

**B. Capability of Management as Wilderness or in an Unroaded Condition**

**(1) Manageability and Management Area Boundaries:** The area is bounded by paved road and saltwater to the north, paved road on the east and south, and Wilderness or proposed Wilderness on the west. Feasibility of management in a roadless condition is high.

**(2) Natural Appearance and Integrity:** Prescribed burning for moose habitat has occurred in the valley bottoms and lower slopes of Resurrection Creek and Juneau Creek. Several large, probably human caused, fires swept through large parts of the area in about

1924. The rest of the area is unmodified except for the existing recreation cabins and trails.

**(3) Opportunity for Solitude:** There is a moderate opportunity for solitude within the area. Low flying aircraft may at times pass over the area and be observed by people within this roadless area. The present recreation use along the Resurrection Pass and Devil’s Pass Trail system is high. A person traveling or camping along the trail system is likely to see other people, especially during the high use periods. Away from the trail system the opportunity for solitude increases.

**(4) Opportunity for Primitive Recreation:** The area provides primarily Primitive, Semi-primitive Nonmotorized, and Semi-primitive Motorized opportunities.

ROS Class	Acres
Primitive 1 (P1)	115,550
Primitive 2 (P2)	3,000
Semi-primitive Nonmotorized (SPNM)	93,200
Semi-primitive Motorized (SPM)	3,500
Roaded Natural (RN)	7,700
Roaded Modified (RM)	1,500
Roaded (R)	10

There are 65 miles of trail in the area and eight recreation cabins. The rolling alpine along the ridges and high passes provide long viewing distances making people visible from a distance. At lower elevations, especially away from established trails, a person camped or traveling is unlikely to see others. During the winter the Resurrection Pass Trail is open to snowmobiles until February 15.

**(5) Special Features (Ecological, Geologic, Scientific):** There are opportunities to see a spectacular waterfall at Juneau Falls. Trout, Juneau, and Swan Lakes are easily accessible glacially carved alpine and sub-alpine lakes.

**C. Availability for Management as Wilderness or in an Unroaded Condition**

**(1) Resource Potentials**

**(a) Recreation Potential:** Outfitter and guide use on the trails is near maximum.

**(b) Fish Resource:** None listed.

**(c) Wildlife Resource:** There is an opportunity to improve moose winter range in the area through prescribed burning or other vegetation manipulation techniques. Other wildlife enhancement activities would be low scale and minor.

**(d) Timber Resource:** There are 5,400 acres inventoried as tentatively suitable for timber harvest. Spruce bark beetle infestations have impacted 48,300 acres.

**(e) Land Use Authorizations:** Special use authorizations in the area include outfitting and guiding.

**(f) Minerals:** Most of the area is covered with a moderately favorable mineralized zone containing gold, with local zones of most favorable. The areas around Palmer Creek and to the west of Canyon Creek are highly mineralized with gold and silver. A moderately mineralized gold and silver zone lies at the headwaters of Resurrection Creek. There are 56 mines within the area and 203 mining claims.

**(g) Cultural Resources:** There are 24 known cultural sites within the unit.

**(h) Areas of Scientific Interest:** The area does not contain any inventoried potential Research Natural Areas, and has not been identified for any other scientific value.

## **(2) Management Considerations**

**(a) Timber:** Bluejoint grass cover has increased 50 percent within productive stands killed within the past 20 years. The grass cover is expected to persist for 20-40 years depending on specific site conditions and prevent the re-establishment of forest cover.

**(b) Fire:** Wildfire danger in the unit is expected to increase as spruce bark beetle killed trees fall over, adding to the fuel loads and stands killed by the beetle infestation convert to an understory of grass. Prescribed burning for moose winter range has occurred within the unit.

**(c) Insect and Disease:** The spruce bark beetle has impacted 48,300 acres of forested land within the unit. Most spruce trees greater than 9 inches DBH have been killed.

**(d) Land Status:** There are 3,570 acres of state and private lands within the roadless area. All of these lands are adjacent to major roads. Wilderness designation would have no effect on access to these adjacent, private lands.

## **D. Wilderness Evaluation**

**(1) Nearby Roadless and Wilderness Areas:** Proposed and established Wilderness, managed by the Kenai National Wildlife Refuge, abuts the western boundary of the unit. West of the unit lie the Boston Bar and Johnson Pass Roadless Areas. South of the unit is the Kenai Lake Roadless Area. These roadless areas are 1/2 mile from the unit.

**(2) Distance from Population Centers (Accessibility):**

Approximate distances from population centers are:

Community	Air Miles	Road Miles
Anchorage	15	90
Hope	NA	5
Cooper Landing	NA	1

The area can be accessed by trail from the Resurrection Pass Trail starting either at Hope or Cooper Landing, the Devils Pass Trail starting just north of the Sterling Highway wye, the Gull Rock Trail near Hope and several unmaintained trails or old mining roads along the Seward Highway. The Palmer Creek road also provides easy access to alpine within the area.

**(3) Interest by Proponents:** The area is the most heavily used dispersed recreation area on the Forest. It was identified as nonwilderness roadless during the RARE II process. During review of the DEIS, there was a moderate interest in establishing a Wilderness on the Kenai Peninsula.

**(4) Relative Contribution to the National Wilderness Preservation System:** If the Resurrection Roadless Area were designated as Wilderness it would add about 222,000 acres of the Western Kenai Mountain Ecosubsection to the National Wilderness Preservation System. Habitat for wildlife and fish typically found on the Kenai Peninsula and a small herd of caribou would be protected. Habitat manipulation would only done to restore natural ecosystem conditions. The present recreation use along the Resurrection Pass and Devil’s Pass Trails would distract from the moderate opportunity for solitude in the area. Juneau Falls and Trout, Juneau, and Swan Lakes would be managed in a Wilderness environment.

## E. Environmental Consequences

**(1) Management Area Prescriptions:** The following table shows the management area prescriptions by alternatives for the Resurrection Roadless Area. Management area prescriptions are described in the FEIS, Chapter 2.

Management area prescriptions by alternative.								
Prescription #	NA	Preferred	A	B	C	D	E	F
131						139,730	168,910	168,390
210		150,480						
211				7,760	144,470	28,600		21,840
212			50,980	10	7,500	500		
213							12,470	
231						1,110		1,110
242						7,640		
244		16,320					39,470	29,830
312	222,100	38,190	23,780	214,330	53,150	41,700	140	
314		17,110	97,490		12,220			
331					1,119			930
341						2,820		
411			49,850		3,650			
521	2,080	2,080	2,080	2,080	2,080	2,080	2,080	2,080
522	280	280	280	280	280	280	280	280
<b>Total</b>	<b>224,460</b>							

**(2) Environmental Impacts:** Under Alternatives E and F, about 75 percent of the Resurrection Roadless Area would be recommended for Wilderness designation. Under Alternative D, about 62 percent would be recommended as Wilderness. The wilderness character and primitive opportunities on these lands would be protected. Mineral and timber outputs would be foregone. None of the Resurrection Roadless Area is recommended for Wilderness designation under any other alternatives.

All of the Resurrection Roadless Area would be available to be managed with new Forest Service road construction under the No Action Alternative. Under Alternative B, about 96 percent of the roadless area would be available to be managed with new road construction. Under Alternative A, 76 percent would be available; under Alternative D, 20 percent would be available; and under Alternative C, about 32 percent. Under the Preferred Alternative, about 8 percent would be available. Mineral and timber resources on these lands would be available.

It is projected that under the No Action Alternative 6.6 miles of new roads could be constructed during the first decade. Under Alternative B, 5.2 miles could be constructed. Under Alternative A, 3.4 miles; Alternative C, 0.5 miles; and, the Preferred Alternative, 0.5 miles. Over time, as new roads are constructed, the roadless character and primitive recreation opportunities on these lands

would be lost. Under Alternative F, there would be no new road construction.

Road construction would be conditional on 17 percent of the Resurrection Roadless Area under Alternative E and 7 percent under the Preferred Alternative. Minerals resources would be available. Over time, if new roads are constructed, the roadless character and primitive opportunities on some of these lands could be lost.

Under the Preferred Alternative, about 75 percent of the Resurrection Roadless Area would be managed for non-Wilderness roadless values, 68 percent under Alternative C, 23 percent under Alternative A, 18 percent under Alternative D, 10 percent under Alternative F, 8 percent under Alternative E, and 4 percent under Alternative B. Minerals resources would still be available. The roadless character and primitive opportunities on these lands would be maintained.

Long-term changes in plant and animal species diversity, in excess of the expected range of variability in the Resurrection Roadless Area, are not anticipated under any alternative (see pages C-3 and C-4). See FEIS, Chapter 3 for a more detailed disclosure of the effect of Wilderness/non-Wilderness management.



<b>Boston Bar Roadless Area</b>
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**NAME:** 02 Boston Bar

**ACRES (GROSS):** 57,280

**ACRES (NFS):** 53,590

**PROVINCE:** Alaska Mixed Forest Province

**ECOSECTION:** Kenai Mountain Section

**ECOSUBSECTION:** M213Ba, Turnagain Arm Subsection 8,100 acres;

M213Bb, Western Kenai Mountains Subsection 26,800 acres;

M213Bc Eastern Kenai Mountains Subsection 18,700 acres

#### **A. Description**

**(1) Relationship to RARE II Areas:** This roadless area encompasses the RARE II roadless area 002. It has a RARE II WARS rating of 20. It was a Further Planning Area in the RARE II EIS.

**(2) History:** Early use of the area centered on mining. During the late 1800s and early part of the 20th century gold placer mining occurred along Sixmile Creek and other creeks in the area. Some gold placer mining still occurs within the area.

**(3) Location and Access:** This area is located on the Kenai Peninsula. It is bounded on the north by the Turnagain Arm, on the east and south by the Seward Highway, and the west by the Hope Highway. The area within 1/4 mile of established roads has been excluded from the roadless area analysis. There are no easy access points into the area as fast flowing creeks lie between the highways and the unit. Access to the Seattle Creek area can be achieved by climbing the ridge near Turnagain Pass. Small boats can reach the north shore but it is considered too risky by most people. There are no sites suitable for landing wheeled aircraft or floatplanes.

#### **(4) Ecosystem**

**(a) Geography and Topography:** The northern edge of the area, which falls within the Turnagain Arm Subsection, consists of steep tree covered and rocky sideslopes and the included valley bottoms. The valleys are normally characterized by glacial alluvial outwash; sideslopes were originally shaped by major valley glaciers. The topography of the rest of the area, falling within the Western Kenai Mountains Subsection, consists of rounded, frost churned mountaintops separated by valleys shaped by alpine glaciers. Elevations range from sea level to 5,000 feet. The litho logy consists of numerous types of marine slates and meta-sandstones, with minor occurrences of limestone. The area drains the Seattle

Creek watershed and forms the northern watershed for the Granite Creek/Sixmile Creek watersheds.

**(b) Vegetation:** The area lying along Turnagain Arm consists of side slopes characterized by needleleaf forests of Sitka spruce, Lutz spruce, and mountain hemlock, mixed forests of Sitka or Lutz spruce and/or mountain hemlock and paper birch, broadleaf forests of paper birch, and tall scrubland of Sitka alder. Undergrowth species common within the forest zone include: bluejoint reedgrass, rusty menziesia, early blueberry, devil's club, wood fern, splendid feathermoss, and Schreber feathermoss. Valley bottoms and wetlands feature broadleaf forests of black cottonwood, needleleaf forests of spruce, scrublands dominated by Sitka alder, willows (especially Barclay and feltleaf), or sweetgale, and herbaceous vegetation dominated by one or more of the following: meadow horsetail, swamp horsetail, buckbean, marsh fivefinger, bluejoint reedgrass, Lygbyei and Sitka sedge, and tufted hairgrass. Alpine vegetation consists of dwarf scrublands and herbaceous vegetation types often dominated by such species as: crowberry, starry cassiope, bog blueberry, luetkea, bluejoint reedgrass, and rough fescue.

Vegetation within the Western Kenai Mountain Subsection portion of this area consists of needleleaf forest trees include white spruce, Lutz spruce, mountain hemlock, and occasional black spruce. Mountain hemlock occurs primarily on sideslopes at low to mid elevations while the spruces may dominate on both valley bottoms and sideslopes. Paper birch is a dominant broadleaf forest species and a major component of the mixed forests. Sitka alder characterizes the tall scrubland. The spruce bark beetle is currently causing extensive mortality within the spruce forests of this subsection. Undergrowth species common within the forest zone include: bluejoint reedgrass, rusty menziesia, early blueberry, devil's club, wood fern, lowbush cranberry, crowberry, splendid feathermoss, and Schreber feathermoss.

Broadleaf forests of black cottonwood and willow (especially Barclay and feltleaf) scrublands are normally found in the valley bottoms. Alpine vegetation consists of dwarf scrublands and herbaceous vegetation types often dominated by such species as: crowberry, starry cassiope, bog blueberry, luetkea, white mountain-avens, bluejoint reedgrass, and rough fescue.

**(c) Soils:** The soils on most sideslopes are formed in parent material originating from either bedrock or glacial drift, which is covered with a layer of volcanic ash. In general they are usually well or moderately well drained, and moderately deep to deep. Soils range from very acidic under well-developed forested stands to slightly acid on treeless sites. Normally the soils have a surface

organic layer, which is thickest under a forest canopy or in wetter areas. Tree and plant roots are restricted to the surface organic layer or the upper few inches of the mineral soil.

Shallow, well-drained, moderately acid soils are normally found on tops or small hills and in the alpine. Frequently there is only a thin surface organic layer. Plant roots are restricted to the surface organic layer and the upper few inches of the mineral soil.

Flat plateaus and basins commonly have numerous areas where soil drainage is restricted, which affords the development of very poorly to poorly drained, very acidic, shallow to deep organic soils. These are most common in areas of high precipitation.

Soils in the valley bottoms are usually formed in alluvial deposits and are well to poorly drained, depending on the depth of the water table, and slightly acid. Rooting is normally in the thin surface organic layer and the mineral soils.

**(d) Fish Resource:** The table below shows the mapped (known) amount of habitat available in the rivers and streams within the roadless area:

Species	Habitat Quality	Spawning Habitat (miles)	Rearing Habitat (miles)
Coho	High	1.2	1.2
King	High	0.7	0.7
Pink	High	0.7	0
Sockeye	High	0.7	0

**(e) Wildlife Resource:** Moose, black and brown bears, some sheep, wolves, and coyotes are the large dominate wildlife. Wolverine, fox, lynx, marten, mink, otter, red squirrel, grouse, ptarmigan, hare, bald eagle, owls, hawks and a variety of passerine birds contribute to the variety of wildlife resource.

A wildlife habitat model for forested lands was run to show relative values of different habitat types between roadless areas. The model is based on a species list for the Kenai Peninsula and therefore is not totally accurate for the Prince William Sound and Copper River Delta ecosystems. Small changes in the habitat capability index are not significant. Changes of 0.1 or more show a definite difference in capability. Acreage figures for the different habitat types are more important than the habitat capability index. The following tables show species counts for each habitat type and habitat capacity and diversity for wildlife.

## Appendix C

	Conifer/ Deciduous	Deciduous	Spruce	Spruce/ Hemlock	Hemlock
Land Birds	56	44	50	51	51
Aquatic Birds	6	7	8	8	8
Mammals	22	18	25	25	25

### Habitat capability and diversity of wildlife in the Boston Bar Area (02).

Land Cover	Percent	Area (Acres)	Animal Species Diversity Index	Habitat Capability for Forested Habitats			
				Land Birds	Aquatic Birds	Mammals	Combined
Hemlock/spruce	7.9	4,200	0.87	0.48	0.44	0.59	0.51
Noncommercial	0.0	0					
Seedling/sapling	0.0	0					
Midsuccessional	57.1	2,400					
Old-growth	42.9	1,800					
Hemlock	7.0	3,742	0.89	0.35	0.31	0.41	0.36
Noncommercial	64.1	2,400					
Seedling/sapling	1.1	40					
Midsuccessional	34.7	1,300					
Old-growth	0.1	2					
Spruce	1.7	910	0.93	0.73	0.66	0.67	0.70
Noncommercial	11.0	100					
Seedling/sapling	0.0	0					
Midsuccessional	1.1	10					
Old-growth	87.9	800					
Deciduous	0.6	320	0.65	0.41	0.12	0.49	0.40
Noncommercial	0.0	0					
Seedling/sapling	62.5	200					
Midsuccessional	31.3	100					
Old-growth	6.3	20					
Conifer/deciduous	0.2	90	0.77	0.21	0.23	0.37	0.29
Noncommercial	0.0	0					
Seedling/sapling	0.0	0					
Midsuccessional	100.0	90					
Old-growth	0.0	0					
Shrubs	29.0	15,500					
Nonshrub vegetation	29.2	15,600					
Lakes	0.1	30					
Other (e.g., rock, ice)	24.5	13,188					
<b>Total</b>	<b>100.0</b>	<b>53,590</b>	<b>0.47<sup>2</sup></b>				

<sup>2</sup> The combined diversity index includes shrub, nonshrub vegetation, lakes, rock, ice, and no data. It is not just the mean of the timbered habitats.

**(f) Threatened, Endangered and Sensitive Species:** No federally listed threatened or endangered species occur within the area. The following Alaska Region sensitive species are known or suspected to occur in or near the area:

Crucifer, no common name ( <i>Apragmus escholtzianus</i> )	known
Norberg arnica ( <i>Arnica lessigii</i> ssp. <i>norbergii</i> )	known
Goose-grass sedge ( <i>Carex lenticularis</i> var. <i>dolia</i> )	known
Northern rockcress ( <i>draba borealis</i> var. <i>maxima</i> )	suspected
Kamchatka rockcress ( <i>Draba kamtschatica</i> )	known
Tundra whitlow-grass ( <i>Draba kananaskis</i> )	known
Truncate quillwort ( <i>Isoetes truncata</i> )	suspected
Calder lovage ( <i>Liqusticum calderi</i> )	suspected
Pale poppy ( <i>Papaver alboroseum</i> )	known
Choris bog orchid ( <i>Platanthera chorisiana</i> )	suspected
Smooth alkali grass ( <i>Puccinellia glabra</i> )	known
Kamchatka alkali grass ( <i>Puccinellia kamtschatica</i> )	suspected
Unalaska mist-maid ( <i>Romanzoffia unalascensis</i> )	suspected
Circumpolar starwort ( <i>Stellaria ruscifolia</i> ssp. <i>aleutica</i> )	suspected

**(5) Current Use and Management:** Most of this area (47,090 acres) falls within Management Area 2, East Side in the 1984 Forest Plan. The primary management goals applicable to this area are to increase dispersed recreation opportunities, enhance wildlife habitat and increase fish habitat. Six thousand five hundred acres along the Seward and Hope Highways fall within Management Area 1, Road Corridor. Primary management goals for this area are to increase and improve dispersed and developed recreation opportunities, maintain landscape character, and maintain and enhance wildlife and fish habitat. Timber management is recognized as a primary management practice in this management area. There are no developed trails or public use cabins in the area. Recreation use is light as there are no developed access points. Some winter use occurs in the Seattle Creek drainage by cross-country skiers and snowmobilers.

**(6) Historic motorized use:** The area is open to over snow vehicles from December 1 through April 30. Within the past 5-6 years use of the Seattle Creek area has increased as snowmachine technology has improved.

**(7) Appearance (Apparent Naturalness):** Most of the area appears unmodified. The area exists in a predominantly natural condition. Overall, the area provides spectacular scenery. The following table displays the scenic integrity for the mapped acres of the roadless area.

Scenic Integrity	Acres
Very High	51,690
High	1,700
Moderate	200
Low	0
Very Low	0

The majority of this roadless area, 96 percent, is natural appearing, where only ecological change has occurred (Scenic Integrity Very High). Three percent has a scenic integrity of High, where human activity has occurred but is not apparent to the average viewer. Scenic Integrity Moderate, where evidence of human activity is apparent, and Scenic Integrity low, where change in the natural appearance is dominant, account for less than 1 percent.

**(8) Surroundings (External Influences):** The area is bounded on three sides by heavily used highways. Turnagain Arm separates the area from the Seward highway along its north border. Highway sounds are evident along the unit's edge but drop off rapidly where topographic barriers exist. The Resurrection and Johnson Pass Roadless Areas lie within 1/2 mile of the unit.

**(9) Attractions and Features of Special Interest:** East Fork Creek and Sixmile Creek, along the southern and western border of the area, are potentially eligible for Wild and Scenic River classification under the Wild and Scenic Rivers Act. Six hundred acres are tentatively classified as Scenic and 200 acres as Wild. No other features of special interest have been identified in the area. There are no inventoried recreation places in the unit.

## **B. Capability of Management as Wilderness or in an Unroaded Condition**

**(1) Manageability and Management Area Boundaries:** The area is bounded by a paved road and the Turnagain Arm. The feasibility of management in a roadless condition is high unless the state decides to develop its land within the Seattle Creek drainage.

**(2) Natural Appearance and Integrity:** The area is essentially unmodified, except for minor impacts from mining.

**(3) Opportunity for Solitude:** There is a moderate opportunity for solitude within the area. Low flying aircraft normally bypass the area flying either up Resurrection Pass or Turnagain Pass. Present recreation use levels are low except immediately adjacent to the area along Turnagain Pass and Sixmile Creek. Although there is considerable topographic screening and the distance from the perimeter to the core is between three and five miles, the area is relatively small with limited vegetative screening and some permanent off-site intrusions.

**(4) Opportunity for Primitive Recreation:** The area provides primarily Primitive, Semi-primitive Nonmotorized, and Semi-primitive Motorized opportunities. Opportunities for Primitive recreation is moderate as there is only a moderate amount of recreation diversity and few challenges to the recreation user.

ROS Class	Acres
Primitive 1 (P1)	33,590
Semi-primitive Nonmotorized (SPNM)	17,300
Roaded Natural (RN)	1,800
Roaded Modified (RM)	900

There are no established trails or recreation cabins in the area.

**(5) Special Features (Ecologic, Geologic, Scientific):** There are no special features within the area. Sixmile Creek and the East Fork of Sixmile Creek are eligible for Wild and Scenic River designation.

### C. Availability for Management as Wilderness or in an Unroaded Condition

#### (1) Resource Potentials

**(a) Recreation Potential:** The Seattle Creek area has been identified as a potential area for winter sports development. The state at some point in the future may decide to develop their land as a downhill ski area. Dispersed recreation opportunities, mostly related to winter sports are the most likely form of development.

**(b) Fish Resource:** There are opportunities for fish habitat enhancement and restoration activities in the area. Off channel spawning and rearing habitat in the East Fork Sixmile drainage is a primary enhancement opportunity. Riparian vegetation manipulation, primarily the planting of spruce trees in Spruce Bark Beetle impacted riparian spruce stands is an important restoration activity.

**(c) Wildlife Resource:** There is a low potential for wildlife habitat improvement.

**(d) Timber Resource:** There are 1,510 acres inventoried as tentatively suitable for harvest. Spruce bark beetle infestations have impacted 3,400 acres.

**(e) Land Use Authorizations:** Special use authorizations in the area include permits for guiding and helicopter skiing.

**(f) Minerals:** The entire unit is within a moderately mineralized zone containing gold. The upper Seattle Creek drainage is a moderate level of mineralized zone of gold and silver. There are four mines and 25 mining claims on National Forest System land within the area.

**(g) Cultural Resources:** There are no inventoried cultural sites within the area.

**(h) Areas of Scientific Interest:** The area does not contain any inventoried potential Research Natural Areas, and has not been identified for any other scientific value.

**(2) Management Considerations**

**(a) Timber:** There is very little opportunity for commercial timber harvest.

**(b) Fire:** There is a slight increase in the fire hazard due to dead spruce trees.

**(c) Insect and Disease:** The spruce bark beetle has impacted 3,400 acres of forested land within the unit.

**(d) Land Status:** There are 3,790 acres of state and private lands within the roadless area. All of these lands are adjacent to major roads. Wilderness designation would have no effect on access to these adjacent private lands.

**D. Wilderness Evaluation**

**(1) Nearby Roadless and Wilderness Areas and Uses:** The Resurrection and Johnson Pass Roadless Areas lie within 1/2 mile of this area. The Kenai National Wildlife Refuge Wilderness is about 25 miles to the southwest.

**(2) Distance from Population Centers (Accessibility):** There are no easy access points into this area. The closes access point from Anchorage, about 60 miles away, is from Ingram Creek or Turnagain Pass. The closest access point from Hope, about 5 miles away, is by crossing Sixmile Creek.

**(3) Interest by Proponents:** This area was inventoried as a further planning area under RARE II. This area does not receive a great deal of visitation or use. During review of the DEIS, there was a moderate interest in establishing a Wilderness on the Kenai Peninsula.

**(4) Relative Contribution to the National Wilderness Preservation System:** If the Boston Bar Roadless Area were designated as Wilderness it would add about 8,000 acres of the Turnagain Arm Ecosubsection, 26,000 acres of the Western Kenai Mountain Ecosubsection, and 18,000 acres of the Eastern Kenai Mountain Ecosubsection to the National Wilderness Preservation System. Habitat for wildlife and fish typically found on the Kenai Peninsula would be protected. Habitat manipulation would only done to restore natural ecosystem conditions. Wilderness management would protect the moderate opportunity for solitude in

the area. Upper Seattle Creek would be managed in a Wilderness environment.

### E. Environmental Consequences

**(1) Management Area Prescriptions:** The table below shows the management area prescriptions by alternatives for the Boston Bar Roadless Area. Management area prescriptions are described in the FEIS, Chapter 2.

<b>Management area prescriptions by alternative.</b>								
<b>Prescription #</b>	<b>NA</b>	<b>Preferred</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>
131							44,420	46,170
210		47,020						
211				26,820		46,120		
212			40,030		48,670	6,530	8,230	6,530
213							140	
231						580	660	660
244								90
312	53,520	5,850		23,790	4,270	290		
314			12,300	2,330				
331		650		580	580			
341							70	70
411			1,190					
522	70	70	70		70	70	70	70
<b>Total</b>	<b>53,590</b>	<b>53,590</b>	<b>53,590</b>	<b>53,590</b>	<b>53,590</b>	<b>53,590</b>	<b>53,590</b>	<b>53,590</b>

**(2) Environmental Impacts:** Under Alternative F, about 86 percent of the Boston Bar Roadless Area would be recommended for Wilderness designation and under Alternative D, about 83 percent would be recommended. The wilderness character on these lands would be protected. Mineral and timber outputs on these lands would be foregone. None of the Boston Bar Roadless Area is recommended for Wilderness designation under any other alternatives.

All of the Boston Bar Roadless Area would be available to be managed with new Forest Service road construction under the No Action Alternative. Under Alternative B, about 50 percent of the roadless area would be available to be managed with new road construction. Under Alternative A, 25 percent would be available to be managed with new road construction. Under the Preferred Alternative, about 11 percent would be available and under Alternative C about 8 percent. Mineral and timber resources on these lands would be available.

It is projected that under the No Action Alternative 1.7 miles of new road could be constructed during the first decade. Under Alternative B, 1.4 miles could be constructed. Under Alternative A, 0.9 miles; the Preferred Alternative 0.1 miles; and, Alternative C,

0.1 miles. Under Alternative F, there would be no new road construction.

Under Alternative D, all of the Resurrection Roadless Area would be managed for non-Wilderness roadless values. Under Alternative C, about 92 percent of the roadless area would be managed for non-wilderness values. Under the Preferred Alternative, 89 percent of the roadless area would be managed for non-wilderness values; under Alternative B, 50 percent; and, under Alternative D, 17 percent. Mineral resources would still be available. The roadless character on these lands would be maintained.

Long-term changes in plant and animal species diversity, in excess of the expected range of variability in the Boston Bar Roadless Area, are not anticipated under any alternative (see pages C-3 and C-4). See FEIS, Chapter 3 for a more detailed disclosure of the effect of Wilderness/non-Wilderness management.



<b>Johnson Pass Roadless Area</b>
-----------------------------------

**NAME:** 03 Johnson Pass

**ACRES (GROSS):** 156,910      **ACRES (NFS):** 153,020

**PROVINCE:** Alaska Mixed Forest Province

**ECOSECTION:** Kenai Mountain Section

**ECOSUBSECTION:** M213Ba, Turnagain Arm Subsection 9,300 acres;

M213Bb Western Kenai Mountains Subsection 50,100 acres;

M213Bc, Eastern Kenai Mountains Subsection 93,660 acres

#### **A. Description**

**(1) Relationship to RARE II Areas:** This roadless area encompasses the RARE II roadless area 003. It has a RARE II WARS rating of 17. It was a Further Planning Area in the RARE II EIS.

**(2) History:** During the early part of the century the Iditarod Trail bisected this area. There was a military trail that followed this route. Copper used by the Dena'ina may have come from an outcrop of copper sulfides at the head of Lynx Creek (Dixon 1995). Gold mining activity started in the late 1800 in the area and is still present in some locations.

**(3) Location and Access:** This area is located on the Kenai Peninsula. It is bounded on the north by Turnagain Arm and the Seward Highway, on the east and south by the Alaska railroad and the west by the Seward Highway. The area within 1/4 mile of established roads and the railroad has been excluded from the roadless area analysis. The area is bisected by a 23-mile trail system that begins at Granite Creek at mile 63 on the Seward Highway and goes through Johnson Pass to the Trail River and returns to the Seward Highway at mile 23 on Trail Lake. An old mining road that joins the Seward Highway just below lower Summit Lake extends up Mills Creek several miles. The Placer River drainage provides access to people with airboats, jet boats or canoes.

#### **(4) Ecosystem**

**(a) Geography and Topography:** The northern edge of the area that falls within the Turnagain Arm Subsection consists of steep tree covered and rocky sideslopes and the included valley bottoms. The valleys are normally characterized by glacial alluvial outwash; sideslopes were originally shaped by major valley glaciers. The topography of the rest of the area, falling within the Eastern Kenai Mountains Subsection, consists of relatively jagged mountains and

alpine valleys, many of which contain alpine glaciers in the upper portions. All of this area has been shaped by major alpine glaciation. Elevations range from 400 to 5,800 feet. The lithology consists of numerous types of marine slates and meta-sandstones. Soils are normally in alluvial or glacial deposits capped with volcanic ash. At higher elevations large areas of exposed rock occur.

**(b) Vegetation:** The area lying along Turnagain Arm consists of side slopes characterized by needleleaf forests of Sitka spruce, Lutz spruce, and mountain hemlock, mixed forests of Sitka or Lutz spruce and/or mountain hemlock and paper birch, broadleaf forests of paper birch, and tall scrubland of Sitka alder. Undergrowth species common within the forest zone include: bluejoint reedgrass, rusty menziesia, early blueberry, devil's club, wood fern, splendid feathermoss, and Schreber feathermoss. Valley bottoms and wetlands feature broadleaf forests of black cottonwood, needleleaf forests of spruce, scrublands dominated by Sitka alder, willows (especially Barclay and feltleaf), or sweetgale, and herbaceous vegetation dominated by one or more of the following: meadow horsetail, swamp horsetail, buckbean, marsh fivefinger, bluejoint reedgrass, Lygbyei and Sitka sedge, and tufted hairgrass. Alpine vegetation consists of dwarf scrublands and herbaceous vegetation types often dominated by such species as: crowberry, starry cassiope, bog blueberry, luetkea, bluejoint reedgrass, and rough fescue.

Vegetation within the Eastern Kenai Mountains Subsection consists of needleleaf forest species include Lutz spruce and mountain hemlock. Mountain hemlock occurs primarily on sideslopes at low to mid elevations while Lutz spruce may be a dominant on both valley bottoms and sideslopes. Mixed forests species are primarily Lutz spruce and/or mountain hemlock and paper birch. Broadleaf forests are often dominated by paper birch and the tall scrubland dominant is Sitka alder. The spruce bark beetle is currently causing extensive mortality within the spruce forests of this subsection. Undergrowth species common within the forest zone include: bluejoint reedgrass, rusty menziesia, early blueberry, devil's club, wood fern, lowbush cranberry, crowberry, splendid feathermoss, and Schreber feathermoss. Broadleaf forests of black cottonwood and willow (especially Barclay and feltleaf) scrublands are normally found in the valley bottoms. Alpine vegetation consists of dwarf scrublands and herbaceous vegetation types often dominated by such species as: crowberry, starry cassiope, bog blueberry, luetkea, bluejoint reedgrass, and rough fescue.

**(c) Soils:** The soils on most sideslopes are formed in parent material originating from either bedrock or glacial drift, which is

covered with a layer of volcanic ash. In general they are usually well or moderately well drained, and moderately deep to deep. Soils range from very acidic under well-developed forested stands to slightly acid on treeless sites. Normally the soils have a surface organic layer, which is thickest under a forest canopy or in wetter areas. Tree and plant roots are restricted to the surface organic layer or the upper few inches of the mineral soil.

Shallow, well-drained, moderately acid soils are normally found on tops or small hills and in the alpine. Frequently there is only a thin surface organic layer. Plant roots are restricted to the surface organic layer and the upper few inches of the mineral soil.

Flat plateaus and basins commonly have numerous areas where soil drainage is restricted, which affords the development of very poorly to poorly drained, very acidic, shallow to deep organic soils. These are most common in areas of high precipitation.

Soils in the valley bottoms are usually formed in alluvial deposits and are well to poorly drained, depending on the depth of the water table, and slightly acid. Rooting is normally in the thin surface organic layer and the mineral soils.

**(d) Fish Resource:** The following table displays the mapped (known) amount of habitat available.

Species	Habitat Quality	Spawning Habitat (miles)	Rearing Habitat (miles)
Chum	High	0.5	0
Chum	Moderate	4.8	0
Coho	High	6.9	8.3
Coho	Moderate	6.4	6.4
Coho	Low	6.8	5.5
Dolly Varden	High	0.5	5.2
Dolly Varden	Low	10.3	5.6
King	High	5.5	5.5
King	Moderate	0.8	0.8
Pink	High	1.8	0
Pink	Moderate	1.1	0
Pink	Low	1.3	0
Sockeye	High	1.7	10,293 acres
Sockeye	Moderate	6	0
Sockeye	Low	0	0

**(e) Wildlife Resource:** A wildlife habitat model for forested lands was run to show relative values of different habitat types between roadless areas. The model is based on a species list for the Kenai Peninsula and therefore is not totally accurate for the Prince William Sound and Copper River Delta ecosystems. Small changes in the habitat capability index are not significant. Changes

## Appendix C

of 0.1 or more show a definite difference in capability. Acreage figures for the different habitat types are more important than the habitat capability index. The following tables show species counts for each habitat type and habitat capacity and diversity for wildlife.

	Conifer/ Deciduous	Deciduous	Spruce	Spruce/ Hemlock	Hemlock
Land Birds	56	44	50	51	51
Aquatic Birds	6	7	8	8	8
Mammals	22	18	25	25	25

### Habitat capability and diversity of wildlife in the Johnson Pass Area (03).

Land Cover	Percent	Area (Acres)	Animal Species Diversity Index	Habitat Capability for Forested Habitats			
				Land Birds	Aquatic Birds	Mammals	Combined
Hemlock/spruce	2.9	4,500	0.84	0.31	0.29	0.52	0.37
Noncommercial	0.0	0					
Seedling/sapling	0.0	0					
Midsuccessional	91.1	4,100					
Old-growth	8.9	400					
Hemlock	6.4	9,810	0.87	0.32	0.29	0.44	0.35
Noncommercial	42.8	4,200					
Seedling/sapling	0.1	10					
Midsuccessional	57.1	5,600					
Old-growth	0.0	0					
Spruce	1.7	2,580	0.90	0.61	0.55	0.63	0.61
Noncommercial	7.8	200					
Seedling/sapling	3.1	80					
Midsuccessional	23.3	600					
Old-growth	65.9	1,700					
Deciduous	1.3	1,980	0.61	0.30	0.24	0.45	0.33
Noncommercial	4.0	80					
Seedling/sapling	20.2	400					
Midsuccessional	65.7	1,300					
Old-growth	10.1	200					
Conifer/deciduous	1.0	1,520	0.78	0.22	0.24	0.37	0.30
Noncommercial	0.0	0					
Seedling/sapling	0.0	0					
Midsuccessional	98.7	1,500					
Old-growth	1.3	20					
Shrubs	25.3	38,800					
Nonshrub vegetation	38.3	58,800					
Lakes	1.0	1,600					
Other (e.g., rock, ice)	22.1	33,530					
<b>Total</b>	<b>100.0</b>	<b>153,020</b>	<b>0.43<sup>3</sup></b>				

<sup>3</sup> The combined diversity index includes shrub, nonshrub vegetation, lakes, rock, ice, and no data. It is not just the mean of the timbered habitats.

**(f) Threatened, Endangered and Sensitive Species:** No federally listed threatened or endangered species occur within the area. The following Alaska Region sensitive species are known or suspected to occur in or near the area:

Crucifer, no common name ( <i>Apragmus escholtzianus</i> )	known
Norberg arnica ( <i>Arnica lessigii</i> ssp. <i>norbergii</i> )	known
Goose-grass sedge ( <i>Carex lenticularis</i> var. <i>dolia</i> )	known
Northern rockcress ( <i>Draba borealis</i> var. <i>maxima</i> )	suspected
Kamchatka rockcress ( <i>Draba kamtschatica</i> )	known
Tundra whitlow-grass ( <i>Draba kananaskis</i> )	known
Truncate quillwort ( <i>Isoetes truncata</i> )	suspected
Calder lovage ( <i>Ligusticum calderi</i> )	suspected
Pale poppy ( <i>Papaver alboroseum</i> )	known
Choris bog orchid ( <i>Platanthera chorisiana</i> )	suspected
Smooth alkali grass ( <i>Puccinellia glabra</i> )	known
Kamchatka alkali grass ( <i>Puccinellia kamtschatica</i> )	suspected
Unalaska mist-maid ( <i>Romanzoffia unalascensis</i> )	suspected
Circumpolar starwort ( <i>Stellaria ruscifolia</i> ssp. <i>aleutica</i> )	suspected

**(5) Current Use and Management:** Most of this area (137,430 acres) falls within Management Area 2, East Side in the 1984 Forest Plan. The primary management goals applicable to this area are to increase dispersed recreation opportunities, enhance wildlife habitat and increase fish habitat. Fifteen thousand six hundred acres along the Seward Highway fall within Management Area 1, Road Corridor. Primary management goals for this area are to increase and improve dispersed and developed recreation opportunities, maintain landscape character, and maintain and enhance wildlife and fish habitat. Timber management is recognized as a primary management practice in this management area. There are no developed public use cabins in the area. The Johnson Pass Trail is a popular hiking and mountain bike trail. Cross-country skiing takes place in the Turnagain Pass area, around Summit Lake, and Grandview.

Mining activity within the unit is light. Several of the drainages along the edge of the unit, Canyon Creek, Lyon Creek and others have active gold placer mines. Most of the activity is suction gold dredging.

**(6) Historic motorized use:** The Turnagain Pass area east of the Seward Highway from Ingram Creek south to the confluence of Bench and Center Creeks and along the divide separating this area from Placer River Valley is closed to motorized vehicles and snowmobile use all year. The Manitoba Mountain area north of Lower Summit Lake, between Wilson Creek on the north, Canyon Creek on the west and Mills Creek mining access road on the south is also closed to motorized vehicles and snowmobile use all year. Some of this closed area falls within state selected land. The Placer River drainage is used by jet boats and airboats.

**(7) Appearance (Apparent Naturalness):** This area has a moderately high degree of natural integrity. Most long-term ecological processes are intact and operating. Some of the processes in the valley bottoms have been interrupted by mining and mineral development. These activities have also affected the apparent naturalness of the area and result in a moderately low level of apparent naturalness in some parts of the unit. There are 3.6 miles of private road within the unit. The table below displays the scenic integrity for the mapped acres of the roadless area.

Scenic Integrity	Acres
Very High	147,900
High	4,900
Moderate	200
Low	10
Very Low	10

The majority of this roadless area, 97 percent, is natural appearing, where only ecological change has occurred (Scenic Integrity Very High). Three percent has a scenic integrity of High, where human activity has occurred but is not apparent to the average viewer. Scenic Integrity Moderate, where evidence of human activity is apparent, and Scenic Integrity low and very low, where change in the natural appearance is dominant, account for less than 0.1 percent.

**(8) Surroundings (External Influences):** The area is bounded on by a heavily used highways and the Alaska Railroad. Highway and railroad sounds are evident along the unit's edge but drop off rapidly where topographic barriers exist. On the other side of the road and railroad corridors (1/2 mile) there are large roadless areas.

**(9) Attractions and Features of Special Interest:** Small hanging glaciers can be seen high on rugged mountainside slopes. Intriguing glacial topography is evident everywhere.

## **B. Capability of Management as Wilderness or in an Unroaded Condition**

**(1) Manageability and Management Area Boundaries:** The area is bounded by paved road and the Alaska Railroad. The feasibility of management in a roadless condition is high,

**(2) Natural Appearance and Integrity:** The area is essentially unmodified, except for minor impacts from mining.

**(3) Opportunity for Solitude:** The opportunity for solitude in this area is high, especially away from the Johnson Pass Trail. The area is relatively large with a high level of topographic screening. The distance from the perimeter to the core is between seven and ten miles.

**(4) Opportunity for Primitive Recreation:** The area provides primarily Primitive, Semi-primitive Nonmotorized, and Semi-primitive Motorized opportunities. The opportunity for Primitive recreation is moderate as a result of a moderate diversity of recreation opportunities and few challenges to the recreation user. There are 50 miles are of trails in the area.

ROS Class	Acres
Primitive 1 (P1)	66,220
Semi-primitive Nonmotorized (SPNM)	68,400
Semi-primitive Motorized (SPM)	5,000
Roaded Natural (RN)	12,500
Roaded Modified (RM)	900

**(5) Special Features (Ecologic, Geologic, Scientific):** The Johnson Pass Trail follows the route of the historic Iditarod Trail.

### C. Availability for Management as Wilderness or in an Unroaded Condition

#### (1) Resource Potentials

**(a) Recreation Potential:** There are 50 miles of inventoried trails. Johnson Pass is a popular hiking and mountain bike trail.

**(b) Fish Resource:** Opportunities for fish habitat manipulation are low key and minor. Primary restoration opportunities are related to reforestation of riparian spruce stands that have been impacted by spruce bark beetles.

**(c) Wildlife Resource:** There is low opportunity for wildlife habitat improvement.

**(d) Timber Resource:** There are 2,010 acres of tentative suitable forested lands.

**(e) Land Use Authorizations:** None listed.

**(f) Minerals:** Portions of the entire area is within a most favorable and moderately favorable mineral potential zone of gold and silver. There are 22 mines and 163 mining claims (940 acres) on National Forest System land within the area.

**(g) Cultural Resources:** There are 9 known cultural sites within this area.

**(h) Areas of Scientific Interest:** The area does not contain any inventoried potential Research Natural Areas, and has not been identified for any other scientific value.

#### (2) Management Considerations

**(a) Timber:** There is little opportunity for commercial timber harvest.

**(b) Fire:** There is a moderate increase in the fire hazard due to dead spruce trees.

**(c) Insect and Disease:** The spruce bark beetle has impacted 8,400 acres of forested land within the unit.

**(d) Land Status:** There are 3,842 acres of state land and 38 acres of private land within the roadless area. All of these lands are adjacent to major roads or the railroad. Wilderness designation would have no effect on access to these adjacent lands

**D. Wilderness Evaluation**

**(1) Nearby Roadless and Wilderness Areas and Uses:** The Resurrection, Boston Bar, Kenai Lake, and Kenai Mountains Roadless Areas surround the area and are all within 1/2 mile of this area. The Kenai National Wildlife Refuge Wilderness is about 20 miles to the west.

**(2) Distance from Population Centers (Accessibility):** Approximate distances from population centers are as follows:

Community	Air Miles	Road Miles
Anchorage	40	45
Hope	15	15
Cooper Landing	15	15

The Johnson Pass Trail provides access to the center of the unit. It can be reached from the Seward Highway near the Granite Creek Campground at the north end or from the trailhead at Trail Lake at the south end. The Turnagain Pass parking lots provide access to the Tincan and Center Ridge area.

**(3) Interest by Proponents:** Johnson Pass Trail is a popular mountain biking trail. The Turnagain Pass area is a popular backcountry ski area. During review of the DEIS, there was a moderate interest in establishing a Wilderness on the Kenai Peninsula.

**(4) Relative Contribution to the National Wilderness Preservation System:** If the Johnson Pass Roadless Area were designated as Wilderness it would add about 9,000 acres of the Turnagain Arm Ecosubsection, 50,000 acres of the Western Kenai Mountain Ecosubsection, and 93,000 acres of the Eastern Kenai Mountain Ecosubsection to the National Wilderness Preservation System. Habitat for wildlife and fish typically found on the Kenai Peninsula would be protected. Habitat manipulation would only done to restore natural ecosystem conditions. The present recreation use along the Johnson Pass Trail would distract from the high opportunity for solitude in the area. Small hanging glaciers

and the glacial topography of the area would be managed in a Wilderness environment.

### E. Environmental Consequences

**(1) Management Area Prescriptions:** The following table shows the management area prescriptions by alternative for the Johnson Pass Roadless Area. Management area prescriptions are described in the FEIS, Chapter 2.

<b>Management area prescriptions by alternative.</b>								
<b>Prescription #</b>	<b>NA</b>	<b>Preferred</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>
131							5,580	5,580
210		120,850						
211				25,000	38,950	90,690	60,600	75,780
212			42,860	104,300		4,640	8,370	12,320
213			29,740		107,010	16,770	76,670	
231							810	810
242		8,510				410		43,980
244		10,320				19,600		13,560
312	152,030	11,940		17,250	5,660	300		
314				5,070				
331		410		410	410			
411			79,430					
521	940	940	940	940	940	940	940	940
522	50	50	50	50	50	50	50	50
<b>Total</b>	<b>153,020</b>	<b>153,020</b>	<b>153,020</b>	<b>153,020</b>	<b>153,020</b>	<b>153,020</b>	<b>153,020</b>	<b>153,020</b>

**(2) Environmental Impacts:** Under Alternatives E and F, about 4 percent of the Johnson Pass Roadless Area would be recommended for Wilderness designation. The wilderness character on these lands would be protected. Mineral and timber outputs would be foregone. None of the Johnson Pass Roadless Area is recommended for Wilderness designation under any other alternatives.

All of the Johnson Pass Roadless Area would be available to be managed with new Forest Service road construction under the No Action Alternative. Under Alternative A, about 53 percent of the roadless area would be available to be managed with new road construction. Under Alternative B, 15 percent would be available; under the Preferred Alternative, about 7 percent would be available; and under Alternative C, about 4 percent. Mineral and timber resources on these lands would be available.

It is projected that under the No Action Alternative 2.6 miles of new roads could be constructed during the first decade. Under Alternative B 2.0 miles could be constructed. Under Alternative A, 1.3 miles; Alternative D, 0.2 miles; Alternative C, 0.2 miles; and, the Preferred Alternative 0.2 miles. Over time, as new roads are

constructed, the roadless character and primitive recreation opportunities on these lands would be lost. Under Alternative F, there would be no new road construction.

Road construction would be conditional on 13 percent of the Johnson Bar Roadless Area under Alternative D and 8 percent under the Preferred Alternative. Minerals resources would still be available. Over time, if new roads are constructed, the roadless character of some of these lands could be lost.

Under Alternatives C, E, and F, about 96 percent of the Johnson Bar Roadless Area would be managed or non-Wilderness roadless values, 85 percent under Alternative B and the Preferred Alternative, and 47 percent under Alternative A. Mineral resources would still be available. The roadless character on these lands would be maintained.

Long-term changes in plant and animal species diversity, in excess of the expected range of variability in the Johnson Pass Roadless Area, are not anticipated under any alternative (see pages C-3 and C-4). See FEIS, Chapter 3 for a more detailed disclosure of the effect of Wilderness/non-Wilderness management.



<b>Kenai Lake Roadless Area</b>
---------------------------------

**NAME:** 04 Kenai Lake

**ACRES (GROSS):** 220,700      **ACRES (NFS):** 212,960

**PROVINCE:** Alaska Mixed Forest Province and Pacific Gulf Coastal Forest-Meadow Province

**ECOSECTION:** Kenai Mountain Section

**ECOSUBSECTION:** M213Bb Western Kenai Mountains 84,400 acres;

M213Bc Eastern Kenai Mountains 91,260 acres;

M245Aa Kenai Fjordlands Subsection 37,300 acres.

#### **A. Description**

**(1) Relationship to RARE II Areas:** This roadless area encompasses the RARE II roadless area 004A and 004B. The section below Kenai Lake, 004A has a RARE II WARS rating of 20. The area above Kenai Lake, 004B has a WARS rating of 18. Both areas were Further Planning Areas in the RARE II EIS.

**(2) History:** Evidence of use by the Dena'ina Indians in the Russian River and Kenai River area date back over 3,500 years. Use of the area may date back as far as 8,000 to 10,000 years ago. In 1850 and 1851 the Russian River area was explored for gold by a Russian mining engineer. Further mining activity took place in the early 1900s.

**(3) Location and Access:** This area is located on the Kenai Peninsula. It is bounded on the north by the Sterling Highway, on the east by the Kenai National Wildlife Refuge and Kenai Fjords National Park, the south by private land and the city of Seward, and the west by the Seward Highway. The area within 1/4 mile of established roads has been excluded from the roadless area analysis. The area is bisected by Kenai Lake. Access points include trailheads along the Seward Highway, Sterling Highway and Snug Harbor Road. The Lost Lake, Russian River, Carter Lake, Crescent Lake, Resurrection River, and Primrose Trails extend into the unit.

#### **(4) Ecosystem**

**(a) Geography and Topography:** The southern most portion of the unit includes the southern coasts of the Kenai Peninsula from Puget Bay westward to Resurrection Bay, the Resurrection River valley to just south of Upper Russian Lake, and the lower drainages due north of Seward to Kenai Lake falls within the Kenai Fjordlands Subsection. The topography includes fiords with vegetated, steep, rugged mountains, and valley bottoms characterized by glacial

alluvial outwash. Elevations range from sea level to 4,600 feet. The lithology consists primarily of marine shales, slates, and meta-sandstones.

The portion of the unit lying below Primrose Landing falls within the Eastern Kenai Mountains Subsection. The topography consists of relatively jagged mountains and alpine valleys, many of which contain alpine glaciers in the upper portions. All of this area has been shaped by major alpine glaciation. Elevations range from 400 to 5,800 feet. The lithology consists of numerous types of marine slates and meta-sandstones. Soils are normally in alluvial or glacial deposits capped with volcanic ash. At higher elevations large areas of exposed rock occur.

The area lying north of Primrose Landing falls within the Western Kenai Mountains Subsection. The topography consists of rounded, frost-churned mountaintops separated by valleys shaped by alpine glaciers. Elevations range from 100 to 5,000 feet. The lithology consists of numerous types of marine slates and meta-sandstones, with minor occurrences of limestone.

**(b) Vegetation:** Within the Kenai Fjordlands Subsection characteristic needleleaf forest species feature Sitka spruce and/or mountain hemlock. Mixed forests are rare in this subsection (except in the drainages north of Seward where Lutz spruce and paper birch also occur). Tall scrubland dominated by Sitka alder characterizes avalanche chutes and beach fringe areas. Undergrowth species common beneath the tree canopies of the forest zone include: early and Alaska blueberry, devil's club, rusty menziesia, copperbush, yellow skunk-cabbage, deer cabbage, Pacific reedgrass, wood fern, splendid feathermoss, and rhytidiadelphus mosses. Characteristic species of the scrublands and herblands include: salmonberry, crowberry, bog blueberry, starry cassiope, Aleutian mountain heather, Luetkea, tall Alaska cotton grass, tufted clubrush, bluejoint reedgrass, beach rye, Lygbyei sedge, few-flowered sedge, many-flowered sedge, and sphagnum mosses.

Vegetation within the Eastern Kenai Mountains Subsection consists of needleleaf forest species include Lutz spruce and mountain hemlock. Mountain hemlock occurs primarily on sideslopes at low to mid elevations while Lutz spruce may be a dominant on both valley bottoms and sideslopes. Mixed forests species are primarily Lutz spruce and/or mountain hemlock and paper birch. Broadleaf forests are often dominated by paper birch and the tall scrubland dominant is Sitka alder. The spruce bark beetle is currently causing extensive mortality within the spruce forests of this subsection. Undergrowth species common within the forest zone include: bluejoint reedgrass, rusty menziesia, early blueberry,

devil's club, wood fern, lowbush cranberry, crowberry, splendid feathermoss, and Schreber feathermoss. Broadleaf forests of black cottonwood and willow (especially Barclay and feltleaf) scrublands are normally found in the valley bottoms. Alpine vegetation consists of dwarf scrublands and herbaceous vegetation types often dominated by such species as: crowberry, starry cassiope, bog blueberry, luetkea, bluejoint reedgrass, and rough fescue.

Within the Western Kenai Mountains Subsection characteristic needleleaf forest trees include white spruce, Lutz spruce, mountain hemlock, and occasional black spruce. Mountain hemlock occurs primarily on sideslopes at low to mid elevations while the spruces may dominate on both valley bottoms and sideslopes. Paper birch is a dominant broadleaf forest species and a major component of the mixed forests. Sitka alder characterizes the tall scrubland. Natural and human caused fires are common and significantly affect forest vegetation succession in this area. The spruce bark beetle is currently causing extensive mortality within the spruce forests of this area. Undergrowth species common within the forest zone include: bluejoint reedgrass, rusty menziesia, early blueberry, devil's club, wood fern, lowbush cranberry, crowberry, splendid feathermoss, and Schreber feathermoss.

**(c) Soils:** The soils on most sideslopes are formed in parent material originating from either bedrock or glacial drift, which is covered with a layer of volcanic ash. In general they are usually well or moderately well drained, and moderately deep to deep. Soils range from very acidic under well-developed forested stands to slightly acid on treeless sites. Normally the soils have a surface organic layer, which is thickest under a forest canopy or in wetter areas. Tree and plant roots are restricted to the surface organic layer or the upper few inches of the mineral soil.

Shallow, well-drained, moderately acid soils are normally found on tops or small hills and in the alpine. Frequently there is only a thin surface organic layer. Plant roots are restricted to the surface organic layer and the upper few inches of the mineral soil.

Flat plateaus and basins commonly have numerous areas where soil drainage is restricted, which affords the development of very poorly to poorly drained, very acidic, shallow to deep organic soils. These are most common in areas of high precipitation.

Soils in the valley bottoms are usually formed in alluvial deposits and are well to poorly drained, depending on the depth of the water table, and slightly acid. Rooting is normally in the thin surface organic layer and the mineral soils.

**(d) Fish Resource:** The fishery resource consists of many lakes and streams, containing chinook, sockeye, coho, pink and chum salmon; rainbow and lake trout, Dolly Varden char, and grayling. The following table displays the mapped (known) amount of habitat available.

Species	Habitat Quality	Spawning Habitat (miles)	Rearing Habitat (miles)
Chum	High	0.4	0
Chum	Moderate	1	0
Coho	High	11.3	36.2
Coho	Moderate	9.7	10
Coho	Low	37.7	12.5
Dolly Varden	High	12	21.9
Dolly Varden	Low	9.9	0
King	High	1.2	1.2
King	Moderate	16.1	0
Pink	High	0.4	0
Pink	Low	0.3	0
Sockeye	High	10.6	474,452 acres
Sockeye	Moderate	30.5	0
Sockeye	Low	4.8	0
Whitefish	High	1.6	1.6

**(e) Wildlife Resource:** A wildlife habitat model for forested lands was run to show relative values of different habitat types between roadless areas. The model is based on a species list for the Kenai Peninsula and therefore is not totally accurate for the Prince William Sound and Copper River Delta ecosystems. Small changes in the habitat capability index are not significant. Changes of 0.1 or more show a definite difference in capability. Acreage figures for the different habitat types are more important than the habitat capability index. The following tables show species counts for each habitat type and habitat capacity and diversity for wildlife.

	Conifer/ Deciduous	Deciduous	Spruce	Spruce/ Hemlock	Hemlock
Land Birds	56	44	50	51	51
Aquatic Birds	6	7	8	8	8
Mammals	22	18	25	25	25

**Habitat capability and diversity of wildlife in the Kenai Lake Area (04).**

Land Cover	Percent	Area (Acres)	Animal Species Diversity Index	Habitat Capability for Forested Habitats			
				Land Birds	Aquatic Birds	Mammals	Combined
Hemlock/spruce	7.2	15,260	0.86	0.46	0.42	0.58	0.49
Noncommercial	0.1	20					
Seedling/sapling	0.0	1					
Midsuccessional	62.0	9,500					
Old-growth	37.9	5,800					
Hemlock	7.7	16,300	0.86	0.31	0.28	0.45	0.34
Noncommercial	31.3	5,100					
Seedling/sapling	0.2	40					
Midsuccessional	68.1	11,100					
Old-growth	0.4	60					
Spruce	7.6	16,100	0.91	0.57	0.50	0.57	0.56
Noncommercial	26.1	4,200					
Seedling/sapling	3.1	500					
Midsuccessional	18.6	3,000					
Old-growth	52.2	8,400					
Deciduous	1.2	2,500	0.62	0.31	0.19	0.45	0.33
Noncommercial	8.0	200					
Seedling/sapling	32.0	800					
Midsuccessional	56.0	1,400					
Old-growth	4.0	100					
Conifer/deciduous	0.9	1,900	0.78	0.33	0.26	0.43	0.38
Noncommercial	0.0	0					
Seedling/sapling	21.1	400					
Midsuccessional	63.2	1,200					
Old-growth	15.8	300					
Shrubs	19.6	41,800					
Nonshrub vegetation	33.5	71,300					
Lakes	7.8	16,600					
Other (e.g., rock, ice)	14.6	31,200					
<b>Total</b>	<b>100.0</b>	<b>212,960</b>	<b>0.49<sup>4</sup></b>				

<sup>4</sup> The combined diversity index includes shrub, nonshrub vegetation, lakes, rock, ice, and no data. It is not just the mean of the timbered habitats.

**(f) Threatened, Endangered and Sensitive Species:** No federally listed threatened or endangered species occur within the area. The following Alaska Region sensitive species are known or suspected to occur in or near the area:

Crucifer, no common name ( <i>Apragmus escholtzianus</i> )	known
Norberg arnica ( <i>Arnica lessigii</i> ssp. <i>norbergii</i> )	known
Goose-grass sedge ( <i>Carex lenticularis</i> var. <i>dolia</i> )	known
Northern rockcress ( <i>Draba borealis</i> var. <i>maxima</i> )	suspected
Kamchatka rockcress ( <i>Draba kamtschatica</i> )	known
Tundra whitlow-grass ( <i>Draba kananaskis</i> )	known
Truncate quillwort ( <i>Isoetes truncata</i> )	suspected
Calder lovage ( <i>Ligusticum calderi</i> )	suspected
Pale poppy ( <i>Papaver alboroseum</i> )	known
Choris bog orchid ( <i>Platanthera chorisiana</i> )	suspected
Smooth alkali grass ( <i>Puccinellia glabra</i> )	known
Kamchatka alkali grass ( <i>Puccinellia kamtschatica</i> )	suspected
Unalaska mist-maid ( <i>Romanzoffia unalascensis</i> )	suspected
Circumpolar starwort ( <i>Stellaria ruscifolia</i> ssp. <i>aleutica</i> )	suspected

**(5) Current Use and Management:** Most of this area (187,160 acres) falls within Management Area 4, Crescent Lake in the 1984 Forest Plan. The primary management goals are to increase developed and dispersed recreation opportunities, provide unroaded recreation opportunities, maintain landscape character, enhance wildlife habitat, and improve fish habitat. Twenty five thousand eight hundred acres along the Seward and Sterling Highways fall within Management Area 1, Road Corridor. Primary management goals for this area are to increase and improve dispersed and developed recreation opportunities, maintain landscape character, and maintain and enhance wildlife and fish habitat. Timber management is recognized as a primary management practice in this management area.

**(6) Historic Motorized Use:** The Carter Lake, Primrose, and Lost Lake Trails are open from December 1 through April 30. All other trails within the unit are open to over snow vehicle use however the avalanche danger on parts of the trails can be high. Powerboats are allowed on Kenai Lake however use is relatively low. Motorized vehicles are allowed on the outwash plain of Resurrection River. Except as mentioned above motorized vehicles off of Forest development roads are prohibited.

**(7) Appearance (Apparent Naturalness):** The area has a very high degree of natural integrity. Most long-term ecological processes are intact and operating. Some evidence of human activity exists (e.g., cabins, trails, mining operations), but these activities have had little or no effect on the natural integrity of the area. Prescribed burning has had little effect on the natural integrity. Wildfires have swept through portions of the area, especially the area around Russian Lakes. The most recent large

fire was in 1989. There are 1.4 miles of private road within the unit. The table below displays the scenic integrity for the mapped acres of the roadless area.

Scenic Integrity	Acres
Very High	206,850
High	4,700
Moderate	1,400
Low	10
Very Low	0

Most of this roadless area, 97 percent, is natural appearing, where only ecological change has occurred (Scenic Integrity Very High). Two percent has a scenic integrity of High, where human activity has occurred but is not apparent to the average viewer. Scenic Integrity Moderate, where evidence of human activity is apparent, and Scenic Integrity low, where change in the natural appearance is dominant, account for less than one percent.

**(8) Surroundings (External Influences):** The area is bounded on three sides by heavily used highways. Small communities abut the north and south boundary of the unit. The sounds of highway traffic, residential, and commercial activities can be heard until topographic breaks drown out the sound. The unit lies on the eastern edge of the Kenai Wilderness Area, managed by the Kenai National Wildlife Refuge; and Wilderness managed by the Kenai Fjords National Park.

**(9) Attractions and Features of Special Interest:** Several large spectacular lakes including Crescent and Kenai Lake are found within the area. The Russian River is a major sport fishing river providing excellent salmon and trout fishing. The Russian River is recommended as Scenic (200 acres) and Wild (2,800 acres) under the Wild and Scenic Rivers Act.

## B. Capability of Management as Wilderness or in an Unroaded Condition

**(1) Manageability and Management Area Boundaries:** The area is bounded by paved road on the north, and east. Wilderness forms the southern and western boundary. The Snug Harbor road extends into the southern part of the unit terminating at Cooper Lake. Feasibility of management in a roadless condition is high.

**(2) Natural Appearance and Integrity:** Most of the area is essentially unmodified, except for minor impacts from mining and at cabin sites.

**(3) Opportunity for Solitude:** The opportunity for solitude in the northern portion of the unit is generally moderate. Although there is considerable topographic screening and the distance from the perimeter to the core is between four and five miles, the area is

relatively small with limited vegetative screening. The rolling alpine along the ridges and high passes provide long viewing distances making people visible from a distance. At lower elevations, especially away from established trails, a person camped or traveling is unlikely to see others.

The opportunity for solitude in the southern portion of the unit (south of Kenai Lake) is high. The area is relatively large with a high level of topographic screening. The distance from the perimeter to the core is between four and twelve miles.

**(4) Opportunity for Primitive Recreation:** The area provides primarily Primitive and Semi-primitive Nonmotorized recreation opportunities.

ROS Class	Acres
Primitive 1 (P1)	44,300
Primitive 2 (P2)	72,860
Semi-primitive Nonmotorized (SPNM)	70,100
Semi-primitive Motorized (SPM)	18,100
Roaded Natural (RN)	6,500
Roaded Modified (RM)	900
Roaded	200

There are 102 miles of trail in the area and five recreation cabins. Three small campgrounds are located along the shores of Kenai Lake.

**(5) Special Features (Ecologic, Geologic, Scientific):** The Kenai Lake-Black Mountain proposed Research Natural Area, along the shore of Kenai Lake, lies within the unit.

## C. Availability for Management as Wilderness or in an Unroaded Condition

### (1) Resource Potentials

**(a) Recreation Potential:** Lost Lake is a clean-water lake with high potential for recreation.

**(b) Fish Resource:** The Cooper Creek fisheries habitat has been impacted by power development at Cooper Lake. Opportunities exist for mitigation within the Cooper Creek watershed. Also opportunities for restoration of riparian spruce stands impacted by spruce bark beetle are also present.

**(c) Wildlife Resource:** There is an opportunity to improve moose winter range in the area through prescribed burning or other vegetation manipulation techniques. Other wildlife enhancement activities would be low scale and minor.

**(d) Timber Resource:** There are 7,500 acres inventoried as tentatively suitable for harvest. Spruce bark beetle infestations have impacted 37,500 acres.

**(e) Land Use Authorizations:** Cooper Lake is used for hydropower by Chugach Electric Association.

**(f) Minerals:** Most of the area is in a moderately mineralized potential zone for gold. There is also a weak zone of antimony within the southern portion of the area. There are five most favorable mineralized zones containing gold, silver, and arsenic in the area. There are 22 mines and 114 mining claims on National Forest System land within the area.

**(g) Cultural Resources:** There are 9 known cultural sites within the unit.

**(h) Areas of Scientific Interest:** The Kenai-Black Mountain is proposed as a Research Natural Area.

## **(2) Management Considerations**

**(a) Timber:** Bluejoint grass cover has increased 50 percent within productive stands killed within the past 20 years. The grass cover is expected to persist for 20-40 years depending on specific site conditions and prevent the re-establishment of forest cover.

**(b) Fire:** Wildfire danger in the unit is expected to increase as spruce bark beetle killed trees fall over, adding to the fuel loads and stands killed by the beetle infestation convert to an understory of grass. Prescribed burning for moose winter range has occurred within the unit.

**(c) Insect and Disease:** The spruce bark beetle has impacted 37,500 acres of forested land within the unit. Most spruce trees greater than 9 inches DBH have been killed.

**(d) Land Status:** There are 7,754 acres of state land and 196 acres of private land within the roadless area. All of these lands are adjacent to major roads. Wilderness designation would have no effect on access to these adjacent private lands.

## **D. Wilderness Evaluation**

**(1) Nearby Roadless and Wilderness Areas and Uses:** The area lies immediately to the east of Wilderness areas administered by the Kenai National Wildlife Refuge and the Kenai Fjords National Park. To the north and west of the unit, within 1/2 mile, lie the Resurrection, Johnson Pass and Kenai Mountains Roadless Areas.

**(2) Distance from Population Centers (Accessibility):** Cooper Landing and Seward are adjacent to the area. There is road access from Anchorage or from Kenai and Soldotna. Numerous trailheads lead into the area from the Sterling Highway, Seward Highway and Resurrection River Road.

**(3) Interest by Proponents:** The Russian River area is a very important sport fishing area. During the review of the DEIS there was some interest in establishing a Wilderness on the Kenai Peninsula.

**(4) Relative Contribution to the National Wilderness Preservation System:** If the Kenai Lake Roadless Area were designated as Wilderness it would add about 84,000 acres of the Western Kenai Mountain Ecosubsection, 91,000 acres of the Eastern Kenai Mountain Ecosubsection, and 37,000 acres of the Kenai Fjordlands Ecosubsection to the National Wilderness Preservation System. Habitat for wildlife and fish typically found on the Kenai Peninsula would be protected. Habitat manipulation would only be done to restore natural ecosystem conditions. The present motorized use on Kenai Lake would distract from the moderate opportunity for solitude in the area. Lost, Carter, Crescent, and other lakes would be managed in a Wilderness environment.

## E. Environmental Consequences

**(1) Management Area Prescriptions:** The following table shows the management area prescriptions by alternatives for the Kenai Lake Roadless Area. Management area prescriptions are described in the FEIS, Chapter 2.

<b>Management area prescriptions by alternative.</b>								
<b>Prescription #</b>	<b>NA</b>	<b>Preferred</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>
131							84,890	94,140
132		2,310						
134							2,780	2,780
140							5,960	5,960
141	3,730	5,960		5,960	5,960	5,960		
210		72,580						
211	63,220			510	123,960	112,420	28,820	24,780
212			31,680	73,350		860		
216						31,070	90	
217	63,220				85,360		21,450	
231								249
242		56,450	18,150	29,650	29,650	84,860	240	
244		34,980				3,040	67,140	83,630
312	144,830	38,790	22,540	99,220	49,500	4,640		40
314			104,940	3,090	2,710		210	
331		710						
521	1,090	1,090	1,090	1,090	1,090	1,090	1,090	1,090
522	90	90	90	90	90	90	90	90
<b>Total</b>	<b>212,960</b>	<b>212,960</b>	<b>212,960</b>	<b>212,960</b>	<b>212,960</b>	<b>212,960</b>	<b>212,960</b>	<b>212,960</b>

**(2) Environmental Impacts:** Under Alternatives F, about 44 percent of the Kenai Lake Roadless Area would be recommended for Wilderness designation. Under Alternative E, about 40 percent

would be recommended as Wilderness. The wilderness character and primitive opportunities on these lands would be protected. Mineral and timber outputs would be foregone. None of the Kenai Lake Roadless Area is recommended for Wilderness designation under any other alternatives.

About 68 percent of the Kenai Lake Roadless Area would be available to be managed with new Forest Service road construction under the No Action Alternative. Under Alternative A, about 60 percent of the roadless area would be available to be managed with new road construction. Under Alternative B, 48 percent would be available; under Alternative C, 24 percent would be available; under the Preferred Alternative, 19 percent; and under Alternative D, about 3 percent. Mineral and timber resources on these lands would be available.

It is projected that under the No Action Alternative 9.5 miles of new road could be built during the first decade. Under Alternative A, 4.8 miles could be constructed. Under alternative B, 7.5 miles; Alternative C, 0.8 miles; and, Alternative D, 0.5 miles. Over time, as new roads are constructed, the roadless character and primitive recreation opportunities on these lands would be lost. Under Alternative F, there would be no new road construction.

Road construction would be conditional on 16 percent under the Preferred Alternative. Minerals resources would be available. Over time, if new roads are constructed, the roadless character and primitive opportunities on some of these lands could be lost.

Under Alternative D, about 96 percent of the Kenai Lake Roadless Area would be managed or non-Wilderness roadless values, 76 percent under Alternative C, 65 under the Preferred Alternative, 52 percent under Alternative B, 40 percent under Alternative A, 29 percent under Alternative F, and 17 percent under Alternative E. Minerals resources would still be available. The roadless character and primitive opportunities on these lands would be maintained.

Long-term changes in plant and animal species diversity, in excess of the expected range of variability in the Kenai Lake Roadless Area, are not anticipated under any alternative (see pages C-3 and C-4). See FEIS, Chapter 3 for a more detailed disclosure of the effect of Wilderness/non-Wilderness management.



<b>Kenai Mountains Roadless Area</b>
--------------------------------------

**NAME:** 05 Kenai Mountains

**ACRES (GROSS):** 319,600      **ACRES (NFS):** 306,580

**PROVINCE:** Alaska Mixed Forest Province, Pacific Coastal Mountains Forest-Meadow Province and Pacific Gulf Coastal Forest-Meadow Province

**ECOSECTION:** Kenai Mountains Section, Chugach Mountain Section, and Northern Gulf Fjordlands Section

**ECOSUBSECTION:** M213Ba Turnagain Arm Subsection 6,500 acres;

M213Bc Eastern Kenai Mountains 124,000 acres;

M244Aa Chugach Icefields Subsection 156,280 acres;

M245Aa Kenai Fjordlands Subsection 17,300 acres;

M245Ab Prince William Sound Mainland Subsection 2,500 acres

#### **A. Description**

**(1) Relationship to RARE II Areas:** This roadless area encompasses the RARE II roadless areas 005A and 005B. It has a RARE II WARS rating of 23. The northern portion was a Further Planning Area in the RARE II EIS. The southern portion (005B) was nonwilderness, RARE II roadless.

**(2) History:** Portage Pass, at the north end of the unit, was used by Natives and early miners and explorers to travel between Prince William Sound and Turnagain Arm.

**(3) Location and Access:** The area is located on the Kenai Peninsula. It is bounded on the north by the Portage Highway and Alaska Railroad, on the east by the Nellie Juan roadless area, the south by state land along Resurrection Bay, and the west by the Seward Highway and Alaska Railroad. The area within 1/4 mile of established roads and the railroad has been excluded from the roadless area analysis. There is limited access to the area. The Ptarmigan Creek Trail, starting at Ptarmigan Campground at mile 23 of the Seward Highway; the Victor Creek Trail, several miles south of Ptarmigan Creek; and the Byron Glacier Trail, starting at the end of the Portage Glacier Road, extend into the area for several miles. An old mining road that is still used for access to mining claims extends up Falls Creek north of the Ptarmigan Campground.

#### **(4) Ecosystem**

**(a) Geography and Topography:** This area falls within four ecological subsections and three provinces. The northern most portion of the unit falls within the Turnagain Arm Subsection of the

Alaska Mixed Forest Province. The topography consists of steep tree covered and rocky sideslopes and the included valley bottoms. The valleys are normally characterized by glacial alluvial outwash; sideslopes were originally shaped by major valley glaciers. A very small portion near Passage Canal falls in the Chugach Ice Fields Subsection of the Pacific Coastal Mountains Forest-Meadow Province. The topography is very rugged with jagged mountains and nunataks surrounded by ice fields and glaciers. Elevations range from about 1,500 to 13,000 feet. The lithology consists of numerous types of marine siltstones and meta-sandstones.

The majority of the unit is within the Eastern Kenai Mountains Subsection. The topography consists of relatively jagged mountains and alpine valleys, many of which contain alpine glaciers in the upper portions. All of this area has been shaped by major alpine glaciation. Elevations range from 400 to 5,800 feet. The lithology consists of numerous types of marine slates and meta-sandstones. Soils are normally in alluvial or glacial deposits capped with volcanic ash. At higher elevations large areas of exposed rock occur.

A small part of the southern tip of the unit falls within the Kenai Fjordlands Subsection. The topography includes fiords with vegetated, steep, rugged mountains, and valley bottoms characterized by glacial alluvial outwash. Elevations range from sea level to 4,600 feet. The lithology consists primarily of marine shales, slates, and meta-sandstones.

**(b) Vegetation:** The area lying along Turnagain Arm consists of side slopes characterized by needleleaf forests of Sitka spruce, Lutz spruce, and mountain hemlock, mixed forests of Sitka or Lutz spruce and/or mountain hemlock and paper birch, broadleaf forests of paper birch, and tall scrubland of Sitka alder. Undergrowth species common within the forest zone include: bluejoint reedgrass, rusty menziesia, early blueberry, devil's club, wood fern, splendid feathermoss, and Schreber feathermoss. Valley bottoms and wetlands feature broadleaf forests of black cottonwood, needleleaf forests of spruce, scrublands dominated by Sitka alder, willows (especially Barclay and feltleaf), or sweetgale, and herbaceous vegetation dominated by one or more of the following: meadow horsetail, swamp horsetail, buckbean, marsh fivefinger, bluejoint reedgrass, Lygbyei and Sitka sedge, and tufted hairgrass. Alpine vegetation consists of dwarf scrublands and herbaceous vegetation types often dominated by such species as: crowberry, starry cassiope, bog blueberry, luetkea, bluejoint reedgrass, and rough fescue.

Vegetation is scarce within the Chugach Ice fields Subsection. Predominant plants are lichens and dwarf shrubs (e.g., crowberry, starry cassiope, luetkea, bog blueberry).

Within the Kenai Fjordlands Subsection characteristic needleleaf forest species feature Sitka spruce and/or mountain hemlock. Mixed forests are rare in this subsection (except in the drainages north of Seward where Lutz spruce and paper birch also occur). Tall scrubland dominated by Sitka alder characterizes avalanche chutes and beach fringe areas. Undergrowth species common beneath the tree canopies of the forest zone include: early and Alaska blueberry, devil's club, rusty menziesia, copperbush, yellow skunk-cabbage, deer cabbage, Pacific reedgrass, wood fern, splendid feathermoss, and rhytidiadelphus mosses. Characteristic species of the scrublands and herblands include: salmonberry, crowberry, bog blueberry, starry cassiope, Aleutian mountain heather, Luetkea, tall Alaska cotton grass, tufted clubrush, bluejoint reedgrass, beach rye, Lygbyei sedge, few-flowered sedge, many-flowered sedge, and sphagnum mosses.

Vegetation within the Eastern Kenai Mountains Subsection consists of needleleaf forest species include Lutz spruce and mountain hemlock. Mountain hemlock occurs primarily on sideslopes at low to mid elevations while Lutz spruce may be a dominant on both valley bottoms and sideslopes. Mixed forests species are primarily Lutz spruce and/or mountain hemlock and paper birch. Broadleaf forests are often dominated by paper birch and the tall scrubland dominant is Sitka alder. The spruce bark beetle is currently causing extensive mortality within the spruce forests of this subsection. Undergrowth species common within the forest zone include: bluejoint reedgrass, rusty menziesia, early blueberry, devil's club, wood fern, lowbush cranberry, crowberry, splendid feathermoss, and Schreber feathermoss. Broadleaf forests of black cottonwood and willow (especially Barclay and feltleaf) scrublands are normally found in the valley bottoms. Alpine vegetation consists of dwarf scrublands and herbaceous vegetation types often dominated by such species as: crowberry, starry cassiope, bog blueberry, luetkea, bluejoint reedgrass, and rough fescue

**(c) Soils:** The soils on most sideslopes are formed in parent material originating from either bedrock or glacial drift, which is covered with a layer of volcanic ash. In general they are usually well or moderately well drained, and moderately deep to deep. Soils range from very acidic under well-developed forested stands to slightly acid on treeless sites. Normally the soils have a surface organic layer, which is thickest under a forest canopy or in wetter areas. Tree and plant roots are restricted to the surface organic layer or the upper few inches of the mineral soil.

Shallow, well-drained, moderately acid soils are normally found on tops or small hills and in the alpine. Frequently there is only a thin surface organic layer. Plant roots are restricted to the surface organic layer and the upper few inches of the mineral soil.

Flat plateaus and basins commonly have numerous areas where soil drainage is restricted, which affords the development of very poorly to poorly drained, very acidic, shallow to deep organic soils. These are most common in areas of high precipitation.

Soils in the valley bottoms are usually formed in alluvial deposits and are well to poorly drained, depending on the depth of the water table, and slightly acid. Rooting is normally in the thin surface organic layer and the mineral soils.

**(d) Fish Resource:** The table below shows the mapped (known) amount of habitat available in the rivers and streams within the roadless area:

Species	Habitat Quality	Spawning Habitat (miles)	Rearing Habitat (miles)
Coho	High	0.4	5
Coho	Moderate	10.4	9
Coho	Low	5.5	2.4
Dolly Varden	Low	2.3	2.3
King	Moderate	0	1
King	Low	1	0
Pink	Low	1	0
Sockeye	High	0.4	5,507 acres
Sockeye	Moderate	15.3	0
Sockeye	Low	1.1	0

**(e) Wildlife Resource:** A wildlife habitat model for forested lands was run to show relative values of different habitat types between roadless areas. The model is based on a species list for the Kenai Peninsula and therefore is not totally accurate for the Prince William Sound and Copper River Delta ecosystems. Small changes in the habitat capability index are not significant. Changes of 0.1 or more show a definite difference in capability. Acreage figures for the different habitat types are more important than the habitat capability index. The following tables show species counts for each habitat type and habitat capacity and diversity for wildlife.

	Conifer/ Deciduous	Deciduous	Spruce	Spruce/ Hemlock	Hemlock
Land Birds	56	44	50	51	51
Aquatic Birds	6	7	8	8	8
Mammals	22	18	25	25	25

**Habitat capability and diversity of wildlife in the Kenai Mountains Area (05).**

Land Cover	Percent	Area (Acres)	Animal Species Diversity Index	Habitat Capability for Forested Habitats			
				Land Birds	Aquatic Birds	Mammals	Combined
Hemlock/spruce	4.2	12,900	0.85	0.40	0.34	0.54	0.44
Noncommercial	0.0	0					
Seedling/sapling	7.0	900					
Midsuccessional	68.2	8800					
Old-growth	24.8	3200					
Hemlock	3.9	11,920	0.86	0.31	0.29	0.45	0.35
Noncommercial	32.7	3900					
Seedling/sapling	0.3	30					
Midsuccessional	66.3	7900					
Old-growth	0.8	90					
Spruce	1.9	5,720	0.90	0.57	0.52	0.63	0.56
Noncommercial	12.2	700					
Seedling/sapling	0.3	20					
Midsuccessional	35.0	2000					
Old-growth	52.4	3000					
Deciduous	1.0	3,100	0.60	0.28	0.28	0.45	0.32
Noncommercial	6.5	200					
Seedling/sapling	9.7	300					
Midsuccessional	71.0	2200					
Old-growth	12.9	400					
Conifer/deciduous	0.3	1,000	0.78	0.26	0.28	0.41	0.33
Noncommercial	0.0	0					
Seedling/sapling	0.0	0					
Midsuccessional	90.0	900					
Old-growth	10.0	100					
Shrubs	13.2	40,600					
Nonshrub vegetation	15.5	47,500					
Lakes	2.1	6,300					
Other (e.g., rock, ice)	57.9	177,400					
Data missing	0.0	100					
<b>Total</b>	<b>100.0</b>	<b>306,580</b>	<b>0.25<sup>5</sup></b>				

<sup>5</sup> The combined diversity index includes shrub, nonshrub vegetation, lakes, rock, ice, and no data. It is not just the mean of the timbered habitats.

**(f) Threatened, Endangered and Sensitive Species:** No federally listed threatened or endangered species occur within the area. The following Alaska Region sensitive species are known or suspected to occur in or near the area:

Crucifer, no common name ( <i>Apragmus escholtzianus</i> )	known
Norberg arnica ( <i>Arnica lessigii</i> ssp. <i>norbergii</i> )	known
Goose-grass sedge ( <i>Carex lenticularis</i> var. <i>dolia</i> )	known
Northern rockcress ( <i>Draba borealis</i> var. <i>maxima</i> )	suspected
Kamchatka rockcress ( <i>Draba kamtschatica</i> )	known
Tundra whitlow-grass ( <i>Draba kananaskis</i> )	known
Truncate quillwort ( <i>Isoetes truncata</i> )	suspected
Calder lovage ( <i>Ligusticum calderi</i> )	suspected
Pale poppy ( <i>Papaver alboroseum</i> )	known
Choris bog orchid ( <i>Platanthera chorisiana</i> )	suspected
Smooth alkali grass ( <i>Puccinellia glabra</i> )	known
Kamchatka alkali grass ( <i>Puccinellia kamtschatica</i> )	suspected
Unalaska mist-maid ( <i>Romanzoffia unalaschensis</i> )	suspected
Circumpolar starwort ( <i>Stellaria ruscifolia</i> ssp. <i>aleutica</i> )	suspected

**(5) Current Use and Management:** Most of this area (301,880 acres) falls within Management Area 2, East Side in the 1984 Forest Plan. The primary management goals applicable to this area are to increase dispersed recreation opportunities, enhance wildlife habitat and increase fish habitat. Five thousand three hundred acres along the Seward Highway fall within Management Area 1, Road Corridor. Primary management goals for this area are to increase and improve dispersed and developed recreation opportunities, maintain landscape character, and maintain and enhance wildlife and fish habitat. Timber management is recognized as a primary management practice in this management area. An additional 4,700 acres fall within Management Area 6, College Fiord. There are two public use cabins in the area. There are several active mining claims in the vicinity of Moose Pass. Recreation use is heaviest adjacent to the developed recreation sites outside the unit at Portage and Ptarmigan Creek. Recreation use is light throughout the area. Helicopter skiing is permitted in the area.

**(6) Historic motorized use:** The area around Byron Glacier at the north edge of the unit is closed to motorized and snowmobile use year round. The Ptarmigan Creek Trail is closed to motorized vehicles from May 1 to November 30. Miners use motorized vehicles to access their claims in the Falls Creek area.

**(7) Appearance (Apparent Naturalness):** The majority of this roadless area is natural appearing, where only ecological change has occurred. There are 0.3 miles of local road and 7 miles of private road within the unit. The table below displays the scenic integrity for the mapped acres of the roadless area.

Scenic Integrity	Acres
Very High	299,020
High	4,400
Moderate	3,100
Low	60
Very Low	0

The majority of this roadless area, over 97 percent, is natural appearing, where only ecological change has occurred (Scenic Integrity Very High). Slightly over one percent has a scenic integrity of High, where human activity has occurred but is not apparent to the average viewer. Scenic Integrity Moderate, where evidence of human activity is apparent, and Scenic Integrity low, where change in the natural appearance is dominant, account for one percent.

**(8) Surroundings (External Influences):** The area is bounded on the west by the Seward Highway and Alaska Railroad. The town of Seward abuts the southern end of the unit and Moose Pass is adjacent to the western edge. Portage sits at the northern edge of the area. The sounds of highway traffic, residential, and commercial activities can be heard until topographic breaks drown out the sound. The Nellie Juan-College Fiord Wilderness Study Area forms the eastern boundary of the unit. There are several parcels of private land held by the Chugach Alaska Corporation on the southeast part of the area.

**(9) Attractions and Features of Special Interest:** There are several spectacular lakes including Ptarmigan and Grant Lakes. Snow River is an eligible as a Wild river under the Wild and Scenic Rivers Act. Portage Creek is eligible as a Recreation River under the Act.

## **B. Capability of Management as Wilderness or in an Unroaded Condition**

**(1) Manageability and Management Area Boundaries:** The area is bounded by paved road or railroad on the north and west. The southern boundary, which abuts state land, is not well defined. The western boundary is, for the most part, the topographic divide between the Kenai Peninsula and Prince William Sound. Feasibility of managing in a roadless condition is high.

**(2) Natural Appearance and Integrity:** This area has a very high degree of natural integrity. Most long-term ecological processes are intact and operating. While some evidence of human activity

exists (e.g., mining operating, trails, and cabins), these activities have had little or no effect on the natural appearance of the area.

**(3) Opportunity for Solitude:** The opportunity for solitude in the area is high. The area is very large with a high level of topographic screening. The distance from the perimeter to the core is between six and eighteen miles.

**(4) Opportunity for Primitive Recreation:** The area provides primarily Primitive, Semi-primitive Nonmotorized, and Semi-primitive Motorized opportunities.

ROS Class	Acres
Primitive 1(P1)	211,370
Primitive 2 (P2)	13,700
Semi-primitive Nonmotorized (SPNM)	69,800
Semi-primitive Motorized (SPM)	4,300
Roaded Natural (RN)	7,400
Roaded (R)	10

There are 11 miles of maintained trail and 30 miles of unmaintained trail in the area. The unmaintained trail goes from Ptarmigan Lake to Paradise Lake. There are two recreation cabins at Paradise Lake.

**(5) Special Features (Ecologic, Geologic, Scientific):** Portage Lake Glacier and Portage Creek are eligible for Wild and Scenic River designation.

### C. Availability for Management as Wilderness or in an Unroaded Condition

#### (1) Resource Potentials

**(a) Recreation Potential:** Paradise Lake is a clear water lake. Ice fields.

**(b) Fish Resource:** Riparian vegetation manipulation, primarily the planting of spruce trees in spruce bark beetle impacted stands is an important fish habitat restoration activity.

**(c) Wildlife Resource:** Opportunities for wildlife enhancement are low.

**(d) Timber Resource:** There are 3,700 acres inventoried as tentatively suitable for harvest. Spruce bark beetle infestations have impacted 3,400 acres.

**(e) Land Use Authorizations:** A portion of Grant Lake is under a water power development withdrawal.

**(f) Minerals:** The western portion of the area is within a most favorable and moderately favorable mineral potential zone containing gold. There is one potentially heavily mineralized zone in the vicinity of Falls Creek containing gold and silver. There are

14 mines and 78 mining claims on National Forest System land within the area. There is an area rated as undiscovered, highly favorable for gold along the northeast part of the area.

**(g) Cultural Resources:** There are 6 known cultural sites within the area.

**(h) Areas of Scientific Interest:** The area contains a proposed Research Natural Areas, at Wolverine Glacier near Paradise Lake.

## **(2) Management Considerations**

**(a) Timber:** The spruce bark beetle has killed many of the spruce trees near Kenai Lake and is projected to move south through the unit.

**(b) Fire:** Wildfire is not a significant problem in this area.

**(c) Insect and Disease:** The spruce bark beetle has impacted 3,400 acres of forested land within the unit. Most spruce trees greater than 9 inches DBH have been killed.

**(d) Land Status:** There are 13,020 acres of state and private land within the roadless area. Most of these lands are adjacent to major roads. Wilderness designation would have no effect on access to these adjacent private lands. State lands border the roadless area to the south. Wilderness designation would limit access to these lands through Prince William Sound. A portion of Grant Lake is under a hydropower withdrawal. There are 3 parcels of Native Corporation lands on the southeast border of the area. Wilderness designation would prevent access to these lands.

## **D. Wilderness Evaluation**

**(1) Nearby Roadless and Wilderness Areas and Uses:** This area lies immediately to the west of the Nellie Juan Wilderness Study Area identified by Congress in ANILCA. The Kenai Lake and Johnson Pass roadless areas lie within 1/2 mile to the west of this area. The Twentymile roadless area is to the north. The Kenai National Wildlife Refuge Wilderness is about 20 miles to the west. The Kenai Fjords National Park is about 15 miles to the west.

**(2) Distance from Population Centers (Accessibility):** The northern edge of the unit is 45 miles road miles from Anchorage at Portage. Seward lies adjacent to the southwestern edge of the unit and Moose Pass lies along the western boundary.

**(3) Interest by Proponents:** There is a moderate interest in Wilderness classification.

**(4) Relative Contribution to the National Wilderness Preservation System:** If the Kenai Mountain Roadless Area were designated as Wilderness it would add about 6,000 acres of the

Turnagain Arm Ecosubsection, 124,000 acres of the Eastern Kenai Mountain Ecosubsection, 156,000 acres of the Chugach Icefields Ecosubsection, and 17,000 acres of the Kenai Fjordlands Ecosubsection to the National Wilderness Preservation System. - Habitat for wildlife and fish typically found on the Kenai Peninsula would be protected. Habitat manipulation would only done to restore natural ecosystem conditions. Wilderness management would protect the high opportunity for solitude in the area. Byron Glacier, Portage Glacier, Snow River, Portage Creek and Ptarmigan, Paradise, and Grant, and other lakes would be managed in a Wilderness environment.

### E. Environmental Consequences

**(1) Management Area Prescriptions:** The following table shows the management area prescriptions by alternatives for the Kenai Mountain Roadless Area. Management area prescriptions are described in the FEIS, Chapter 2.

<b>Management area prescriptions by alternative.</b>								
<b>Prescription #</b>	<b>NA</b>	<b>Preferred</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>
131	48,160					107,480	101,720	219,200
132		6,400				7,910	1,030	6,120
134								7,910
140	50	50				50	50	50
210		251,280						
211				11,020	243,280	170,480	101,570	41,240
212			218,070	197,230	29,160			
213							76,140	
231		2,840			7,910		1,330	1,330
242		2,090				30		440
244								27,890
312	257,840	43,080	6,050	89,120	25,700	18,660	10,890	10
314			13,190	770				
331		310		7,910			310	
341						1,550		1,550
411			68,740					
521	530	530	530	530	530	530	530	530
<b>Total</b>	<b>306,580</b>	<b>306,580</b>	<b>306,580</b>	<b>306,580</b>	<b>306,580</b>	<b>306,580</b>	<b>306,580</b>	<b>306,580</b>

**(2) Environmental Impacts:** Under Alternatives F, about 72 percent of the Kenai Mountain Roadless Area would be recommended for Wilderness designation. Under Alternative D, about 35 percent would be recommended as Wilderness. Under Alternative, about 33 percent would be recommended. The wilderness character and primitive opportunities on these lands would be protected. Mineral and timber outputs would be foregone. The three parcels of Native corporation lands on the southeast border of the area would not be accessible if the area were designated as Wilderness. None of the Kenai Mountain Roadless

Area is recommended for Wilderness designation under any other alternatives.

About 85 percent of the Kenai Mountain Roadless Area would be available to be managed with new Forest Service road construction under the No Action Alternative. Under Alternative B, about 32 percent of the roadless area would be available to be managed with new road construction. Under Alternative A, 28 percent would be available, under the Preferred Alternative 13, percent, under Alternative C, 9 percent would be available, under Alternative D, about 6 percent, and under Alternative E, about 34 percent. Mineral and timber resources on these lands would be available.

It is projected that under the No Action Alternative 4.6 miles of new road could be constructed during the first decade. Under Alternative B, 3.6 miles could be constructed. Under Alternative A, 2.3 miles; the preferred Alternative, 0.4 miles; Alternative C, 0.4 miles, Alternative D, 0.3 miles; and, Alternative E 0.2 miles. Under Alternative F, there would be no new road construction.

Under Alternative C, about 91 percent of the Kenai Mountain Roadless Area would be managed or non-Wilderness roadless values. Under the Preferred Alternative about 87 percent of the roadless area would be managed for roadless values, 72 percent under Alternative A, 68 percent under Alternative B, 63 percent under Alternative E, 59 percent under Alternative D, 68 percent under Alternative B, and 28 percent under Alternative F. Minerals resources would still be available. The roadless character and primitive opportunities on these lands would be maintained.

Long-term changes in plant and animal species diversity, in excess of the expected range of variability in the Kenai Mountain Roadless Area, are not anticipated under any alternatives (see pages C-3 and C-4). See FEIS, Chapter 3 for a more detailed disclosure of the effect of Wilderness/non-Wilderness management.



<b>Twentymile Roadless Area</b>
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**NAME:** 06 Twentymile

**ACRES (GROSS):** 213,840

**ACRES (NFS):** 198,560

**PROVINCE:** Alaska Mixed Forest, Pacific Gulf Coastal Forest-Meadow

**ECOSECTION:** Kenai Mountain, Chugach Mountain, Northern Gulf Fjordlands

**ECOSUBSECTION:** M213Ba Turnagain Arm 25,800 acres,

M213Bb Western Kenai Mountains 6,300 acres,

M213Bc Eastern Kenai Mountains 42,700 acres,

M244Aa Chugach Icefields 115,340 acres,

M245Ab Prince William Sound Mainland 8,400 acres

### **A. Description**

**(1) Relationship to RARE II Areas:** This roadless area encompasses the RARE II roadless area 006. It has a RARE II WARS rating of 23. It was recommended for further planning in the RARE II EIS.

**(2) History:** Portage Pass, at the south end of the unit, was used by Natives and early miners and explorers to travel between Prince William Sound and Turnagain Arm. During construction of the Alaska Railroad tie hackers cut trees from the Twentymile Drainage.

**(3) Location and Access:** The area lies to the north of Turnagain Arm and Passage Canal. It is bounded to the north and east by state land. Access to the interior is limited. Jet boats, airboats and canoes can travel up Twentymile drainage for several miles. Crow Pass Trail, on state selected land, cuts through a small part at the northwest corner of the unit.

### **(4) Ecosystem**

**(a) Geography and Topography:** This area falls within five ecological subsections and two provinces. The southwestern portion of the unit falls within the Turnagain Arm Subsection of the Alaska Mixed Forest Province. The topography consists of steep tree covered and rocky sideslopes and the included valley bottoms. The valleys are normally characterized by glacial alluvial outwash; sideslopes were originally shaped by major valley glaciers. A very small portion near Passage Canal falls in the Chugach Icefields Subsection of the Pacific Coastal Mountains Forest-Meadow Province. The topography is very rugged with jagged mountains and nunataks surrounded by ice fields and glaciers. Elevations

range from about 1,500 to 13,000 feet. The lithology consists of numerous types of marine siltstones and meta-sandstones.

The topography within the Eastern Kenai Mountains Subsection consists of relatively jagged mountains and alpine valleys, many of which contain alpine glaciers in the upper portions. All of this area has been shaped by major alpine glaciation. Elevations range from 400 to 5,800 feet. The lithology consists of numerous types of marine slates and meta-sandstones. Soils are normally in alluvial or glacial deposits capped with volcanic ash. At higher elevations large areas of exposed rock occur.

Within the Chugach Icefields Subsection the topography is very rugged with jagged mountains and nunataks surrounded by ice fields and glaciers. Elevations range from about 1,500 to 6,000 feet. The lithology consists of numerous types of marine siltstones and meta-sandstones with several granite intrusions.

**(b) Vegetation:** The area lying along Turnagain Arm consists of side slopes characterized by needleleaf forests of Sitka spruce, Lutz spruce, and mountain hemlock, mixed forests of Sitka or Lutz spruce and/or mountain hemlock and paper birch, broadleaf forests of paper birch, and tall scrubland of Sitka alder. Undergrowth species common within the forest zone include: bluejoint reedgrass, rusty menziesia, early blueberry, devil's club, wood fern, splendid feathermoss, and Schreber feathermoss. Valley bottoms and wetlands feature broadleaf forests of black cottonwood, needleleaf forests of spruce, scrublands dominated by Sitka alder, willows (especially Barclay and feltleaf), or sweetgale, and herbaceous vegetation dominated by one or more of the following: meadow horsetail, swamp horsetail, buckbean, marsh fivefinger, bluejoint reedgrass, Lygbyei and Sitka sedge, and tufted hairgrass. Alpine vegetation consists of dwarf scrublands and herbaceous vegetation types often dominated by such species as: crowberry, starry cassiope, bog blueberry, luetkea, bluejoint reedgrass, and rough fescue.

Vegetation is scarce within the Chugach Icefields Subsection. Predominant plants are lichens and dwarf shrubs (e.g., crowberry, starry cassiope, luetkea, bog blueberry).

Vegetation within the Eastern Kenai Mountains Subsection consists of needleleaf forest species include Lutz spruce and mountain hemlock. Mountain hemlock occurs primarily on sideslopes at low to mid elevations while Lutz spruce may be a dominant on both valley bottoms and sideslopes. Mixed forests species are primarily Lutz spruce and/or mountain hemlock and paper birch. Broadleaf forests are often dominated by paper birch and the tall scrubland dominant is Sitka alder. The spruce bark beetle is currently

causing extensive mortality within the spruce forests of this subsection. Undergrowth species common within the forest zone include: bluejoint reedgrass, rusty menziesia, early blueberry, devil's club, wood fern, lowbush cranberry, crowberry, splendid feathermoss, and Schreber feathermoss. Broadleaf forests of black cottonwood and willow (especially Barclay and feltleaf) scrublands are normally found in the valley bottoms. Alpine vegetation consists of dwarf scrublands and herbaceous vegetation types often dominated by such species as: crowberry, starry cassiope, bog blueberry, luetkea, bluejoint reedgrass, and rough fescue.

**(c) Soils:** The soils on most sideslopes are formed in parent material originating from either bedrock or glacial drift that is covered with a layer of volcanic ash. In general they are usually well or moderately well drained, and moderately deep to deep. Soils range from very acidic under well-developed forested stands to slightly acid on treeless sites. Normally the soils have a surface organic layer that is thickest under a forest canopy or in wetter areas. Tree and plant roots are restricted to the surface organic layer or the upper few inches of the mineral soil.

Shallow, well-drained, moderately acid soils are normally found on tops or small hills and in the alpine. Frequently there is only a thin surface organic layer. Plant roots are restricted to the surface organic layer and the upper few inches of the mineral soil.

Flat plateaus and basins commonly have numerous areas where soil drainage is restricted, which affords the development of very poorly to poorly drained, very acidic, shallow to deep organic soils. These are most common in areas of high precipitation.

Soils in the valley bottoms are usually formed in alluvial deposits and are well to poorly drained, depending on the depth of the water table, and slightly acid. Rooting is normally in the thin surface organic layer and the mineral soils.

**(d) Fish Resource:** The following table displays the mapped (known) amount of habitat available.

Species	Habitat Quality	Spawning Habitat (miles)	Rearing Habitat (miles)
Chum	Moderate	18.3	0
Coho	High	9.9	31.7
Coho	Moderate	17.9	14.5
Coho	Low	28.9	12.7
Dolly Varden	High	4.9	8.8
Dolly Varden	Low	23.1	15.9
King	Moderate	12.8	16.1
Pink	Moderate	5	0
Pink	Low	6.8	0
Sockeye	High	6.5	8,633 acres
Sockeye	Moderate	27.7	0
Sockeye	Low	11.3	0

**(e) Wildlife Resource:** A wildlife habitat model for forested lands was run to show relative values of different habitat types between roadless areas. The model is based on a species list for the Kenai Peninsula and therefore is not totally accurate for the Prince William Sound and Copper River Delta ecosystems. Small changes in the habitat capability index are not significant. Changes of 0.1 or more show a definite difference in capability. Acreage figures for the different habitat types are more important than the habitat capability index. The following tables show species counts for each habitat type and habitat capacity and diversity for wildlife.

	Conifer/ Deciduous	Deciduous	Spruce	Spruce/ Hemlock	Hemlock
Land Birds	56	44	50	51	51
Aquatic Birds	6	7	8	8	8
Mammals	22	18	25	25	25

**Habitat capability and diversity of wildlife in the Twentymile Area (06).**

Land Cover	Percent	Area (Acres)	Animal Species Diversity Index	Habitat Capability for Forested Habitats			
				Land Birds	Aquatic Birds	Mammals	Combined
Hemlock/spruce	1.8	3,500	0.86	0.43	0.39	0.56	0.46
Noncommercial	2.9	100					
Seedling/sapling	0.0	0					
Midsuccessional	65.7	2,300					
Old-growth	31.4	1,100					
Hemlock	7.8	15,410	0.88	0.34	0.31	0.43	0.36
Noncommercial	53.9	8,300					
Seedling/sapling	0.1	10					
Midsuccessional	44.1	6,800					
Old-growth	1.9	300					
Spruce	1.0	2,080	0.92	0.74	0.66	0.69	0.72
Noncommercial	3.8	80					
Seedling/sapling	0.0	0					
Midsuccessional	4.8	100					
Old-growth	91.3	1,900					
Deciduous	3.0	5,900	0.61	0.30	0.35	0.45	0.34
Noncommercial	13.6	800					
Seedling/sapling	1.7	100					
Midsuccessional	62.7	3,700					
Old-growth	22.0	1,300					
Conifer/deciduous	0.6	1,260	0.78	0.24	0.26	0.39	0.31
Noncommercial	0.0	0					
Seedling/sapling	0.0	0					
Midsuccessional	95.2	1,200					
Old-growth	4.8	60					
Shrubs	14.3	28,400					
Nonshrub vegetation	14.7	29,100					
Lakes	1.0	2,000					
Other (e.g., rock, ice)	55.8	110,910					
Data missing	0.0	0					
<b>Total</b>	<b>100.0</b>	<b>198,560</b>	<b>0.24<sup>b</sup></b>				

<sup>6</sup> The combined diversity index includes shrub, nonshrub vegetation, lakes, rock, ice, and no data. It is not just the mean of the timbered habitats.

**(f) Threatened, Endangered and Sensitive Species:** No federally listed threatened or endangered species occur within the area. The following Alaska Region sensitive species are known or suspected to occur in or near the area:

Crucifer, no common name ( <i>Apragmus escholtzianus</i> )	known
Norberg arnica ( <i>Arnica lessigii</i> ssp. <i>norbergii</i> )	known
Goose-grass sedge ( <i>Carex lenticularis</i> var. <i>dolia</i> )	known
Northern rockcress ( <i>Draba borealis</i> var. <i>maxima</i> )	suspected
Kamchatka rockcress ( <i>Draba kamtschatica</i> )	known
Tundra whitlow-grass ( <i>Draba kananaskis</i> )	known
Truncate quillwort ( <i>Isoetes truncata</i> )	suspected
Calder lovage ( <i>Ligusticum calderi</i> )	suspected
Pale poppy ( <i>Papaver alboroseum</i> )	known
Choris bog orchid ( <i>Platanthera chorisiana</i> )	suspected
Smooth alkali grass ( <i>Puccinellia glabra</i> )	known
Kamchatka alkali grass ( <i>Puccinellia kamtschatica</i> )	suspected
Unalaska mist-maid ( <i>Romanzoffia unalascensis</i> )	suspected
Circumpolar starwort ( <i>Stellaria ruscifolia</i> ssp. <i>aleutica</i> )	suspected

**(5) Current Use and Management:** Recreation use of this area is light. Most activity occurs along the Twentymile River or in the Crow Pass area along the Crow Pass Trail. Backcountry skiing, mountaineering, and hiking takes place in the glaciers and mountains near Crow Pass. Most of this area (171,760 acres) falls within Management Area 2, East Side in the 1984 Forest Plan. The primary management goals applicable to this area are to increase dispersed recreation opportunities, enhance wildlife habitat and increase fish habitat. Four thousand eight hundred acres along the Seward Highway fall within Management Area 1, Road Corridor. Primary management goals for this area are to increase and improve dispersed and developed recreation opportunities, maintain landscape character, and maintain and enhance wildlife and fish habitat. Timber management is recognized as a primary management practice in this management area. The remainder of the unit, 22,000 acres, falls within Management Area 6, College Fiord. The primary management goals for this area are to increase developed and dispersed recreation, enhance marine oriented recreation opportunities, maintain landscape character, maintain existing wilderness character in areas recommended for Wilderness, recommend Wilderness designation, maintain wildlife habitat and improve fish habitat. This small portion of the unit is within the Wilderness Study Area established by Congress.

There is one developed public use cabins in the area on state selected land at Crow Pass. There are several special use permit cabins in the Twentymile drainage.

**(6) Historic motorized use:** Jet boats, air boats and hover craft use the Twentymile River. Some snowmachine use takes place in the Twentymile drainage. The Crow Pass and Glacier/Winner

Creek Trails are closed to motorize vehicles, including snowmobiles, all year.

**(7) Appearance (Apparent Naturalness):** This area has a high degree of natural integrity. Most long-term ecological processes are intact and operating. Some evidence of human activity exists (cabins, old logging activity) but these activities have little effect on the natural integrity of the area. The table below displays the scenic integrity for the mapped acres of the roadless area.

Scenic Integrity	Acres
Very High	189,038
High	9,300
Moderate	200
Low	22

**(8) Surroundings (External Influences):** The southern boundary of the unit abuts the Seward Highway, Portage Valley Road, Alaska Railroad, and Passage Canal. There is extensive road and marine based activity that takes place along the southern edge. The western edge of the unit abuts the community of Girdwood and Alyeska Ski Resort. The northern edge of the unit abuts the Chugach State Park and undisturbed. The eastern edge abuts Roadless Area 09 College Fiord.

**(9) Attractions and Features of Special Interest:** The Twentymile River has been found eligible as a Scenic River under the Wild and Scenic Rivers Act.

## B. Capability of Management as Wilderness or in an Unroaded Condition

**(1) Manageability and Management Area Boundaries:** The state land boundaries adjacent to the area are not well defined on the ground. State land below the mean high tide line is also poorly defined. The western boundary is the watershed dividing line with the College Fiord Roadless Area.

**(2) Natural Appearance and Integrity:** This area has a very high degree of natural integrity. Most long-term ecological processes are intact and operating. While some evidence of human activity exists (e.g., trails, and cabins), these activities have had little or no effect on the natural appearance of the area.

**(3) Opportunity for Solitude:** The opportunity for solitude in the area is high. The area provides a high level of topographic screening. The distance from the perimeter to the core is 7-10 miles.

**(4) Opportunity for Primitive Recreation:** The opportunity for primitive recreation is very high as a result of highly diverse recreation opportunities, a high level of challenge for the recreation

user and few or no developments in the area. The area provides primarily Primitive, Semi-primitive Nonmotorized, and Semi-primitive Motorized opportunities. There are 45 miles of identified trails in the area.

<b>ROS Class</b>	<b>Acres</b>
Primitive 1 (P1)	141,460
Semi-primitive Nonmotorized (SPNM)	49,400
Semi-primitive Motorized (SPM)	4,500
Roaded Natural (RN)	3,200

**(5) Special Features (Ecologic, Geologic, Scientific):**  
Twentymile River, Crow Pass.

### **C. Availability for management as Wilderness or in an unroaded condition**

#### **(1) Resource Potentials**

**(a) Recreation Potential:** Forty-five miles of trail, wildlife viewing, and glaciers.

**(b) Fish Resource:** Some opportunity exists for off channel habitat development in the wetland associated with the 20-mile system.

**(c) Wildlife Resource:** The Twentymile drainage contains habitat for waterfowl and moose with some potential for habitat improvement projects. Most of the unit has low potential for vegetation or habitat manipulation.

**(d) Timber Resource:** There are 2,940 acres of tentatively suitable timber .

**(e) Land Use Authorizations:** There are several special use permits for recreation cabins within the Twentymile drainage. Helicopter skiing is permitted within the area.

**(f) Minerals:** The area falls within a zone of most favorable and moderately favorable mineral potential zone containing gold. There is a highly mineralize gold and silver bearing zone in the Crow Pass area. There is also a unidentified, highly favorable mineralized zone of molybdenum at Crow Pass. There are 10 mines and 39 mining claims on National Forest System land within the area.

**(g) Cultural Resources:** There are 4 known cultural sites within the area.

**(h) Areas of Scientific Interest:** There are no areas of scientific interest identified in this area.

#### **(2) Management Considerations**

**(a) Timber:** There is very little opportunity for commercial timber harvest.

**(b) Fire:** Wildfire is not a significant problem in this unit.

**(c) Insect and Disease:** Five hundred acres of spruce forest have been infested with spruce bark beetle.

**(d) Land Status:** There are 15,280 of state and private land within the roadless area. Most of these lands are adjacent to major roads or salt water. Wilderness designation would have no effect on access to these lands. Some state lands border the roadless area to the south. Wilderness designation would limit access to lands in Prince William Sound to salt water access.

#### **D. Wilderness Evaluation**

**(1) Nearby Roadless and Wilderness Areas and Uses:** This unit lies immediately to the west of the College Fiord Roadless Area and Nellie Juan-College Fiord Wilderness Study Area. Roadless areas 02 Boston Bar and 05 Kenai Mountains lie within 1/2 mile to the south of the unit. The Kenai National Wildlife Refuge Wilderness is about 50 miles to the west.

**(2) Distance from Population Centers (Accessibility):** Anchorage is about 35 miles by road from the unit. Girdwood lies adjacent to the western border of the unit and Whittier lies at its southern end. The Crow Pass Road extends into the unit at the northwest corner. There is floatplane access into Carmen Lake.

**(3) Interest by Proponents:** There is a moderate interest in Wilderness designation.

**(4) Relative Contribution to the National Wilderness Preservation System:** If the Twentymile Mountain Roadless Area were designated as Wilderness it would add about 25,000 acres of the Turnagain Arm Ecosubsection, 6,000 acres of the Western Kenai Mountain Ecosubsection, 42,000 acres of the Eastern Kenai Mountain Ecosubsection, and 115,000 acres of the Chugach Icefields Ecosubsection to the National Wilderness Preservation System. Habitat for wildlife and fish typically found on the Kenai Peninsula would be protected. Habitat manipulation would only done to restore natural ecosystem conditions. Wilderness management would protect the high opportunity for solitude in the area. Crow Pass and Twentymile Creek would be managed in a Wilderness environment.

## E. Environmental Consequences

**(1) Management Area Prescriptions:** The following table shows the management area prescriptions by alternatives for the Twentymile Roadless Area. Management area prescriptions are described in the FEIS, Chapter 2.

Management area prescriptions by alternative.								
Prescription #	NA	Preferred	A	B	C	D	E	F
131							102,110	100,190
134							12,760	12,760
210		184,830						
211	110				43,960	93,400	45,020	33,470
212			91,160	197,470	121,970	91,210	34,770	37,060
231		12,760						
244					19,400	1,440		14,830
312	198,200	720	71,580		12,980	11,260	3,650	
314			3,490	840				
411			32,130					
521	230	230	230	230	230	230	230	230
<b>Total</b>	<b>198,540</b>							

**(2) Environmental Impacts:** Under Alternatives E and F, about 57 percent of the Twentymile Roadless Area would be recommended for Wilderness designation. The wilderness character and primitive opportunities on these lands would be protected. Mineral and timber outputs would be foregone. None of the Twentymile Roadless Area is recommended for Wilderness designation under any other alternatives.

All of the Twentymile Roadless Area would be available to be managed with new Forest Service road construction under the No Action Alternative. Under Alternative B, about 96 percent of the roadless area would be available to be managed with new road construction. Under Alternative A, 76 percent would be available, under Alternative D, 20 percent would be available, and under Alternative C, about 32 percent. Under the Preferred Alternative, about 8 percent would be available. Mineral and timber resources on these lands would be available.

It is projected that under the No Action Alternative, 3.7 miles of new road could be constructed during the first decade. Under Alternative B, 3.0 miles could be constructed. Under Alternative A, 1.0 miles; Alternative D, 0.2 miles; Alternative C, 0.3 miles; and, the Preferred Alternative, 0.3 miles. Over time, as new roads are constructed, the roadless character and primitive recreation opportunities would be lost on these lands. Under Alternative F, there would be not new road construction.

Road construction would be conditional on 6 percent of the Twentymile Roadless Area under Alternative B and 1 percent under Alternative C. Minerals resources would be available. Over time, if new roads are constructed, the roadless character and primitive opportunities on some of these lands could be lost.

Under the No Action and the Preferred Alternative, about 100 percent of the Twentymile Roadless Area would be managed for non-Wilderness roadless values. Under Alternative D, about 93 percent would be managed for non-Wilderness roadless values; under Alternative B, 83 percent; under Alternative D, 46 percent; under the Preferred Alternative, 46 percent; under Alternative F, 43 percent; and under Alternative E, 40 percent. Minerals resources would still be available. The roadless character and primitive opportunities on these lands would be maintained.

Long-term changes in plant and animal species diversity, in excess of the expected range of variability in the Twentymile Roadless Area, are not anticipated under any alternative (see pages C-3 and C-4). See FEIS, Chapter 3 for a more detailed disclosure of the effect of Wilderness/non-Wilderness management.



<b>Nellie Juan Roadless Area</b>
----------------------------------

**NAME:** 07 Nellie Juan

**ACRES (GROSS):** 924,870      **ACRES (NFS):** 734,100

**PROVINCE:** Pacific Coastal Mountains Forest-Meadow Province and Pacific Gulf Coastal Forest-Meadow Province

**ECOSECTION:** Chugach Mountain Section and Northern Gulf Fjordlands Section

**ECOSUBSECTION:** M244Aa Chugach Icefields Subsection (463,300 acres),

M245Aa Kenai Fjordlands Subsection (3,900 acres),

M245Ab Prince William Sound Mainland Subsection (191,700 acres),

M245Ac Prince William Sound Islands Subsection (75,200 acres)

#### **A. Description**

**(1) Relationship to RARE II Areas:** Most of this roadless area is one of the administratively endorsed Wilderness areas that predate the RARE II process and was not further evaluated during RARE II. RARE II roadless area 011 falls within the boundary of this unit and was a Further Planning Area in the RARE II EIS. The WARS rating for the Wilderness Study Area is 25.

**(2) History:** The coastline is within the historic range of the Chugach Eskimos, who lived in the area for thousands of years. The old village site of Chenega, destroyed by the 1964 earthquake, lies within this roadless area. Captain James Cook entered Prince William Sound in 1778 and in 1793 the Russians established a fort at Nuchek village in PWS to begin trading for sea otters.

**(3) Location and Access:** The area is located in western Prince William Sound south of Whittier. There is one established trail into the area at the head of Long Bay. Several anchorages and beaches used by boaters and kayakers provide entry points to the uplands.

#### **(4) Ecosystem**

**(a) Geography and Topography:** This area falls within two provinces and three ecological subsections. The majority of the area falls within the Chugach Icefields Subsection of the Pacific Coastal Mountains Forest-Meadow Province. The Prince William Sound Mainland Subsection and Prince William Sound Island Subsection of the Northern Gulf Coastal Forest-Meadow Province make up the lower elevations of the area. At lower elevations the topography consists of steep tree covered and rocky sideslopes and the included valley bottoms. The valleys are normally characterized by glacial alluvial outwash; sideslopes were originally

shaped by major valley glaciers. Within the Chugach Icefields Subsection the topography is very rugged with jagged mountains and nunataks surrounded by ice fields and glaciers. Elevations range from about 1,500 to 10,600 feet. The lithology consists of numerous types of marine siltstones and meta-sandstones with several granite intrusions.

**(b) Vegetation:** Vegetation is scarce within the Chugach Icefields Subsection. Predominant plants are lichens and dwarf shrubs (e.g., crowberry, starry cassiope, luetkea, bog blueberry).

Within the Prince William Sound Mainland and Prince William Sound Islands Subsections characteristic needleleaf forest species include Sitka spruce, mountain hemlock, and western hemlock. Mixed forests are rare in this subsection. Tall scrubland dominated by Sitka alder characterizes avalanche chutes and beach fringe areas. Undergrowth species common beneath the tree canopies of the forest zone include: early and Alaska blueberry, devil's club, rusty menziesia, copperbush, yellow skunk-cabbage, deer cabbage, Pacific reedgrass, wood fern, splendid feathermoss, and rhytidadelphus mosses. Characteristic species of the scrublands and herblands include: salmonberry, crowberry, bog blueberry, starry cassiope, Aleutian mountain heather, Luetkea, tall Alaska cotton grass, tufted clubrush, bluejoint reedgrass, beach rye, Lygbyei sedge, few-flowered sedge, many-flowered sedge, and sphagnum mosses.

**(c) Soils:** The soils on most sideslopes are formed in parent material originating from either bedrock or glacial drift. In general they are usually well or moderately well drained, and moderately deep to deep. Soils range from very acidic under well-developed forested stands to slightly acid on treeless sites. Normally the soils have a surface organic layer, which is thickest under a forest canopy or in wetter areas. Tree and plant roots are restricted to the surface organic layer or the upper few inches of the mineral soil.

Shallow, well-drained, moderately acid soils are normally found on tops or small hills and in the alpine. Frequently there is only a thin surface organic layer. Plant roots are restricted to the surface organic layer and the upper few inches of the mineral soil.

Flat plateaus and basins commonly have numerous areas where soil drainage is restricted, which affords the development of very poorly to poorly drained, very acidic, shallow to deep organic soils. These are most common in areas of high precipitation.

Soils in the valley bottoms are usually formed in alluvial deposits and are well to poorly drained, depending on the depth of the water table, and slightly acid. Rooting is normally in the thin surface organic layer and the mineral soils.

**(d) Fish Resource:** The following table displays the mapped (known) amount of habitat available.

Species	Habitat Quality	Spawning Habitat (miles)	Rearing Habitat (miles)
Chum	High	2.8	0
Chum	Moderate	15.6	0
Chum	Low	1.2	0.9
Coho	High	0.1	3.9
Coho	Moderate	0.8	0.3
Coho	Low	4.1	0.8
Dolly Varden	High	1.7	4.5
Dolly Varden	Moderate	0.1	0.1
Dolly Varden	Low	2.8	0
Pink	High	4.4	2.8
Pink	Moderate	7.9	0
Pink	Low	5	0.5
Sockeye	High	1.7	11,873 acres
Sockeye	Moderate	10.2	0
Sockeye	Low	1.9	0

**(e) Wildlife Resource:** A wildlife habitat model for forested lands was run to show relative values of different habitat types between roadless areas. The model is based on a species list for the Kenai Peninsula and therefore is not totally accurate for the Prince William Sound and Copper River Delta ecosystems. Small changes in the habitat capability index are not significant. Changes of 0.1 or more show a definite difference in capability. Acreage figures for the different habitat types are more important than the habitat capability index. The following tables show species counts for each habitat type and habitat capacity and diversity for wildlife.

	Conifer/ Deciduous	Deciduous	Spruce	Spruce/ Hemlock	Hemlock
Land Birds	56	44	50	51	51
Aquatic Birds	6	7	8	8	8
Mammals	22	18	25	25	25

**Habitat capability and diversity of wildlife in the Nellie Juan Area (07).**

Land Cover	Percent	Area (Acres)	Animal Species Diversity Index	Habitat Capability for Forested Habitats			
				Land Birds	Aquatic Birds	Mammals	Combined
Hemlock/spruce	3.1	22,100	0.92	0.56	0.51	0.53	0.54
Noncommercial	52.5	11,600					
Seedling/sapling	0.0	0					
Midsuccessional	1.4	300					
Old-growth	46.2	10,200					
Hemlock	15.3	110,050	0.92	0.45	0.40	0.41	0.43
Noncommercial	82.8	91,100					
Seedling/sapling	0.0	50					
Midsuccessional	0.5	600					
Old-growth	16.6	18,300					
Spruce	0.3	2200	0.88	0.46	0.36	0.46	0.45
Noncommercial	50.0	1,100					
Seedling/sapling	18.2	400					
Midsuccessional	9.1	200					
Old-growth	22.7	500					
Deciduous	0.0	290	0.60	23.00	26.00	39.00	0.27
Noncommercial	27.6	80					
Seedling/sapling	3.4	10					
Midsuccessional	69.0	200					
Old-growth	0.0	0					
Conifer/deciduous	0.1	870	0.83	0.39	0.36	0.47	0.41
Noncommercial	34.5	300					
Seedling/sapling	8.0	70					
Midsuccessional	34.5	300					
Old-growth	23.0	200					
Shrubs	0.5	3,900					
Nonshrub vegetation	2.2	16,000					
Lakes	2.2	15,900					
Other (e.g., rock, ice)	42.3	304,600					
Data missing	33.9	258,210					
<b>Total</b>	<b>100.0</b>	<b>734,100</b>	<b>0.06<sup>7</sup></b>				

<sup>7</sup> The combined diversity index includes shrub, nonshrub vegetation, lakes, rock, ice, and no data. It is not just the mean of the timbered habitats.

**(f) Threatened, Endangered and Sensitive Species:** No federally listed threatened or endangered species occur within the area. The following Alaska Region sensitive species are known or suspected to occur in or near the area:

Crucifer, no common name ( <i>Apragmus escholtzianus</i> )	known
Norberg arnica ( <i>Arnica lessigii</i> ssp. <i>norbergii</i> )	known
Goose-grass sedge ( <i>Carex lenticularis</i> var. <i>dolia</i> )	known
Northern rockcress ( <i>Draba borealis</i> var. <i>maxima</i> )	suspected
Kamchatka rockcress ( <i>Draba kamtschatica</i> )	known
Tundra whitlow-grass ( <i>Draba kananaskis</i> )	known
Truncate quillwort ( <i>Isoetes truncata</i> )	suspected
Calder lovage ( <i>Ligusticum calderi</i> )	suspected
Pale poppy ( <i>Papaver alboroseum</i> )	known
Choris bog orchid ( <i>Platanthera chorisiana</i> )	suspected
Smooth alkali grass ( <i>Puccinellia glabra</i> )	known
Kamchatka alkali grass ( <i>Puccinellia kamtschatica</i> )	suspected
Unalaska mist-maid ( <i>Romanzoffia unalaschensis</i> )	suspected
Circumpolar starwort ( <i>Stellaria ruscifolia</i> ssp. <i>aleutica</i> )	suspected

**(5) Current Use and Management:** In 1973 the first Roadless Area Review and Evaluation (RARE I) identified a 704,000-acre Nellie Juan New Study Area to be evaluated for Wilderness. Most of this area is recommended for Wilderness designation in the 1984 Forest Plan. All of it falls within the Wilderness Study Area identified in ANILCA and is being managed to maintain its wilderness character until congressional action is taken. The area near the shore is popular with boat or kayak based recreation users. Commercial fishing is heavy, especially near the Main Bay Hatchery. The entire roadless area falls either within Management Area 5, Nellie Juan (600,200 acres) or Management Area 6, College Fiord (120,000 acres) Management Areas in the 1984 Forest Plan. The primary management goals for the area are to increase developed and dispersed recreation, enhance marine oriented recreation opportunities, maintain landscape character, maintain existing wilderness character in areas recommended for Wilderness, recommend Wilderness designation, maintain wildlife habitat and improve fish habitat. The area adjacent to the Nellie Juan River is withdrawn as a power site withdrawal in the 1930s.

**(6) Historic Motorized Use:** Except for occasional aircraft landings on icefields, lakes, and gravel bars, there is essentially no historic motorized use of the uplands within this area. Extensive motorized use in the form of power boats and aircraft occurs adjacent to the uplands.

**(7) Appearance (Apparent Naturalness):** The majority of this roadless area is natural appearing, where only ecological change has occurred. There are 0.7 miles of private road within the unit. The table below displays the scenic integrity for the roadless area.

Scenic Integrity	Acres
Very High	734,100
High	0
Moderate	0
Low	0
Very Low	0

**(8) Surroundings (External Influences):** The northern and eastern edge of the area abuts Prince William Sound and is influenced by the marine based recreation and commercial activities that take place there. The southern boundary abuts state land, which is essentially undeveloped. There are extensive Native Corporation lands along the southwest portion of the area adjacent to the Nellie Juan River. The eastern boundary abuts the Kenai Mountains Roadless Area. State and private lands within the area are mostly undeveloped. Marine based activities have the strongest influence on the area. The village of Chenega Bay, just outside the boundary of the area, has lands within the area. Whittier, northeast of the roadless area exerts a stronger influence by providing an access point to Prince William Sound.

**(9) Attractions and Features of Special Interest:** The area offers spectacular scenery with tidewater glaciers and large granite protrusions climbing out of the ocean. The Port Nellie Juan area is especially spectacular. The Nellie Juan River is eligible for Wild River classification under the Wild and Scenic Rivers Act.

## B. Capability of Management as Wilderness or in an Unroaded Condition

**(1) Manageability and Management Area Boundaries:** The state and private land boundaries within the area are not well defined. State land below the mean high tide line is also poorly defined. The eastern boundary is the watershed dividing line between the Nellie Juan Roadless Area and the Kenai Mountains Roadless Area.

**(2) Natural Appearance and Integrity:** This area has a very high degree of natural integrity. Most long-term ecological processes are intact and operating. While some evidence of human activity exists (e.g., mining operating, trails, and cabins), these activities have had little or no effect on the natural appearance of the area.

**(3) Opportunity for Solitude:** The opportunity for solitude in the area is high. The area is large with a high level of topographic screening. The distance from the perimeter to the core is between 18 and 30 miles.

**(4) Opportunity for Primitive Recreation:** With the Nellie Juan Roadless Area, there are 544,990 acres recommended for Wilderness classification. The Nellie Juan River is recommended for Wild and Scenic Rivers designation.

<b>ROS Class</b>	<b>Acres</b>
Primitive 1 (P1)	615,600
Primitive 2 (P2)	35,600
Semi-primitive Nonmotorized (SPNM)	9,800
Semi-primitive Motorized (SPM)	73,100

There are three recreation cabins and one miles of trail in the area.

**(5) Special Features (Ecologic, Geologic, Scientific):** Icefields, tidewater glaciers, Nellie Juan River, Port Nellie Juan.

### **C. Availability for Management as Wilderness or in an Unroaded Condition**

#### **(1) Resource Potentials**

**(a) Recreation Potential:** Huge icefields, fiords.

**(b) Fish Resource:** Some opportunity exists for opening fish habitat currently inaccessible to anadromous fish. Lake fertilization and planting sockeye salmon is also available.

**(c) Wildlife Resource:** Opportunities for wildlife enhancement are low.

**(d) Timber Resource:** There are 14,990 acres inventoried as tentatively suitable for harvest.

**(e) Land Use Authorizations:** There is a special use permit for a hatchery at Main Bay as well as permits for temporary camps used by setnetters at Main Bay. There is a 0.7-mile long road used by the hatchery to maintain their water supply. The remains of an old cannery can be found at McClure Bay.

**(f) Minerals:** Most of the area is rated as undiscovered, highly favorable for gold or under-evaluated or unevaluatable mineral potential. Most of the area is covered with ice. There is a small moderately mineralized zone of gold, silver, and copper that extends into state land south of Surprise Cove. There are 13 mines and 19 mining claims on National Forest System land within the area.

**(g) Cultural Resources:** There are no known cultural resources in this area.

**(h) Areas of Scientific Interest:** Icefields.

#### **(2) Management Considerations**

**(a) Timber:** There are 14,990 acres of tentative suitable forestlands.

**(b) Fire:** Wildfire is not a significant problem in this area.

**(c) Insect and Disease:** Spruce bark beetles have impacted 2,000 acres within this roadless area.

**(d) Land Status:** There are 190,770 acres of state, Native regional corporation and private land within the roadless area. Very few state, Native corporation and private lands are adjacent to major roads. Most state, Native regional corporation and private lands would require access from Prince William Sound or from the west through the Kenai Mountain Roadless Area. Wilderness designation would affect land access to state, Native regional corporation and private lands.

#### **D. Wilderness Evaluation**

**(1) Nearby Roadless and Wilderness Areas and Uses:** The Kenai Mountains Roadless Area lies immediately to the west and the College Fjord Roadless Area and Wilderness Study Area lies to the north. The Prince William Sound Islands Roadless Area is just east of the unit.

**(2) Distance from Population Centers (Accessibility):** The village of Chenega Bay is within 10 air miles and 15 boating miles of the unit. Whittier lies about 10 miles from the northwestern edge of the unit. Both of these communities provide boating access to the roadless area. Anchorage and Seward is about 60 air miles from the unit. Cordova is about 80 air miles away. There are no established landing sites within the roadless area. All aircraft access is by floatplane to saltwater or large lakes. Limited landing on the glaciers by aircraft fitted with skis occurs.

**(3) Interest by Proponents:** This roadless area has been the focus of Wilderness designation dating back to the early 1970s. During the review of the DEIS, there was a high level of interest for Wilderness designation.

**(4) Relative Contribution to the National Wilderness Preservation System:** If the Nellie Juan Roadless Area were designated as Wilderness it would add about 4,000 acres of the Kenai Fjordlands Ecosubsection, 191,000 acres of the Prince William Sound Mainland Ecosubsection, 75,000 acres of the Prince Williams Sound Islands Ecosubsection, and 463,000 acres of the Chugach Icefields Ecosubsection to the National Wilderness Preservation System. Habitat for wildlife and fish typically found on the Prince William Sound would be protected. Habitat manipulation would only be done to restore natural ecosystem conditions. Wilderness management would protect the high opportunity for solitude in the area. Outstanding examples of tidewater glaciers,

Chugach Icefields, large granite protrusion, Port Nellie Juan, the Nellie Juan River would be managed in a Wilderness environment.

### E. Environmental Consequences

**(1) Management Area Prescriptions:** The following table shows the management area prescriptions by alternatives for the Nellie Juan Roadless Area. Management area prescriptions are described in FEIS, Chapter 2.

<b>Management area prescriptions by alternative.</b>								
<b>Prescription #</b>	<b>NA</b>	<b>Preferred</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>
131	673,460	534,380		392,160	447,700	600,420	676,120	677,370
134		3,470					9,560	9,560
140	10,130	6,960				6,960	6,960	
210		168,370						
211	29,750				99,610	96,400	20,530	19,450
212			378,530	150,040	35,880			
213					87,500		170	
221	20,760	20,790	20,760	20,760	20,760		20,760	20,760
231					9,560	9,560		
312		130	311,990	171,140	33,090			
411					22,820			
<b>Total</b>	<b>734,100</b>	<b>734,100</b>	<b>734,100</b>	<b>734,100</b>	<b>734,100</b>	<b>734,100</b>	<b>734,100</b>	<b>734,100</b>

**(2) Environmental Impacts:** Under the No Action Alternative and Alternatives E and F, about 92 percent of the Nellie Juan Roadless Area would be recommended for Wilderness designation. Under Alternative D, about 82 percent would be recommended as Wilderness; under the Preferred Alternative, about 73 percent, Alternative C, about 61 percent; and Alternative B, 53 percent. The wilderness character and primitive opportunities on these lands would be protected. Mineral and timber outputs would be foregone. Native corporation and village lands would not be accessible across National Forest System lands. They would be accessible from saltwater.

It is projected that under Alternative A, 2.6 miles of new roads could be constructed during the first decade. Under Alternative B, 1.7 miles could be constructed, Alternative C, 0.1 miles. Over time, as new roads are constructed, the roadless character and primitive recreation opportunities would be lost. None of the Nellie Juan Roadless Area would be affected by Forest Service road construction under Alternatives D, E and F, the No Action Alternative or the Preferred Alternative.

Under Alternative A, about 43 percent of the Nellie Juan Roadless Area would be available to be managed with new Forest Service road construction. Under Alternative B, 24 percent would be available and under Alternative C, 4 percent. Mineral and timber resources on these lands would be available. Over time, as new

lands are constructed, the roadless character and primitive opportunities on some of these lands would be lost.

Under Alternative A, about 57 percent of the Nellie Juan Roadless Area would be managed for non-Wilderness roadless values, 27 percent under the Preferred Alternative, 23 percent under Alternative B, 18 percent under Alternative D, and 8 percent under the No-Action Alternative and Alternatives E and F. Minerals resources would still be available. The roadless character and primitive opportunities on these lands would be maintained.

Long-term changes in plant and animal species diversity, in excess of the expected range of variability in the Nellie Juan Roadless Area, are not anticipated under any alternative (see pages C-3 and C-4). See FEIS, Chapter 3 for a more detailed disclosure of the effect of Wilderness/non-Wilderness management.



<b>Prince William Sound Islands Roadless Area</b>
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**NAME:** 08 Prince William Sound Islands

**ACRES (GROSS):** 139,790      **ACRES (NFS):** 119,520

**PROVINCE:** Pacific Gulf Coastal Forest-Meadow Province

**ECOSECTION:** Northern Gulf Fjordlands Section

**ECOSUBSECTION:** M245Ab Prince William Sound Mainland Subsection 100 acres;

M245Ac Prince William Sound Islands subsection 118,520 acres

#### **A. Description**

**(1) Relationship to RARE II Areas:** Except for the south end of Evans Island, and Latouche Island which is totally private, the area encompasses the RARE II roadless areas 012. It has a RARE II WARS rating of 25 and was a further planning area in the RARE II EIS.

**(2) History:** The area is within the historic range of the Chugach Eskimos, who lived in the area for thousands of years. The old village site of Chenega, destroyed by the 1964 earthquake, lies within several miles this roadless area. Captain James Cook entered Prince William Sound in 1778 and in 1793 the Russians established a fort at Nuchek village in PWS to begin trading for sea otters. There were several large copper mines in the past in the south portion of the area.

**(3) Location and Access:** The area is located in the heart of Prince William Sound. The only access is by boat or floatplane. There are no established trails in the area.

#### **(4) Ecosystem:**

**(a) Geography and Topography:** Except for a small section of mainland at the southern end of the area, it is made up of a group of island, the largest being Knight Island. The area falls within two ecosubsections of the Pacific Gulf Coastal Forest-Meadow Province, the Prince William Sound Mainland Subsection and Prince William Sound Island Subsection. The topography includes islands with vegetated, steep, rugged and rolling mountains. The islands were uplifted significantly by the 1964 earthquake creating low, flat shorelines. There are also rounded or smooth marine terraces that have been smoothed by wave action before they were lifted above the water by tectonic events. The lithology consists primarily of marine shales and meta-sandstones. The rocks northeast of Port Gravina and on Perry Island consist of intrusive granites. A major portion of Knight Island consists of volcanic extrusive rocks.

**(b) Vegetation:** Characteristic needleleaf forest species include Sitka spruce, mountain hemlock, and western hemlock. Mixed forests are rare in this subsection. Broadleaf forests of black cottonwood forests are common only along streams on Montague Island. Tall scrubland dominated by Sitka alder characterizes avalanche chutes and beach fringe areas. Undergrowth species common beneath the tree canopies of the forest zone include: early and Alaska blueberry, devil's club, rusty menziesia, copperbush, yellow skunk-cabbage, deer cabbage, Pacific reedgrass, wood fern, splendid feathermoss, and rhytidiadelphus mosses. Characteristic species of the scrublands and herblands include: salmonberry, crowberry, bog blueberry, starry cassiope, Aleutian mountain heather, Luetkea, tall Alaska cotton grass, tufted clubrush, bluejoint reedgrass, beach rye, Lygbyei sedge, few-flowered sedge, many-flowered sedge, and sphagnum mosses.

**(c) Soils:** The soils on most sideslopes are formed in parent material originating from either bedrock or glacial drift. In general they are usually well or moderately well drained, and moderately deep to deep. Soils range from very acidic under well-developed forested stands to slightly acid on treeless sites. Normally the soils have a surface organic layer, which is thickest under a forest canopy or in wetter areas. Tree and plant roots are restricted to the surface organic layer or the upper few inches of the mineral soil.

Shallow, well-drained, moderately acid soils are normally found on tops or small hills and in the alpine. Frequently there is only a thin surface organic layer. Plant roots are restricted to the surface organic layer and the upper few inches of the mineral soil.

Flat plateaus and basins commonly have numerous areas where soil drainage is restricted, which affords the development of very poorly to poorly drained, very acidic, shallow to deep organic soils. These are most common in areas of high precipitation.

Soils in the valley bottoms are usually formed in alluvial deposits and are well to poorly drained, depending on the depth of the water table, and slightly acid. Rooting is normally in the thin surface organic layer and the mineral soils.

**(d) Fish Resource:** The following table displays the mapped (known) amount of habitat available.

Species	Habitat Quality	Spawning Habitat (miles)	Rearing Habitat (miles)
Chum	Moderate	0.4	0
Coho	High	0	2
Coho	Moderate	0.1	0.2
Coho	Low	2.1	
Pink	High	1.3	1.5
Pink	Moderate	2.1	0
Pink	Low	0.8	0
Sockeye	High	0	699 acres
Sockeye	Moderate	2.5	0
Sockeye	Low	0.6	0

**(e) Wildlife Resource:** A wildlife habitat model for forested lands was run to show relative values of different habitat types between roadless areas. The model is based on a species list for the Kenai Peninsula and therefore is not totally accurate for the Prince William Sound and Copper River Delta ecosystems. Small changes in the habitat capability index are not significant. Changes of 0.1 or more show a definite difference in capability. Acreage figures for the different habitat types are more important than the habitat capability index. The following tables show species counts for each habitat type and habitat capacity and diversity for wildlife.

	Conifer/ Deciduous	Deciduous	Spruce	Spruce/ Hemlock	Hemlock
Land Birds	56	44	50	51	51
Aquatic Birds	6	7	8	8	8
Mammals	22	18	25	25	25

**Habitat capability and diversity of wildlife in the Prince William Sound Islands Area (08).**

Land Cover	Percent	Area (Acres)	Animal Species Diversity Index	Habitat Capability for Forested Habitats			
				Land Birds	Aquatic Birds	Mammals	Combined
Hemlock/spruce	42.6	50,910	0.91	0.59	0.54	0.56	0.58
Noncommercial	38.7	19,700					
Seedling/sapling	0.0	10					
Midsuccessional	6.3	3,200					
Old-growth	55.0	28,000					
Hemlock	24.7	29,500	0.91	0.50	0.45	0.47	0.48
Noncommercial	64.1	18,900					
Seedling/sapling	0.0	0					
Midsuccessional	5.8	1,700					
Old-growth	30.2	8,900					
Spruce	1.2	1,490	0.92	0.67	0.60	0.63	0.65
Noncommercial	20.1	300					
Seedling/sapling	0.0	0					
Midsuccessional	6.0	90					
Old-growth	73.8	1,100					
Deciduous	0.0	0	0.00	0.00	0.00	0.00	0.00
Noncommercial	0.0	0					
Seedling/sapling	0.0	0					
Midsuccessional	0.0	0					
Old-growth	0.0	0					
Conifer/deciduous	0.0	0	0.00	0.00	0.00	0.00	0.00
Noncommercial	0.0	0					
Seedling/sapling	0.0	0					
Midsuccessional	0.0	0					
Old-growth	0.0	0					
Shrubs	0.2	200					
Nonshrub vegetation	2.1	2,500					
Lakes	1.3	1,600					
Other (e.g., rock, ice)	19.2	23,000					
Data missing	8.6	10,320					
<b>Total</b>	<b>100.0</b>	<b>119,520</b>	<b>0.42<sup>8</sup></b>				

<sup>8</sup> The combined diversity index includes shrub, nonshrub vegetation, lakes, rock, ice, and no data. It is not just the mean of the timbered habitats.

**(f) Threatened, Endangered and Sensitive Species:** No federally listed threatened or endangered species occur within the area. The following Alaska Region sensitive species are known or suspected to occur in or near the area:

Crucifer, no common name ( <i>Apragmus escholtzianus</i> )	known
Norberg arnica ( <i>Arnica lessigii</i> ssp. <i>norbergii</i> )	known
Goose-grass sedge ( <i>Carex lenticularis</i> var. <i>dolia</i> )	known
Northern rockcress ( <i>Draba borealis</i> var. <i>maxima</i> )	suspected
Kamchatka rockcress ( <i>Draba kamtschatica</i> )	known
Tundra whitlow-grass ( <i>Draba kananaskis</i> )	known
Truncate quillwort ( <i>Isoetes truncata</i> )	suspected
Calder lovage ( <i>Ligusticum calderi</i> )	suspected
Pale poppy ( <i>Papaver alboroseum</i> )	known
Choris bog orchid ( <i>Platanthera chorisiana</i> )	suspected
Smooth alkali grass ( <i>Puccinellia glabra</i> )	known
Kamchatka alkali grass ( <i>Puccinellia kamtschatica</i> )	suspected
Unalaska mist-maid ( <i>Romanzoffia unalascensis</i> )	suspected
Circumpolar starwort ( <i>Stellaria ruscifolia</i> ssp. <i>aleutica</i> )	suspected

**(5) Current Use and Management:** All of the area falls within the Wilderness Study Area identified in ANILCA and is being managed to maintain its wilderness character until congressional action is taken. A small portion of the area, near the southern boundary, is recommended for Wilderness in the 1984 Forest Plan. Areas near the shore are popular with boat or kayak based recreation users. Commercial fishing is heavy. The area falls within Management Area 5, Nellie Juan and Management Area 6, College Fiord Management Areas in the 1984 Forest Plan (98,820 acres and 20,700 acres respectively). The primary management goals for the area are to increase developed and dispersed recreation, enhance marine oriented recreation opportunities, maintain landscape character, maintain existing wilderness character in areas recommended for Wilderness, recommend Wilderness designation, maintain wildlife habitat and improve fish habitat.

**(6) Historic Motorized Use:** There is essentially no historic motorized use of the uplands within this area. Extensive motorized use in the form of powerboats and aircraft occurs adjacent to the uplands.

**(7) Appearance (Apparent Naturalness):** The majority of this roadless area is natural appearing, where only ecological change has occurred

**(8) Surroundings (External Influences):** The National Forest System lands within the area are surrounded by Prince William Sound and are influenced by the marine based recreation and commercial activities that take place there. This roadless area is the heart of the area impacted by the *Exxon Valdez* oil spill. Timber harvest activities have taken place on private land at the south end

of Montague Island and a special-use road for timber harvest activities has recently been obliterated.

**(9) Attractions and Features of Special Interest:** None listed.

## B. Capability of Management as Wilderness or in an Unroaded Condition

**(1) Manageability and Management Area Boundaries:** The state and private land boundaries within the area are not well defined. State land below the mean high tide line is also poorly defined.

**(2) Natural Appearance and Integrity:** This area has a very high degree of natural integrity. Most long-term ecological processes are intact and operating. While some evidence of human activity exists (e.g., mining operating, trails, and cabins), these activities have had little or no effect on the natural appearance of the area.

**(3) Opportunity for Solitude:** The opportunity for solitude in the area is moderate. Most of the islands are relatively small and it is difficult to escape the influence of marine activities, even though it may be several miles away. The distance from the center to the core is between two and six miles.

**(4) Opportunity for Primitive Recreation:**

ROS Class	Acres
Primitive 1 (P1)	28,300
Primitive 2 (P2)	84,820
Semi-primitive Nonmotorized (SPNM)	4,100
Semi-primitive Motorized (SPM)	2,300

There are no recreation cabins or trails within the area.

**(5) Special Features (Ecologic, Geologic, Scientific):** The old village site of Chenega.

## C. Availability for Management as Wilderness or in an Unroaded Condition

### (1) Resource Potentials

**(a) Recreation Potential:** The intricate shoreline is ideal for kayaks and small boats.

**(b) Fish Resource:** Some opportunity exists for opening fish habitat currently inaccessible to anadromous fish. Lake fertilization and stocking sockeye salmon in barren lakes is also a fish habitat enhancement opportunity.

**(c) Wildlife Resource:** Opportunities for wildlife enhancement are low.

**(d) Timber Resource:** There are 17,820 acres of tentatively suitable forest acres.

**(e) Land Use Authorizations:** None listed.

**(f) Minerals:** There is a most favorable and moderate favorable mineralized zone containing copper and zinc covering a large portion of Knight Island. There is a most favorable and moderate favorable mineralized zone containing gold, copper and zinc on Latouche Island. Both Knight Island and Latouche Island produced large amounts of copper in the past. The area has 39 old mines but no mining claims.

**(g) Cultural Resources:** There are 101 known cultural sites within the area.

**(h) Areas of Scientific Interest:** Herring Bay, at the north end of Knight Island, was one of the most heavily impacted bays by the *Exxon Valdez* oil spill. Extensive and intensive intertidal monitoring occurred there.

## **(2) Management Considerations**

**(a) Timber:** There is a moderate opportunity for commercial timber harvest.

**(b) Fire:** Wildfire is not a significant problem in this area.

**(c) Insect and Disease:** No major outbreaks of insects or diseases have been detected in this unit (Holsten et al. 1996).

**(d) Land Status:** There are 20,270 acres of state and private lands (Chugach Alaska Inc. owns 10,606 acres on Knight Island) within the roadless area. Chugach Alaska Corporation owns the subsurface resources to 3,049 acres on Drier Bay. All state and private lands would require access from Prince William Sound. Wilderness designation would affect access to some state, Native corporation and private lands.

## **D. Wilderness Evaluation**

**(1) Nearby Roadless and Wilderness Areas and Uses:** the Nellie Juan Roadless Area lies to the west. It is proposed for Wilderness designation, as is the College Fiord Roadless Area to the north. West of the Prince William Sound Islands Roadless Area lie the Montague and Fidalgo-Gravina Roadless Areas. They are separated from this roadless area by 10 to 30 miles of water.

**(2) Distance from Population Centers (Accessibility):** The village of Chenega Bay is within 7 air miles and 15 boating miles of the unit. Whittier lies about 25 miles from the northwestern edge of the unit. Both of these communities provide boating access to the roadless area. Anchorage and Seward is about 75 air miles from the unit. Cordova is about 65 air miles away. There are no established landing sites within the roadless area. All aircraft access is by floatplane to saltwater or large lakes.

**(3) Interest by Proponents:** There is moderate interest in Wilderness designation. During review of the DEIS, there was a high interest in Wilderness designation.

**(4) Relative Contribution to the National Wilderness Preservation System:** If the Prince William Sound Islands Roadless Area were designated as Wilderness it would add about 119,000 acres of the Prince Williams Sound Islands Ecosubsection to the National Wilderness Preservation System. Habitat for wildlife and fish typically found on the Prince William Sound would be protected. Habitat manipulation would only done to restore natural ecosystem conditions. Wilderness management would protect the moderate opportunity for solitude on these islands. National Forest System lands on Knight, Evans, Latouche, Perry, and other islands would be managed in a Wilderness environment.

## E. Environmental Consequences

**(1) Management Area Prescriptions:** The following table shows the management area prescriptions by alternatives for the Prince William Sound Roadless Area. Management area prescriptions are described in the FEIS, Chapter 2.

<b>Management area prescriptions by alternative.</b>								
<b>Prescription #</b>	<b>NA</b>	<b>Preferred</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>
131	26,020	47,050		26,010	6,080	101,270	118,690	118,690
210		71,640						
211	92,670			12,830	79,810	9,560		
212			12,720					
221	830	830	830	830	830	830	830	830
244					12,370	7,860		
312			56,360	79,850	40			
411			49,610					
<b>Total</b>	<b>11 9,520</b>	<b>119,520</b>	<b>119,520</b>	<b>119,520</b>	<b>119,520</b>	<b>119,520</b>	<b>119,520</b>	<b>119,520</b>

**(2) Environmental Impacts:** Under Alternatives E and F, all of the Prince William Sound Roadless Area would be recommended for Wilderness designation. Under Alternative D, about 84 percent would be recommended as Wilderness; under the Preferred Alternative, about 38 percent, Alternative B, about 22 percent; and Alternative C, 5 percent. The wilderness character and primitive opportunities on these lands would be protected. Mineral and timber outputs on these lands would be foregone. Access to some private lands would be more difficult. None of the Prince William Sound Roadless Area is recommended for Wilderness designation under any other alternatives.

Under Alternative A, about 89 percent of the Prince William Sound Roadless Area would be available to be managed with new Forest

Service road construction. Under Alternative B, 67 percent would be available. Mineral and timber resources on these lands would be available.

It is projected that under Alternative A, 3.3 miles of new roads could be constructed during the first decade and under Alternative B, 2.1 miles. Over time, as new roads are constructed, the roadless character and primitive recreation opportunities on these lands could be lost. Under Alternatives C, D and E, and the Preferred Alternative there would be no Forest Service road construction.

Road construction would be conditional on 10 percent of the Prince William Sound Roadless Area under Alternative C and 6 percent under Alternative D. Minerals resources would be available. Over time, if new roads are constructed, the roadless character and primitive opportunities on some of these lands could be lost.

Under Alternative C, about 85 percent of the Prince William Sound Roadless Area would be managed for non-Wilderness roadless values, 79 percent under the No action Alternative, 62 percent under the Preferred Alternative, 11 percent under Alternatives A and B, and 10 percent under Alternative D. Minerals resources would still be available.

Long-term changes in plant and animal species diversity, in excess of the expected range of variability in the Prince William Sound Roadless Area, are not anticipated under any alternative (see pages C-3 and C-4). See FEIS, Chapter 3 for a more detailed disclosure of the effect of Wilderness/non-Wilderness management.



<b>College Fiord Roadless Area</b>
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**NAME:** 09 College Fiord

**ACRES (GROSS):** 1,149,570    **ACRES (NFS):** 1,129,610

**PROVINCE:** Pacific Coastal Mountains Forest-Meadow Province and Pacific Gulf Coastal Forest-Meadow Province

**ECOSECTION:** Chugach Mountain Section and Northern Gulf Fjordlands Section

**ECOSUBSECTION:** M244Aa Chugach Icefields Subsection (772,610 acres),  
M244Ab Lowe River Subsection (400 acres),  
M245Ab Prince William Sound Mainland Subsection (356,600 acres).

#### **A. Description**

**(1) Relationship to RARE II Areas:** Most of this roadless area is one of the administratively endorsed Wilderness areas that predate the RARE II process and was not further evaluated during RARE II. The northern portion of the unit was added to the Forest as part of the ANILCA additions. RARE II roadless areas 007, 008, 009, and 010 lie within this unit and were Further Planning Areas in the RARE II EIS. The WARS rating for the Wilderness Study Area is 25. RARE II roadless area 010 (Columbia Glacier) has a WARS rating of 22.

**(2) History:** The coastline is within the historic range of the Chugach Eskimos, who lived in the area for thousands of years. The old village site of Chenega, destroyed by the 1964 earthquake, lies south of this roadless area. Captain James Cook entered Prince William Sound in 1778 and in 1793 the Russians established a fort at Nuchek village in PWS to begin trading for sea otters.

**(3) Location and Access:** The area is located in northern Prince William Sound north of Whittier. Access is almost exclusively by floatplane or boat. There are several anchorages and beaches used by boaters and kayakers that provide entry points to the uplands.

#### **(4) Ecosystem**

**(a) Geography and Topography:** This area falls within two provinces and four ecological subsections. The majority of the area falls within the Chugach Icefields Subsection of the Pacific Coastal Mountains Forest-Meadow Province and the Prince William Sound Mainland Subsection of the Pacific Gulf Coastal Forest-Meadow Province. At lower elevations the topography consists of steep tree covered and rocky sideslopes and the included valley bottoms. The valleys are normally characterized by glacial alluvial outwash;

sideslopes were originally shaped by major valley glaciers. Within the Chugach Icefields Subsection the topography is very rugged with jagged mountains and nunataks surrounded by ice fields and glaciers. Elevations range from about 1,500 to 13,000 feet. The lithology consists of numerous types of marine siltstones and meta-sandstones with several granite intrusions.

**(b) Vegetation:** Vegetation is scarce within the Chugach Icefields Subsection. Predominant plants are lichens and dwarf shrubs (e.g., crowberry, starry cassiope, luetkea, bog blueberry).

Within the Prince William Sound Mainland and Prince William Sound Islands Subsections characteristic needleleaf forest species include Sitka spruce, mountain hemlock, and western hemlock. Mixed forests are rare in this subsection. Tall scrubland dominated by Sitka alder characterizes avalanche chutes and beach fringe areas. Undergrowth species common beneath the tree canopies of the forest zone include: early and Alaska blueberry, devil's club, rusty menziesia, copperbush, yellow skunk-cabbage, deer cabbage, Pacific reedgrass, wood fern, splendid feathermoss, and rhytidadelphus mosses. Characteristic species of the scrublands and herblands include: salmonberry, crowberry, bog blueberry, starry cassiope, Aleutian mountain heather, Luetkea, tall Alaska cotton grass, tufted clubrush, bluejoint reedgrass, beach rye, Lygbyei sedge, few-flowered sedge, many-flowered sedge, and sphagnum mosses.

**(c) Soils:** The soils on most sideslopes are formed in parent material originating from either bedrock or glacial drift. In general they are usually well or moderately well drained, and moderately deep to deep. Soils range from very acidic under well-developed forested stands to slightly acid on treeless sites. Normally the soils have a surface organic layer, which is thickest under a forest canopy or in wetter areas. Tree and plant roots are restricted to the surface organic layer or the upper few inches of the mineral soil.

Shallow, well-drained, moderately acid soils are normally found on tops or small hills and in the alpine. Frequently there is only a thin surface organic layer. Plant roots are restricted to the surface organic layer and the upper few inches of the mineral soil.

Flat plateaus and basins commonly have numerous areas where soil drainage is restricted, which affords the development of very poorly to poorly drained, very acidic, shallow to deep organic soils. These are most common in areas of high precipitation.

Soils in the valley bottoms are usually formed in alluvial deposits and are well to poorly drained, depending on the depth of the water table, and slightly acid. Rooting is normally in the thin surface organic layer and the mineral soils.

**(d) Fish Resource:** The following table displays the mapped (known) amount of habitat available.

Species	Habitat Quality	Spawning Habitat (miles)	Rearing Habitat (miles)
Chum	High	4.4	0
Chum	Moderate	15.6	0
Chum	Low	5.6	1
Coho	High	1.4	9.6
Coho	Moderate	4.6	0
Coho	Low	18.1	9.4
Cutthroat	Moderate	0	5.7
Dolly Varden	High	1.7	2.3
Dolly Varden	Moderate	1.6	1.6
Dolly Varden	Low	0.9	0.3
King	High	0.9	0
King	Moderate	2.3	2.8
King	Low	0	0.9
Pink	High	5.6	4.3
Pink	Moderate	11	0
Pink	Low	11.2	0.9
Sockeye	High	1.6	75,577 acres
Sockeye	Moderate	20.9	0
Sockeye	Low	3.2	0

**(e) Wildlife Resource:** A wildlife habitat model for forested lands was run to show relative values of different habitat types between roadless areas. The model is based on a species list for the Kenai Peninsula and therefore is not totally accurate for the Prince William Sound and Copper River Delta ecosystems. Small changes in the habitat capability index are not significant. Changes of 0.1 or more show a definite difference in capability. Acreage figures for the different habitat types are more important than the habitat capability index. The following tables show species counts for each habitat type and habitat capacity and diversity for wildlife.

	Conifer/ Deciduous	Deciduous	Spruce	Spruce/ Hemlock	Hemlock
Land Birds	56	44	50	51	51
Aquatic Birds	6	7	8	8	8
Mammals	22	18	25	25	25

**Habitat capability and diversity of wildlife in the College Fiord Area (09).**

Land Cover	Percent	Area (Acres)	Animal Species Diversity Index	Habitat Capability for Forested Habitats			
				Land Birds	Aquatic Birds	Mammals	Combined
Hemlock/spruce	7.1	80,300	0.91	0.57	0.51	0.53	0.55
Noncommercial	51.3	41,200					
Seedling/sapling	0.6	500					
Midsuccessional	1.1	900					
Old-growth	46.9	37,700					
Hemlock	11.0	125,120	0.92	0.50	0.45	0.46	0.48
Noncommercial	69.9	87,500					
Seedling/sapling	0.0	20					
Midsuccessional	1.1	1,400					
Old-growth	28.9	36,200					
Spruce	0.6	6,280	0.92	0.57	0.51	0.53	0.55
Noncommercial	47.8	3,000					
Seedling/sapling	1.3	80					
Midsuccessional	3.2	200					
Old-growth	47.8	3,000					
Deciduous	0.0	300	0.64	0.33	0.19	0.41	0.33
Noncommercial	33.3	100					
Seedling/sapling	33.3	100					
Midsuccessional	33.3	100					
Old-growth	0.0	0					
Conifer/deciduous	0.0	230	0.82	0.36	0.33	0.45	0.39
Noncommercial	30.4	70					
Seedling/sapling	8.7	20					
Midsuccessional	43.5	100					
Old-growth	17.4	40					
Shrubs	0.4	4,800					
Nonshrub vegetation	0.5	6,200					
Lakes	1.3	14,300					
Other (e.g., rock, ice)	20.5	232,600					
Data missing	58.5	659,480					
<b>Total</b>	<b>100.0</b>	<b>1,129,610</b>	<b>0.08<sup>9</sup></b>				

<sup>9</sup> The combined diversity index includes shrub, nonshrub vegetation, lakes, rock, ice, and no data. It is not just the mean of the timbered habitats.

**(f) Threatened, Endangered and Sensitive Species:** No federally listed threatened or endangered species occur within the area. The following Alaska Region sensitive species are known or suspected to occur in or near the area:

Crucifer, no common name ( <i>Apragmus escholtzianus</i> )	known
Norberg arnica ( <i>Arnica lessigii</i> ssp. <i>norbergii</i> )	known
Goose-grass sedge ( <i>Carex lenticularis</i> var. <i>dolia</i> )	known
Northern rockcress ( <i>Draba borealis</i> var. <i>maxima</i> )	suspected
Kamchatka rockcress ( <i>Draba kamtschatica</i> )	known
Tundra whitlow-grass ( <i>Draba kananaskis</i> )	known
Truncate quillwort ( <i>Isoetes truncata</i> )	suspected
Calder lovage ( <i>Ligusticum calderi</i> )	suspected
Pale poppy ( <i>Papaver alboroseum</i> )	known
Choris bog orchid ( <i>Platanthera chorisiana</i> )	suspected
Smooth alkali grass ( <i>Puccinellia glabra</i> )	known
Kamchatka alkali grass ( <i>Puccinellia kamtschatica</i> )	suspected
Unalaska mist-maid ( <i>Romanzoffia unalaschensis</i> )	suspected
Circumpolar starwort ( <i>Stellaria ruscifolia</i> ssp. <i>aleutica</i> )	suspected

**(5) Current Use and Management:** Most of this area is recommended for Wilderness designation in the 1984 Forest Plan. All of it falls within the Wilderness Study Area identified in ANILCA and is being managed to maintain its wilderness character until congressional action is taken. The area near the shore is popular with boat or kayak based recreation users. Commercial fishing is heavy, especially in the Port Wells area. The eastern most edge of the unit along Valdez Arm, which falls within Management Area 7, Gravina (14,700 acres). The majority of the area (1,118,000 acres) is within Management Area 6, College Fiord in the 1984 Forest Plan. The primary management goals for the area are to increase developed and dispersed recreation, enhance marine oriented recreation opportunities, maintain landscape character, maintain existing wilderness character in areas recommended for Wilderness, recommend Wilderness designation, maintain wildlife habitat and improve fish habitat.

**(6) Historic Motorized Use:** There is essentially no historic motorized use of the uplands within this area. Extensive motorized use in the form of powerboats and aircraft occurs adjacent to the uplands. There are no Forest development roads open to motorized travel in the unit.

**(7) Appearance (Apparent Naturalness):** The majority of this roadless area is natural appearing, where only ecological change has occurred. There is a 1/2-mile private road in the unit used as part of the Esther Passage Fish Hatchery. The table below displays the scenic integrity for the roadless area.

Scenic Integrity	Acres
Very High	1,129,610
High	0
Moderate	0
Low	0
Very Low	0

**(8) Surroundings (External Influences):** The southern edge of the unit abuts Prince William Sound and is influenced by the marine based recreation and commercial activities that take place there. The northern and eastern edge abuts state land, which is essentially undeveloped. The eastern boundary lies along Valdez Arm and undeveloped land. Numerous glaciers surround the northern, eastern and western boundary of the unit making it unlikely any development will encroach on the area.

**(9) Attractions and Features of Special Interest:** The area offers spectacular scenery with tidewater glaciers and large granite protrusions climbing out of the ocean. The Harriman Fiord portion has spectacular scenery visible from a boat on saltwater or from aircraft. The terrain is extremely rugged with barren rock cliffs rising from saltwater to over 7,000 feet in elevation. Numerous tidewater and hanging glaciers can be seen from saltwater. Columbia glacier, one of the largest tidewater glaciers on the Pacific Coast flows into Columbia Bay. It is currently undergoing catastrophic retreat. The Unakwik area includes Cascade Falls and the head of Cascade Bay. The falls drop 75-100 feet directly into saltwater.

## B. Capability of Management as Wilderness or in an Unroaded Condition

**(1) Manageability and Management Area Boundaries:** The state and private land boundaries within the area are not well defined. State land below the mean high tide line is also poorly defined.

**(2) Natural Appearance and Integrity:** This area has a very high degree of natural integrity. Most long-term ecological processes are intact and operating. While some evidence of human activity exists (e.g., mining operating, trails, and cabins), these activities have had little or no effect on the natural appearance of the area.

**(3) Opportunity for Solitude:** The opportunity for solitude in this area is high. The area is very large, has a high degree of topographic screening, and few permanent off-site intrusions. The distance from the perimeter to the core is more than 25 miles.

**(4) Opportunity for Primitive Recreation:**

ROS Class	Acres
Primitive 1 (P1)	891,300
Primitive 2 (P2)	64,700
Semi-primitive Nonmotorized (SPNM)	125,700
Semi-primitive Motorized (SPM)	46,300
Roaded Modified (RM)	1,600

There are 7 miles of trail and three recreation cabins in the area. About 771,610 acres have been recommended for Wilderness classification.

**(5) Special Features (Ecologic, Geologic, Scientific):** Mt. Marcus Baker, the highest mountain in the Chugach Range is located at the northern edge of the unit. Columbia Glacier is undergoing catastrophic retreat and is of interest to scientists and tourists. The northern most extension of Alaska yellow cedar can be found in Wells Bay and Glacier Island.

**C. Availability for Management as Wilderness or in an Unroaded Condition****(1) Resource Potentials**

**(a) Recreation Potential:** High potential for boat and kayak based recreation.

**(b) Fish Resource:** Development of spawning and rearing habitat features associated with large woody debris is an opportunity within floodplain and mixed control stream types is a primary opportunity within the area.

**(c) Wildlife Resource:** There is a low potential for wildlife habitat improvement projects.

**(d) Timber Resource:** There are 56,000 acres inventoried as tentatively suitable for harvest.

**(e) Land Use Authorizations:** There is a special use permit for a fish hatchery at Cannery Creek in Unakwik Inlet. There is a special use permit for an oyster farm at Fairmont Point, the site of an old cannery.

**(f) Minerals:** Historic mining activity includes lode mines at Harrison Lagoon, Portage Mine near Poe Bay, and Mineral King Mine at Bettles Bay. There are 109 old mines within the area and 54 old mining claims, most within the Bettles and Hobo Bay area. The majority of the area is underlain by under-evaluated, unevaluatable and undiscovered highly favorable mineralized zone containing silver with several potential moderate or most mineralized zones concentrated along Port Wells. Small lode and placer gold deposits are widespread as are small lead, zinc, molybdenum, nickel, and copper occurrences. An intensive study by the Bureau of Mines in the Unakwik Inlet area identified the

presence of copper, lead, zinc, nickel, gold, silver, and fluorite. While there are historic mining claims in the Unakwik area as of 1992 there were no active claims (Roe and Balen, 1994). There is a moderately favorable copper mineralized zone at the east end of Glacier Island.

**(g) Cultural Resources:** There are 96 known cultural sites within the area.

**(h) Areas of Scientific Interest:** The 1984 Forest Plan proposed the establishment of two RNAs in this roadless area, Granite Cove and Harvard Glacier. To date, neither has been designated as an RNA.

## **(2) Management Considerations**

**(a) Timber:** There is a moderate potential for commercial timber harvest

**(b) Fire:** Wildfire is not a significant danger in this area.

**(c) Insect and Disease:** No major outbreaks of insects or diseases have been detected in this unit (Holsten et al. 1996).

**(d) Land Status:** There are 19,920 acres of state and private lands within the roadless area. All state, Native corporation and private lands would require access from Prince William Sound. Wilderness designation could affect access to some lands.

## **D. Wilderness Evaluation**

**(1) Nearby Roadless and Wilderness Areas and Uses:** The area lies adjacent to the Twentymile roadless area to the west, the Nellie Juan and Prince William Sound Island roadless areas to the south and the Fidalgo-Gravina roadless area to the east. Except for the Twentymile roadless area the upland portions of the adjacent roadless areas are separated by the waters of Prince William Sound.

**(2) Distance from Population Centers (Accessibility):** Valdez is about 15 air miles and 20 boat miles from its eastern edge. Whittier is about 12 boat miles from its southern edge. Cordova is about 60 air miles away and Anchorage is about 50-55 air miles from its western edge. There are no established landing sites within the roadless area. All aircraft access is by floatplane to saltwater or large lakes. Limited landing on the glaciers by aircraft fitted with skis occurs.

**(3) Interest by Proponents:** This roadless area has been the focus of Wilderness designation dating back to the early 1970s. During review of the DEIS, there was a high interest in Wilderness designation.

**(4) Relative Contribution to the National Wilderness Preservation System:** If the College Fiord Roadless Area were designated as Wilderness it would add about 356,000 acres of the Prince William Sound Mainland Ecosubsection and 772,000 acres of the Chugach Icefields Ecosubsection to the National Wilderness Preservation System. Habitat for wildlife and fish typically found on the Prince William Sound would be protected. Habitat manipulation would only be done to restore natural ecosystem conditions. Wilderness management would protect the high opportunity for solitude in the area. Outstanding examples of tidewater glaciers, Chugach Icefields, large granite protrusion, spectacular scenery at Harriman Fiord and Cascade Bay, Columbia Glacier (one of the largest tidewater glaciers on the Pacific Coast), and Cascade Falls would be managed in a Wilderness environment.

## E. Environmental Consequences

**(1) Management Area Prescriptions:** The following table shows the management area prescriptions by alternatives for the College Fiord Roadless Area. Management area prescriptions are described in the FEIS, Chapter 2.

<b>Management area prescriptions by alternative.</b>								
Prescription #	NA	Preferred	A	B	C	D	E	F
131	845,040	827,420		446,830	462,980	581,310	801,970	1,009,680
134		4,490			140	140	7,680	70,880
140	34,200			5,710	5,710	17,980	17,980	17,980
210		297,700						
211	235,760			169,910	82,190	89,490	301,960	18,130
212			943,780	369,700	500,160	382,000	20	12,940
231					60,300	58,690		
244					220			
312	14,610		124,590	137,460	17,910			
411			61,240					
<b>Total</b>	<b>1,129,610</b>							

**(2) Environmental Impacts:** Under Alternatives F, 89 percent of the College Fiord Roadless Area would be recommended for Wilderness designation. Under the No-Action Alternative about 75 percent would be recommended as Wilderness; under the Preferred Alternative, about 73 percent, Alternative E, about 71 percent; Alternative E. 51 percent, Alternative C, 41 percent; and Alternative B, 40 percent. The wilderness character and primitive opportunities on these lands would be protected. Mineral and timber outputs on these lands would be foregone. None of the College Fiord Roadless Area is recommended for Wilderness designation under any other alternatives.

Under Alternative B, about 12 percent of the College Fiord Roadless Area would be available to be managed with new Forest Service road construction. Under Alternative A, 11 percent would

be available and Alternative C, 2 percent. Mineral and timber resources would be available.

It is projected that under Alternative B, 1.7 miles of new roads could be constructed during the first decade. Under Alternative A, 2.6 miles could be constructed and under Alternative C, 0.1 miles. Over time, as new roads are constructed, the roadless character and primitive recreation opportunities would be lost. None of the College Fiord Roadless Area would be affected by Forest Service road construction under Alternative D, E, or F, the No Action Alternative or the Preferred Alternative.

Under Alternative A, about 89 percent of the College Fiord Roadless Area would be managed for non-Wilderness roadless values, 57 percent under Alternative B, 49 percent under Alternative C, 48 percent under Alternative B, 29 percent under Alternative E, 27 percent under the Preferred Alternative, 25 under the No Action Alternative, and 11 percent under Alternative F. Minerals resources would still be available. The roadless character and primitive opportunities on these lands would be maintained. Access to some private lands could be more difficult.

Long-term changes in plant and animal species diversity, in excess of the expected range of variability in the College Fiord Roadless Area, are not anticipated under any alternative (see pages C-3 and C-4). See FEIS, Chapter 3 for a more detailed disclosure of the effect of Wilderness/non-Wilderness management.



<b>Fidalgo-Gravina Roadless Area</b>
--------------------------------------

**NAME:** 10 Fidalgo-Gravina

**ACRES (GROSS):** 530,310

**ACRES (NFS):** 316,330

**PROVINCE:** Pacific Coastal Mountains Forest-Meadow Province and Pacific Gulf Coastal Forest-Meadow Province

**ECOSECTION:** Chugach Mountain Section and Northern Gulf Fjordlands Section

**ECOSUBSECTION:** M244Aa Chugach Icefields Subsection (55,800 acres); M244Ab Lowe River Subsection (8,200 acres); M245Ab Prince William Sound Mainland Subsection (184,230 acres); M245Ac Prince William Sound Islands (68,100 Acres)

#### **A. Description**

**(1) Relationship to RARE II Areas:** This unit encompasses the RARE II roadless area 014. It has a RARE II WARS rating of 25. It was recommended for further planning in the RARE II EIS. Small parts of the unit within the Rude River watershed north of the Forest boundary prior to 1980 were not evaluated during the RARE II process.

**(2) History:** The coastline is within the historic range of the Chugach Eskimos, who lived in the area for thousands of years. Captain James Cook entered Prince William Sound in 1778 and in 1793 the Russians established a fort at Nuchek village in Prince William Sound to begin trading for sea otters. The village of Tatitlek lies within this area. The town of Elamar, near Tatitlek, flourished as a copper, gold and silver mining center during the early 1900s. The area produced a large amount of copper in the early 1900s.

**(3) Location and Access:** The area is located in northeastern Prince William Sound. The majority of National Forest System land lies north and inland of private land, which surrounds most of the coastline. Access is almost exclusively by floatplane or boat. There are several anchorages and beaches used by boaters and kayakers that provide entry points to the uplands.

#### **(4) Ecosystem**

**(a) Geography and Topography:** This area falls within two provinces and four ecological subsections. The upper elevations of the area falls within the Chugach Icefields Subsection of the Pacific Coastal Mountains Forest-Meadow Province. Most of the lower elevations fall within the Prince William Sound Mainland Prince William Sound Islands Subsection of the Pacific Gulf Coastal Forest-Meadow Province. At lower elevations the topography consists of steep tree covered and rocky sideslopes and the

included valley bottoms. The valleys are normally characterized by glacial alluvial outwash; sideslopes were originally shaped by major valley glaciers. Within the Chugach Icefields Subsection the topography is very rugged with jagged mountains and nunataks surrounded by ice fields and glaciers. Elevations range from about 1,500 to 13,000 feet. The lithology consists of numerous types of marine siltstones and meta-sandstones with several granite intrusions.

**(b) Vegetation:** Vegetation is scarce within the Chugach Icefields Subsection. Predominant plants are lichens and dwarf shrubs (e.g., crowberry, starry cassiope, luetkea, bog blueberry).

Within the Prince William Sound Mainland and Prince William Sound Islands Subsections characteristic needleleaf forest species include Sitka spruce, mountain hemlock, and western hemlock. Mixed forests are rare in this subsection. Tall scrubland dominated by Sitka alder characterizes avalanche chutes and beach fringe areas. Undergrowth species common beneath the tree canopies of the forest zone include: early and Alaska blueberry, devil's club, rusty menziesia, copperbush, yellow skunk-cabbage, deer cabbage, Pacific reedgrass, wood fern, splendid feathermoss, and rhytidiadelphus mosses. Characteristic species of the scrublands and herblands include: salmonberry, crowberry, bog blueberry, starry cassiope, Aleutian mountain heather, Luetkea, tall Alaska cotton grass, tufted clubrush, bluejoint reedgrass, beach rye, Lygbyei sedge, few-flowered sedge, many-flowered sedge, and sphagnum mosses.

**(c) Soils:** The soils on most sideslopes are formed in parent material originating from either bedrock or glacial drift. In general they are usually well or moderately well drained, and moderately deep to deep. Soils range from very acidic under well-developed forested stands to slightly acid on treeless sites. Normally the soils have a surface organic layer, which is thickest under a forest canopy or in wetter areas. Tree and plant roots are restricted to the surface organic layer or the upper few inches of the mineral soil.

Shallow, well-drained, moderately acid soils are normally found on tops or small hills and in the alpine. Frequently there is only a thin surface organic layer. Plant roots are restricted to the surface organic layer and the upper few inches of the mineral soil.

Flat plateaus and basins commonly have numerous areas where soil drainage is restricted, which affords the development of very poorly to poorly drained, very acidic, shallow to deep organic soils. These are most common in areas of high precipitation.

Soils in the valley bottoms are usually formed in alluvial deposits and are well to poorly drained, depending on the depth of the water

table, and slightly acid. Rooting is normally in the thin surface organic layer and the mineral soils.

**(d) Fish Resource:** The following table displays the mapped (known) amount of habitat available.

Species	Habitat Quality	Spawning Habitat (miles)	Rearing Habitat (miles)
Chum	High	6.4	0
Chum	Moderate	19.4	0
Chum	Low	1.9	0.1
Coho	High	5.9	6.6
Coho	Moderate	4.3	8.9
Coho	Low	6.3	1.1
Pink	High	10.8	11
Pink	Moderate	13.9	0
Pink	Low	5.9	0
Sockeye	High	1	60 acres
Sockeye	Moderate	6.6	0

**(e) Wildlife Resource:** A wildlife habitat model for forested lands was run to show relative values of different habitat types between roadless areas. The model is based on a species list for the Kenai Peninsula and therefore is not totally accurate for the Prince William Sound and Copper River Delta ecosystems. Small changes in the habitat capability index are not significant. Changes of 0.1 or more show a definite difference in capability. Acreage figures for the different habitat types are more important than the habitat capability index. The following tables show species counts for each habitat type and habitat capacity and diversity for wildlife.

	Conifer/ Deciduous	Deciduous	Spruce	Spruce/ Hemlock	Hemlock
Land Birds	56	44	50	51	51
Aquatic Birds	6	7	8	8	8
Mammals	22	18	25	25	25

**Habitat capability and diversity of wildlife in the Fidalgo-Gravina Area (10).**

Land Cover	Percent	Area (Acres)	Animal Species Diversity Index	Habitat Capability for Forested Habitats			
				Land Birds	Aquatic Birds	Mammals	Combined
Hemlock/spruce	8.1	22,000	0.91	0.63	0.57	0.59	0.61
Noncommercial	32.7	7,200					
Seedling/sapling	0.0	0					
Midsuccessional	3.2	700					
Old-growth	64.1	14,100					
Hemlock	22.5	60,900	0.92	0.53	0.48	0.50	0.52
Noncommercial	59.4	36,200					
Seedling/sapling	0.0	0					
Midsuccessional	2.0	1,200					
Old-growth	38.6	23,500					
Spruce	1.0	2,800	0.90	0.51	0.45	0.54	0.51
Noncommercial	32.1	900					
Seedling/sapling	3.6	100					
Midsuccessional	25.0	700					
Old-growth	39.3	1,100					
Deciduous	0.8	2,180	0.64	0.28	0.32	0.36	0.30
Noncommercial	59.6	1,300					
Seedling/sapling	3.7	80					
Midsuccessional	32.1	700					
Old-growth	4.6	100					
Conifer/deciduous	0.7	1,840	0.82	0.32	0.42	0.32	0.36
Noncommercial	38.0	700					
Seedling/sapling	2.2	40					
Midsuccessional	48.9	900					
Old-growth	10.9	200					
Shrubs	0.7	1,900					
Nonshrub vegetation	3.3	9,000					
Lakes	1.5	4,000					
Other (e.g., rock, ice)	53.9	145,800					
Data missing	7.5	65,910					
<b>Total</b>	<b>100.0</b>	<b>316,910</b>	<b>0.12<sup>10</sup></b>				

<sup>10</sup> The combined diversity index includes shrub, nonshrub vegetation, lakes, rock, ice, and no data. It is not just the mean of the timbered habitats.

**(f) Threatened, Endangered and Sensitive Species:** No federally listed threatened or endangered species occur within the area. The following Alaska Region sensitive species are known or suspected to occur in or near the area:

Crucifer, no common name ( <i>Apragmus escholtzianus</i> )	known
Norberg arnica ( <i>Arnica lessigii</i> ssp. <i>norbergii</i> )	known
Goose-grass sedge ( <i>Carex lenticularis</i> var. <i>dolia</i> )	known
Northern rockcress ( <i>Draba borealis</i> var. <i>maxima</i> )	suspected
Kamchatka rockcress ( <i>Draba kamtschatica</i> )	known
Tundra whitlow-grass ( <i>Draba kananaskis</i> )	known
Truncate quillwort ( <i>Isoetes truncata</i> )	suspected
Calder lovage ( <i>Ligusticum calderi</i> )	suspected
Pale poppy ( <i>Papaver alboroseum</i> )	known
Choris bog orchid ( <i>Platanthera chorisiana</i> )	suspected
Smooth alkali grass ( <i>Puccinellia glabra</i> )	known
Kamchatka alkali grass ( <i>Puccinellia kamtschatica</i> )	suspected
Unalaska mist-maid ( <i>Romanzoffia unalaschensis</i> )	suspected
Circumpolar starwort ( <i>Stellaria ruscifolia</i> ssp. <i>aleutica</i> )	suspected

**(5) Current Use and Management:** Most of this roadless area (271,930 acres) falls within Management Area 7, Gravina in the 1984 Forest Plan. Primary management goals for the area are enhance marine oriented recreation opportunities, maintain wildlife habitat, and, improve fish habitat. Current use in the area is light with recreation being the primary use. A portion of the roadless area (44,400 acres) falls within Management Area 9, Copper River. Here the primary management goals for the area are to conserve fish and wildlife habitat as required by Section 501(b) of ANILCA, maintain and increase dispersed and developed recreation opportunities and maintain landscape character.

**(6) Historic Motorized Use:** There is essentially no historic motorized use of the uplands within this area. Extensive motorized use in the form of powerboats and aircraft occurs adjacent to the uplands. There are no Forest development roads open to motorized vehicles in the unit.

**(7) Appearance (Apparent Naturalness):** The majority of this roadless area is natural appearing, where only ecological change has occurred. However, no inventory of scenic integrity has been conducted to date.

**(8) Surroundings (External Influences):** The majority of the low-lying, coastal land within the area is either private land or under selection. Some of the private land is undergoing timber management. Where the edge of the unit abuts Prince William Sound it is influenced by the marine based recreation and commercial activities that take place there. The northern edge abuts Bureau of Land Management or state land that is essentially undeveloped. The western boundary lies along Valdez Arm.

**(9) Attractions and Features of Special Interest:** None listed.

## **B. Capability of Management as Wilderness or in an Unroaded Condition**

**(1) Manageability and Management Area Boundaries:** The boundaries of the management area are poorly defined where Forest Service land abuts state or private land. The northern edge of the unit, which is the Forest boundary with BLM land, is also poorly defined on the ground. There are several portions of the unit that are completely surrounded by other ownership. Several small parcels in this unit are adjacent to the Tasnuna River roadless area but are separated from the rest of the unit by state land.

**(2) Natural Appearance and Integrity:** This area has a very high degree of natural integrity. Most long-term ecological processes are intact and operating. While some evidence of human activity exists (e.g., mining operations, trails, and cabins), these activities have had little or no effect on the natural appearance of the area.

**(3) Opportunity for Solitude:** Opportunities for solitude in the area are high, especially away from the marine influence. The area provides a high degree of topographic screening. The distance from the perimeter to the core is 3-5 miles.

### **(4) Opportunity for Primitive Recreation:**

<b>ROS Class</b>	<b>Acres</b>
Primitive 1 (P1)	259,130
Primitive 2 (P2)	17,900
Semi-primitive Nonmotorized (SPNM)	35,900
Semi-primitive Motorized (SPM)	3,400

There are 31 miles of trail and one recreation cabin in the unit at the head of Jack Bay.

**(5) Special Features (Ecologic, Geologic, Scientific):** The proposed Olsen Creek Research Natural Area is within this unit.

## **C. Availability for Management as Wilderness or in an Unroaded Condition**

### **(1) Resource Potentials**

**(a) Recreation Potential:** Remote Islands.

**(b) Fish Resource:** There are opportunities for fish habitat improvement.

**(c) Wildlife Resource:** There is a low potential for wildlife habitat improvement.

**(d) Timber Resource:** There are 38,500 acres inventoried as tentatively suitable for harvest.

**(e) Land Use Authorizations:** Private road easement – closed.

**(f) Minerals:** There is a undiscovered, highly favorable mineral potential zone extending from Port Valdez eastward along the Forest boundary containing gold and copper. There is another most favorable and unidentified, highly favorable mineralized zone extending from private land into the St. Matthews/Olsen Bay area containing gold, copper and zinc and a weak silver mineralized zone north of Jackpot Bay. There are 66 mines within the area, 25 of which are on National Forest System land. There are no mining claims within the area.

**(g) Cultural Resources:** There are 4 known cultural sites within the area.

**(h) Areas of Scientific Interest:** The proposed Olsen Creek RNA is within this area.

## **(2) Management Considerations**

**(a) Timber:** There is a moderate potential for commercial timber harvest.

**(b) Fire:** Wildfire is not a serious problem in this unit.

**(c) Insect and Disease:** No major outbreaks of insects or diseases have been detected in this unit.

**(d) Land Status:** There are 215,980 acres of state, Native and village corporation, and private lands within the roadless area. Easements across private land are provided at strategic locations to provide access to National Forest System lands away from the shore. There are several small parcels within this unit that are completely surrounded by private land. Almost all state and private lands would require access from Prince William Sound. Wilderness designation could affect access to some state and private lands. Isolated parcels would be difficult to manage as Wilderness.

## **D. Wilderness Evaluation**

**(1) Nearby Roadless and Wilderness Areas and Uses:** The Sheridan Glacier roadless area abuts the eastern boundary of the unit and the Hinchinbrook-Hawkins roadless area lies to the south. The Forest boundary forms the northern boundary of the unit. Private land takes up most of the coastline and the community of Tatitlek is within the exterior boundary of the unit. Cordova lies just to the east of the unit across Orca inlet. The Wrangell-Saint Elias National Park and Preserve Wilderness is about 20 miles to the northeast.

**(2) Distance from Population Centers (Accessibility):** Accessibility to the unit is limited. There is limited public land or easements to the uplands. Cordova is about 15 miles from the

edge of the unit. Valdez is five miles to the north by boat across Valdez Narrows.

**(3) Interest by Proponents:** There is some interest in Wilderness classification.

**(4) Relative Contribution to the National Wilderness Preservation System:** If the Fidalgo-Gravina Roadless Area were designated as Wilderness it would add about 8,000 acres of the Lower River Ecosubsection, 184,000 acres of the Prince William Sound Mainland Ecosubsection, 68,000 acres of the Prince Williams Sound Islands Ecosubsection, and 55,000 acres of the Chugach Icefields Ecosubsection to the National Wilderness Preservation System. Habitat for wildlife and fish typically found on the Prince William Sound would be protected. Habitat manipulation would only done to restore natural ecosystem conditions. Wilderness management would protect the high opportunity for solitude in the area.

## E. Environmental Consequences

**(1) Management Area Prescriptions:** The following table shows the management area prescriptions by alternatives for the Fidalgo-Gravina Roadless Area. Management area prescriptions are described in the FEIS, Chapter 2.

<b>Management area prescriptions by alternative.</b>								
<b>Prescription #</b>	<b>NA</b>	<b>Preferred</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>
111				13,190	11,070	11,040	79,830	
131								18,180
133							17,940	
141		6,690		6,690	6,690	6,690	6,690	6,690
210		233,240						
211	20			23,390	181,410	222,200	153,400	184,870
212			107,810	131,290	40,760			
213		17,940			17,940	17,940		
221	58,460	58,460	58,46	58,460	58,460	58,460	58,460	58,460
244	26,000		10	35,030				48,130
312	213,910		87,580	47500				
321	17,940		17,940					
411			44,530					
<b>Total</b>	<b>316,330</b>	<b>316,330</b>	<b>316,330</b>	<b>316,330</b>	<b>316,330</b>	<b>316,330</b>	<b>316,330</b>	<b>316,330</b>

**(2) Environmental Impacts:** Under Alternatives F, 5 percent of the Fidalgo-Gravina Roadless Area would be recommended for Wilderness designation. The wilderness character and primitive opportunities on these lands would be protected. Mineral and timber outputs on these lands would be foregone. None of the Fidalgo-Gravina Roadless Area is recommended for Wilderness designation under any other alternatives.

Under the No Action Alternative, about 73 percent of the Fidalgo-Gravina Roadless Area would be available to be managed with new Forest Service road construction. Under Alternative A, 47 percent would be available and Alternative B, 15 percent. Mineral and timber resources would be available.

It is projected that under the No Action Alternative, 4.8 miles of new roads could be constructed during the first decade. Under Alternative B, 4.5 miles could be constructed and under Alternative A, 6.9 miles. Over time, as new roads are constructed, the roadless character and primitive recreation opportunities on these lands would be lost. There would be no Forest Service road construction under Alternatives C, D, E, F, or the Preferred Alternative.

Road construction would be conditional on 11 percent of the Fidalgo-Gravina Roadless Area under Alternative B and 8 percent under the No Action Alternative. Minerals resources would be available. Over time, if new roads are constructed, the roadless character and primitive opportunities on some of these lands could be lost.

Under the Preferred Alternative and Alternatives C, D, and E, all of the Fidalgo-Gravina Roadless Area would be managed for non-Wilderness roadless values, 95 percent under Alternative F, 74 percent under Alternative B, 53 percent under Alternative A, and 25 percent under the No Action Alternative. Minerals resources would still be available. The roadless character and primitive opportunities on these lands would be maintained.

Long-term changes in plant and animal species diversity, in excess of the expected range of variability in the Fidalgo-Gravina Roadless Area, are not anticipated under any alternative (see pages C-3 and C-4). See FEIS, Chapter 3 for a more detailed disclosure of the effect of Wilderness/non-Wilderness management.



<b>Montague Island Roadless Area</b>
--------------------------------------

**NAME:** 11 Montague Island

**ACRES (GROSS):** 254,310                      **ACRES (NFS):** 205,270

**PROVINCE:** Pacific Gulf Coastal Forest-Meadow Province

**ECOSECTION:** Northern Gulf Fjordlands Section

**ECOSUBSECTION:** M245Ac Prince William Sound Islands Subsection (205,270 acres)

#### **A. Description**

**(1) Relationship to RARE II Areas:** This roadless area encompasses the RARE II roadless area 013. It has a RARE II WARS rating of 22 and was recommended for further planning in the RARE II EIS.

**(2) History:** The area is within the historic range of the Chugach Eskimos, who lived in the area for thousands of years. The old village site of Chenega, destroyed by the 1964 earthquake, lies within several miles this roadless area. Captain James Cook entered Prince William Sound in 1778 and in 1795 the Russians established a fort at Nuchek on Hinchinbrook Island to begin trading for sea otters (Johnson 1984).

**(3) Location and Access:** The unit is made up of Montague, Green, Little Green, Latouche (all private) and Evans Islands. It is located in southern Prince William Sound and is only accessible by floatplane or boat. There are no established trails in the area however, there are 9 miles of primitive trails.

#### **(4) Ecosystem**

**(a) Geography and Topography:** The unit is made up of a group of island, the largest being Montague Island. The area falls within Prince William Sound Island Subsection of the Pacific Gulf Coastal Forest-Meadow Province. The topography includes islands with vegetated, steep, rugged and rolling mountains. The islands were uplifted significantly by the 1964 earthquake creating low, flat shorelines, especially on the southern half of Montague Island. There are also rounded or smooth marine terraces that have been smoothed by wave action before they were lifted above the water by tectonic events. The lithology consists primarily of marine shales and meta-sandstones.

**(b) Vegetation:** Characteristic needleleaf forest species include Sitka spruce, mountain hemlock, and western hemlock. Mixed forests are rare in this subsection. Broadleaf forests of black cottonwood forests are common only along streams on Montague Island. Tall scrubland dominated by Sitka alder characterizes

avalanche chutes and beach fringe areas. Undergrowth species common beneath the tree canopies of the forest zone include: early and Alaska blueberry, devil's club, rusty menziesia, copperbush, yellow skunk-cabbage, deer cabbage, Pacific reedgrass, wood fern, splendid feathermoss, and rhytidiadelphus mosses. Characteristic species of the scrublands and herblands include: salmonberry, crowberry, bog blueberry, starry cassiope, Aleutian mountain heather, Luetkea, tall Alaska cotton grass, tufted clubrush, bluejoint reedgrass, beach rye, Lygbyei sedge, few-flowered sedge, many-flowered sedge, and sphagnum mosses.

**(c) Soils:** The soils on most sideslopes are formed in parent material originating from either bedrock or glacial drift. In general they are usually well or moderately well drained, and moderately deep to deep. Soils range from very acidic under well-developed forested stands to slightly acid on treeless sites. Normally the soils have a surface organic layer, which is thickest under a forest canopy or in wetter areas. Tree and plant roots are restricted to the surface organic layer or the upper few inches of the mineral soil.

Shallow, well-drained, moderately acid soils are normally found on tops or small hills and in the alpine. Frequently there is only a thin surface organic layer. Plant roots are restricted to the surface organic layer and the upper few inches of the mineral soil.

Flat plateaus and basins commonly have numerous areas where soil drainage is restricted, which affords the development of very poorly to poorly drained, very acidic, shallow to deep organic soils. These are most common in areas of high precipitation.

Soils in the valley bottoms are usually formed in alluvial deposits and are well to poorly drained, depending on the depth of the water table, and slightly acid. Rooting is normally in the thin surface organic layer and the mineral soils.

**(d) Fish Resource:** The following table displays the mapped (known) amount of habitat available.

Species	Habitat Quality	Spawning Habitat (miles)	Rearing Habitat (miles)
Chum	High	2.8	0
Chum	Moderate	2.1	0
Chum	Low	0	0.3
Coho	High	10.9	14.7
Coho	Moderate	10.9	12.9
Coho	Low	10	0
Cutthroat	High	0.2	0.2
Cutthroat	Moderate	0	0.9
Cutthroat	Low	0.8	0.8
Dolly Varden	High	1.4	2.9
Dolly Varden	Low	2.3	0.8
Pink	High	15	7.8
Pink	Moderate	19.8	0
Pink	Low	7.2	0
Sockeye	High	1.3	67
Sockeye	Moderate	0.3	0
Sockeye	Low	0.4	0

**(e) Wildlife Resource:** Sitka black-tailed deer and brown bear are the dominant large mammals in the unit. A wildlife habitat model for forested lands was run to show relative values of different habitat types between roadless areas. The model is based on a species list for the Kenai Peninsula and therefore is not totally accurate for the Prince William Sound and Copper River Delta ecosystems. Small changes in the habitat capability index are not significant. Changes of 0.1 or more show a definite difference in capability. Acreage figures for the different habitat types are more important than the habitat capability index. The following tables show species counts for each habitat type and habitat capacity and diversity for wildlife.

	Conifer/ Deciduous	Deciduous	Spruce	Spruce/ Hemlock	Hemlock
Land Birds	56	44	50	51	51
Aquatic Birds	6	7	8	8	8
Mammals	22	18	25	25	25

**Habitat capability and diversity of wildlife in the Montague Area (11).**

Land Cover	Percent	Area (Acres)	Animal Species Diversity Index	Habitat Capability for Forested Habitats			
				Land Birds	Aquatic Birds	Mammals	Combined
Hemlock/spruce	9.7	19,000	0.90	0.70	0.60	0.65	0.68
Noncommercial	8.4	1,600					
Seedling/sapling	9.5	1,800					
Midsuccessional	0.5	100					
Old-growth	81.6	15,500					
Hemlock	28.5	55,900	0.91	0.56	0.51	0.53	0.54
Noncommercial	50.6	28,300					
Seedling/sapling	0.0	0					
Midsuccessional	3.6	2,000					
Old-growth	45.8	25,600					
Spruce	9.6	18,910	0.92	0.75	0.67	0.69	0.72
Noncommercial	2.6	500					
Seedling/sapling	0.1	10					
Midsuccessional	4.2	800					
Old-growth	93.1	17,600					
Deciduous	0.0	50	0.68	0.57	0.56	0.58	0.57
Noncommercial	0.0	0					
Seedling/sapling	20.0	10					
Midsuccessional	0.0	0					
Old-growth	80.0	40					
Conifer/deciduous	0.0	0	0.00	0.00	0.00	0.00	0.00
Noncommercial	0.0	0					
Seedling/sapling	0.0	0					
Midsuccessional	0.0	0					
Old-growth	0.0	0					
Shrubs	7.4	14,500					
Nonshrub vegetation	32.3	63,400					
Lakes	0.9	1,700					
Other (e.g., rock, ice)	10.9	21,300					
Data missing	0.7	10,510					
<b>Total</b>	<b>100.0</b>	<b>205,270</b>	<b>0.37<sup>11</sup></b>				

<sup>11</sup> The combined diversity index includes shrub, nonshrub vegetation, lakes, rock, ice, and no data. It is not just the mean of the timbered habitats.

**(f) Threatened, Endangered and Sensitive Species:** No federally listed threatened or endangered species occur within the area. The Montague tundra vole (*Microtus oeconomus amakensis*) is a candidate species found only on Montague Island. The following Alaska Region sensitive species are known or suspected to occur in or near the area:

Crucifer, no common name ( <i>Apragmus escholtzianus</i> )	known
Norberg arnica ( <i>Arnica lessigii</i> ssp. <i>norbergii</i> )	known
Goose-grass sedge ( <i>Carex lenticularis</i> var. <i>dolia</i> )	known
Northern rockcress ( <i>Draba borealis</i> var. <i>maxima</i> )	suspected
Kamchatka rockcress ( <i>Draba kamtschatica</i> )	known
Tundra whitlow-grass ( <i>Draba kananaskis</i> )	known
Truncate quillwort ( <i>Isoetes truncata</i> )	suspected
Calder lovage ( <i>Ligusticum calderi</i> )	suspected
Pale poppy ( <i>Papaver alboroseum</i> )	known
Choris bog orchid ( <i>Platanthera chorisiana</i> )	suspected
Smooth alkali grass ( <i>Puccinellia glabra</i> )	known
Kamchatka alkali grass ( <i>Puccinellia kamtschatica</i> )	suspected
Unalaska mist-maid ( <i>Romanzoffia unalaschcensis</i> )	suspected
Circumpolar starwort ( <i>Stellaria ruscifolia</i> ssp. <i>aleutica</i> )	suspected

The Montague tundra vole (*Microtus oeconomus elymocetes*) is found only on Montague Island.

**(5) Current Use and Management:** Most of the area (199,070 acres) falls within Management Area 8, Big Islands of the 1984 Forest Plan. Primary management goals for the area are to increase developed and dispersed recreation opportunities, maintain landscape character, enhance marine oriented recreation opportunities, maintain wildlife habitat and improve fish habitat. The National Forest System land portion of Evans Island (6,200 acres) falls within Management Area 5, Nellie Juan. Evans Island falls outside the Wilderness Study Area but is being managed to maintain its landscape character. Recreation use, mostly in the form of hunting and fishing, is the predominant use of the area.

**(6) Historic Motorized Use:** There is essentially no historic motorized use of the uplands within this area. Extensive motorized use in the form of powerboats and aircraft occurs adjacent to the uplands. Motorized craft are prohibited on Montague Island uplands. In the late 1980s, a 23 mile road was constructed on the south end of Montague Island to access Native corporation lands. The road was obliterated in the 1990s.

**(7) Appearance (Apparent Naturalness):** The majority of this roadless area is natural appearing, where only ecological change has occurred. However, no inventory of scenic integrity has been conducted to date.

**(8) Surroundings (External Influences):** The National Forest System lands within the area are surrounded by Prince William

Sound and are influenced by the marine based recreation and commercial activities that take place there. This roadless area is the heart of the area impacted by the *Exxon Valdez* oil spill. Timber harvest activities on private land at the south end of Montague Island and use of a special-use road for timber harvest activities are the only development occurring in the area. The special use road is now closed.

**(9) Attractions and Features of Special Interest:** None listed.

## B. Capability of Management as Wilderness or in an Unroaded Condition

**(1) Manageability and Management Area Boundaries:** The state and private land boundaries within the area are not well defined. State land below the mean high tide line is also poorly defined. The special-use road along the southern edge of Montague Island separates two small sections of the island from the rest of the roadless area.

**(2) Natural Appearance and Integrity:** This area has a very high degree of natural integrity. Most long-term ecological processes are intact and operating. While some evidence of human activity exists (e.g., old logging operations and cabins), these activities have had little or no effect on the natural appearance of the area.

**(3) Opportunity for Solitude:** The opportunity for solitude in the area is high. While the influence of marine activities is present it is often several miles away. Montague Island is the largest island in Prince William Sound but it is very narrow. The unit is far from communities and recreation boat use in the area is light. The distance from the edge to the core is between two and 20 miles. Off site activities include marine based activities such as commercial fishing and freighter traffic. These activities are easily screened by topography.

**(4) Opportunity for Primitive Recreation:**

ROS Class	Acres
Primitive 1 (P1)	154,850
Primitive 2 (P2)	35,300
Semi-primitive Nonmotorized (SPNM)	4,800
Semi-primitive Motorized (SPM)	800
Roaded Modified (RM)	9,500
Roaded (R)	20

There are nine miles of trails and six recreation cabins in the area.

**(5) Special Features (Ecologic, Geologic, Scientific):** Habitat for the Montague Island hoary marmot and the Montague Island tundra vole.

**C. Availability for Management as Wilderness or in an Unroaded Condition**

**(1) Resource Potentials**

**(a) Recreation Potential:** Isolated islands.

**(b) Fish Resource:** There is a low opportunity for fish habitat improvement.

**(c) Wildlife Resource:** Opportunities for wildlife enhancement are low.

**(d) Timber Resource:** Within this unit, 26,270 acres of tentatively suitable forest acres have been identified.

**(e) Land Use Authorizations:** There is a small lodge under special-use permit at Macleod Harbor.

**(f) Minerals:** There are no known mineralized zones on public land within the unit. There are 20 mines within the unit, all on private land. As of 1995 there are no mining claims within the area.

**(g) Cultural Resources:** There are 43 known cultural sites within the area.

**(h) Areas of Scientific Interest:** The 2,550 acre designated Green Island Research Natural Area is located in this unit.

**(2) Management Considerations**

**(a) Timber:** There is a moderate opportunity for commercial timber harvest.

**(b) Fire:** Wildfire is not a significant problem in this area.

**(c) Insect and Disease:** No major outbreaks of insects or diseases have been detected in this unit (Holsten et al. 1996).

**(d) Land Status:** There are 49,040 acres of state, Native corporation and private lands within the roadless area. All private and state lands would require access from Prince William Sound. Wilderness designation could affect access to these lands.

**D. Wilderness Evaluation**

**(1) Nearby Roadless and Wilderness Areas and Uses:** The Prince William Sound Roadless Area lies to the west and the Hinchinbrook-Hawkins Islands Roadless Area lies to the northeast.

**(2) Distance from Population Centers (Accessibility):** Anchorage is about 100 air miles northwest of this roadless area.

**(3) Interest by Proponents:** There is some interest in Wilderness designation.

**(4) Relative Contribution to the National Wilderness Preservation System:** If the Montague Island Roadless Area were designated as Wilderness it would add about 205,000 acres of the Prince Williams Sound Islands Ecosubsection to the National Wilderness Preservation System. Habitat for wildlife and fish typically found on the Prince William Sound would be protected. Habitat manipulation would only be done to restore natural ecosystem conditions. Wilderness management would protect the high opportunity for solitude in the area.

#### E. Environmental Consequences

**(1) Management Area Prescription:** The following table shows the management area prescriptions by alternatives for the Montague Island Roadless Area. Management area prescriptions are described in the FEIS, Chapter 2.

<b>Management area prescriptions by alternative.</b>								
<b>Prescription #</b>	<b>NA</b>	<b>Preferred</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>
131							6,230	202,040
132							160	
134								160
210		6,320						
211				33,020	92,570		195,810	
212						6,320		
231							520	520
242					110,150			
244		196,400	29,450	29,450		196,400		
312	202,720		67,830	140,250				
411			105,440					
666	2,550	2,550	2,550	2,550	2,550	2,550	2,550	2,550
<b>Total</b>	<b>205,270</b>	<b>205,270</b>	<b>205,270</b>	<b>205,270</b>	<b>205,270</b>	<b>205,270</b>	<b>205,270</b>	<b>205,270</b>

**(2) Environmental Impacts:** Under Alternatives F, all of the Montague Island Roadless Area would be recommended for Wilderness designation and under Alternative D, 2 percent would be recommended. The wilderness character and primitive opportunities on these lands would be protected. Mineral and timber outputs on these lands would be foregone. None of the Montague Island Roadless Area is recommended for Wilderness designation under any other alternatives.

Under the No Action Alternative, 99 percent of the Montague Island Roadless Area would be available to be managed with new Forest Service road construction. Under Alternatives A and B, 85 percent would be available. Mineral and timber resources on these lands would be available.

It is projected that under the No Action Alternative, 3.3 miles of new roads could be constructed during the first decade. Under

Alternative B, 3.2 miles could be constructed and under Alternative A, 4.9 miles. Over time, as new roads are constructed, the roadless character and primitive recreation opportunities on these lands would be lost. There would be no Forest Service road construction under Alternatives C, D, E, F or the Preferred Alternative.

Road construction would be conditional on 96 percent of the Montague Island Roadless Area under the Preferred Alternative, and 14 percent under Alternatives A and B. Minerals resources would be available. Over time, if new roads are constructed, the roadless character and primitive opportunities on some of these lands could be lost.

Under Alternatives C and E all of the Montague Island Roadless Area would be managed for non-Wilderness roadless values, 4 percent under the Preferred Alternative and Alternative F, and 1 percent under the No Action Alternative, and Alternatives A and B. Minerals resources would still be available. The roadless character and primitive opportunities on these lands would be maintained.

Long-term changes in plant and animal species diversity, in excess of the expected range of variability in the Montague Island Roadless Area, are not anticipated under any alternative (see pages C-3 and C-4). See FEIS, Chapter 3 for a more detailed disclosure of the effect of Wilderness/non-Wilderness management.



<b>Hinchinbrook-Hawkins Islands Roadless Area</b>
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**NAME:** 12 Hinchinbrook-Hawkins Islands

**ACRES (GROSS):** 156,980                      **ACRES (NFS):** 144,470

**PROVINCE:** Pacific Gulf Coastal Forest-Meadow Province

**ECOSECTION:** Northern Gulf Fjordlands Section

**ECOSUBSECTION:** M245Ac Prince William Sound Islands Subsection (144,470 acres)

#### **A. Description**

**(1) Relationship to RARE II Areas:** This unit encompasses the RARE II roadless area 015. It has a RARE II WARS rating of 23. It was recommended for further planning in the RARE II EIS.

**(2) History:** The area is within the historic range of the Chugach Eskimos, who lived in the area for thousands of years. Captain James Cook entered Prince William Sound in 1778 and in 1795 the Russians established a fort at Nuchek on Hinchinbrook Island to begin trading for sea otters. The Chugach Eskimos occupied Nuchek until the early 1900s.

**(3) Location and Access:** This roadless area is made up of Hawkins and Hinchinbrook Islands, Prince William Sound. Access is by boat or floatplane. There are no established trails in the area.

#### **(4) Ecosystem**

**(a) Geography and Topography:** The topography includes islands with vegetated, steep, rugged and rolling mountains. The islands were uplifted significantly by the 1964 earthquake creating low, flat shorelines. There are also rounded or smooth marine terraces that have been smoothed by wave action before they were lifted above the water by tectonic events. The lithology consists primarily of marine shales and meta-sandstones. The east side of Hinchinbrook Island consists of volcanic extrusive rocks.

**(b) Vegetation:** Characteristic needleleaf forest species include Sitka spruce, mountain hemlock, and western hemlock. Scattered Alaska yellow cedar occurs on Hinchinbrook and Hawkins Islands. Mixed forests are rare in this subsection. Tall scrubland dominated by Sitka alder characterizes avalanche chutes and beach fringe areas. Undergrowth species common beneath the tree canopies of the forest zone include: early and Alaska blueberry, devil's club, rusty menziesia, copperbush, yellow skunk-cabbage, deer cabbage, Pacific reedgrass, wood fern, splendid feathermoss, and rhytidiadelphus mosses. Characteristic species of the scrublands and herblands include: salmonberry, crowberry, bog blueberry, starry cassiope, Aleutian mountain heather, Luetkea, tall Alaska

cotton grass, tufted clubbrush, bluejoint reedgrass, beach rye, Lygbyei sedge, few-flowered sedge, many-flowered sedge, and sphagnum mosses.

**(c) Soils:** The soils on most sideslopes are formed in parent material originating from either bedrock or glacial drift. In general they are usually well or moderately well drained, and moderately deep to deep. Soils range from very acidic under well-developed forested stands to slightly acid on treeless sites. Normally the soils have a surface organic layer, which is thickest under a forest canopy or in wetter areas. Tree and plant roots are restricted to the surface organic layer or the upper few inches of the mineral soil.

Shallow, well-drained, moderately acid soils are normally found on tops or small hills and in the alpine. Frequently there is only a thin surface organic layer. Plant roots are restricted to the surface organic layer and the upper few inches of the mineral soil.

Flat plateaus and basins commonly have numerous areas where soil drainage is restricted, which affords the development of very poorly to poorly drained, very acidic, shallow to deep organic soils. These are most common in areas of high precipitation.

Soils in the valley bottoms are usually formed in alluvial deposits and are well to poorly drained, depending on the depth of the water table, and slightly acid. Rooting is normally in the thin surface organic layer and the mineral soils.

**(d) Fish Resource:** The following table displays the mapped (known) amount of habitat available.

Species	Habitat Quality	Spawning Habitat (miles)	Rearing Habitat (miles)
Chum	High	12.5	0
Chum	Moderate	13.3	0
Chum	Low	6.7	0.2
Coho	High	11.7	15.5
Coho	Moderate	8.1	10.8
Coho	Low	13.4	7.7
Cutthroat	High	1.7	3.4
Cutthroat	Moderate	1.7	2.8
Cutthroat	Low	2.6	2.5
Dolly Varden	High	4.5	7
Dolly Varden	Moderate	1	1.1
Dolly Varden	Low	2.6	0
Pink	High	19.3	11.4
Pink	Moderate	29.6	0
Pink	Low	13.9	0
Sockeye	High	1.6	240 acres
Sockeye	Moderate	1.5	0
Sockeye	Low	4.9	0

**(e) Wildlife Resource:** A wildlife habitat model for forested lands was run to show relative values of different habitat types between roadless areas. The model is based on a species list for the Kenai Peninsula and therefore is not totally accurate for the Prince William Sound and Copper River Delta ecosystems. Small changes in the habitat capability index are not significant. Changes of 0.1 or more show a definite difference in capability. Acreage figures for the different habitat types are more important than the habitat capability index. The following tables show species counts for each habitat type and habitat capacity and diversity for wildlife.

	Conifer/ Deciduous	Deciduous	Spruce	Spruce/ Hemlock	Hemlock
Land Birds	56	44	50	51	51
Aquatic Birds	6	7	8	8	8
Mammals	22	18	25	25	25

## Appendix C

### Habitat capability and diversity of wildlife in the Hinchinbrook-Hawkins Area (12).

Land Cover	Percent	Area (Acres)	Animal Species Diversity Index	Habitat Capability for Forested Habitats			
				Land Birds	Aquatic Birds	Mammals	Combined
Hemlock/spruce	15.3	23,250	0.92	0.65	0.59	0.61	0.63
Noncommercial	30.5	7,100					
Seedling/sapling	0.2	50					
Midsuccessional	0.0	0					
Old-growth	69.2	16,100					
Hemlock	57.4	87,200	0.92	0.50	0.45	0.46	0.48
Noncommercial	70.3	61,300					
Seedling/sapling	0.0	0					
Midsuccessional	0.3	300					
Old-growth	29.4	25,600					
Spruce	3.3	5,000	0.93	0.69	0.62	0.63	0.66
Noncommercial	24.0	1,200					
Seedling/sapling	0.0	0					
Midsuccessional	0.0	0					
Old-growth	76.0	3,800					
Deciduous	0.0	0	0.00	0.00	0.00	0.00	0.00
Noncommercial	0.0	0					
Seedling/sapling	0.0	0					
Midsuccessional	0.0	0					
Old-growth	0.0	0					
Conifer/deciduous	0.0	0	0.00	0.00	0.00	0.00	0.00
Noncommercial	0.0	0					
Seedling/sapling	0.0	0					
Midsuccessional	0.0	0					
Old-growth	0.0	0					
Shrubs	0.0	0					
Nonshrub vegetation	8.5	10,400					
Lakes	1.4	2,100					
Other (e.g., rock, ice)	14.1	16,580					
Data missing	0.0	40					
<b>Total</b>	<b>100.0</b>	<b>144,470</b>	<b>0.21<sup>12</sup></b>				

<sup>12</sup> The combined diversity index includes shrub, nonshrub vegetation, lakes, rock, ice, and no data. It is not just the mean of the timbered habitats.

**(f) Threatened, Endangered and Sensitive Species:** No federally listed threatened or endangered species occur within the area. The following Alaska Region sensitive species are known or suspected to occur in or near the area:

Crucifer, no common name ( <i>Apragmus escholtzianus</i> )	known
Norberg arnica ( <i>Arnica lessigii</i> ssp. <i>norbergii</i> )	known
Goose-grass sedge ( <i>Carex lenticularis</i> var. <i>dolia</i> )	known
Northern rockcress ( <i>Draba borealis</i> var. <i>maxima</i> )	suspected
Kamchatka rockcress ( <i>Draba kamtschatica</i> )	known
Tundra whitlow-grass ( <i>Draba kananaskis</i> )	known
Truncate quillwort ( <i>Isoetes truncata</i> )	suspected
Calder lovage ( <i>Ligusticum calderi</i> )	suspected
Pale poppy ( <i>Papaver alboroseum</i> )	known
Choris bog orchid ( <i>Platanthera chorisiana</i> )	suspected
Smooth alkali grass ( <i>Puccinellia glabra</i> )	known
Kamchatka alkali grass ( <i>Puccinellia kamtschatica</i> )	suspected
Unalaska mist-maid ( <i>Romanzoffia unalascensis</i> )	suspected
Circumpolar starwort ( <i>Stellaria ruscifolia</i> ssp. <i>aleutica</i> )	suspected

**(5) Current Use and Management:** All of the area falls within Management Area 8 Big Islands of the 1984 Forest Plan. Primary management goals for the area are to increase developed and dispersed recreation opportunities, maintain landscape character, enhance marine oriented recreation opportunities, maintain wildlife habitat and improve fish habitat.

**(6) Historic motorized use:** There are no Forest developed roads open to motorized use within this unit. Motorized use of the uplands during the snow free period is prohibited.

**(7) Appearance (Apparent Naturalness):** The majority of the area is natural appearing, where only ecological change has occurred. The area has not been mapped for scenic integrity.

**(8) Surroundings (External Influences):** The area is surrounded by Prince William Sound to the north and the Gulf of Alaska to the south. Orca Inlet separates Hawkins Island from Cordova, only a few miles away. Commercial fishing takes place offshore, especially near Constantine Harbor and Port Etches.

**(9) Attractions and Features of Special Interest:** None listed.

## B. Capability of Management as Wilderness or in an Unroaded Condition

**(1) Manageability and Management Area Boundaries:** The exterior boundaries are easily defined as the unit is made up of two islands. State and Native land boundaries within the unit are less clearly defined. State land below the mean high tide line is poorly defined on the ground. Native corporation selections, when conveyed, would create several small isolated parcels within the unit.

**(2) Natural Appearance and Integrity:** This area has a very high degree of natural integrity. Most long-term ecological processes are intact and operating. Little evidence of human activity exists (e.g., old mining operations and cabins) these activities have had little or no effect on the natural appearance of the area.

**(3) Opportunity for Solitude:** The opportunity for solitude in the area is generally high. Off site activities include marine based activities such as commercial fishing, freighter traffic and recreational boating. The distance from the edge to the core is between two and four miles.

**(4) Opportunity for Primitive Recreation:**

ROS Class	Acres
Primitive 2 (P2)	104,100
Semi-primitive Nonmotorized (SPNM)	33,200
Semi-primitive Motorized (SPM)	7,400
Roaded Natural (RN)	600
Roaded Modified (RM)	100

There are three recreation cabins in the unit.

**(5) Special Features (Ecologic, Geologic, Scientific):** Early settlement by Eskimos and Russian fur traders.

### C. Availability for Management as Wilderness or in an Unroaded Condition

#### (1) Resource Potentials

**(a) Recreation Potential:** Isolated islands.

**(b) Fish Resource:** There is a low opportunity for fish habitat improvement.

**(c) Wildlife Resource:** There is a low opportunity for wildlife habitat improvement.

**(d) Timber Resource:** There are 29,280 acres inventoried as tentatively suitable for harvest within the unit.

**(e) Land Use Authorizations:** None listed.

**(f) Minerals:** There is a undiscovered, highly favorable mineral potential zone of copper running through the eastern side of Hawkins Island extending through Hinchinbrook Island south of Port Etches. There are four mines and one mining claim on National Forest System land within the unit.

**(g) Cultural Resources:** There are 72 known cultural sites within the area.

**(h) Areas of Scientific Interest:** Cultural sites, early settlement.

**(2) Management Considerations**

**(a) Timber:** There is a moderate opportunity for commercial timber harvest.

**(b) Fire:** Wildfire is not a significant problem in this area.

**(c) Insect and Disease:** No major outbreaks of insects or diseases have been detected in this unit.

**(d) Land Status:** There are 12,510 acres of state and private lands within the roadless area. Several sections of National Forest System land are completely surrounded by private land. Access to state and private lands is by Prince William Sound. Wilderness designation could affect access to these lands.

**D. Wilderness Evaluation**

**(1) Nearby Roadless and Wilderness Areas and Uses:** The closest roadless area is Sheridan Glacier (14) to the east. Orca Inlet and private land separate these two roadless areas. Montague roadless area (11) lies to the south across Hinchinbrook Entrance and Fidalgo-Gravina (10) is to the north across Orca Bay.

**(2) Distance from Population Centers (Accessibility):** Cordova is just across Orca Inlet from Hawkins Island. It is about two miles to the nearest National Forest System land within the roadless area. Tatitlek is about 32 air miles from the unit and Anchorage is about 110 air miles from the unit.

**(3) Interest by Proponents:** There is some interest in Wilderness designation.

**(4) Relative Contribution to the National Wilderness Preservation System:** If the Hinchinbrook-Hawkins Roadless Area were designated as Wilderness it would add about 144,000 acres of the Prince Williams Sound Islands Ecosubsection to the National Wilderness Preservation System. Habitat for wildlife and fish typically found on the Prince William Sound would be protected. Habitat manipulation would only done to restore natural ecosystem conditions. Wilderness management would protect the high opportunity for solitude in the area.

## E. Environmental Consequences

**(1) Management Area Prescriptions:** The following table shows the management area prescriptions by alternatives for the Hinchinbrook-Hawkins Roadless Area. Management area prescriptions are listed in the FEIS, Chapter 2.

<b>Management area prescriptions by alternative.</b>								
<b>Prescription #</b>	<b>NA</b>	<b>Preferred</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>
131					90,820	96,440	54,250	124,690
140						4,900		4,900
210		136,160						
211	107,910			78,720	19,650	28,250	28,250	
212			127,320	57,440		6,570	53,660	
221	8,310	8,310	8,310	8,310	8,310	8,310	8,310	8,310
244								6,570
312	28,250		8,840		8,600			
<b>Total</b>	<b>144,470</b>	<b>144,470</b>	<b>144,470</b>	<b>144,470</b>	<b>144,470</b>	<b>144,470</b>	<b>144,470</b>	<b>144,470</b>

**(2) Environmental Impacts:** Under Alternatives F, 86 percent of the Hinchinbrook-Hawkins Roadless Area would be recommended for Wilderness designation. Under Alternative D, 66 percent would be recommended as Wilderness; under Alternative C, 63 percent, and Alternative E, 38 percent. The wilderness character and primitive opportunities on these lands would be protected. Mineral and timber outputs on these lands would be foregone. None of the Hinchinbrook-Hawkins Roadless Area is recommended for Wilderness designation under any other alternatives.

Under the No Action Alternative, 19 percent of the Hinchinbrook-Hawkins Roadless Area would be available to be managed with new Forest Service road construction. Under Alternatives A and B, 6 percent would be available. Mineral and timber resources would be available.

It is projected that under the No Action Alternative, 3.7 miles of new roads could be constructed during the first decade. Under Alternative B, 3.6 miles could be constructed and under Alternative A, 5.4 miles. Over time, as new roads are constructed, the roadless character and primitive recreation opportunities on these lands will be lost.

Under the Preferred Alternatives all of the Hinchinbrook-Hawkins Roadless Area would be managed for non-Wilderness roadless values, 94 percent under Alternative A and B, 81 percent under the No Action Alternative, 62 percent under Alternative E, 37 percent under Alternative B, 34 percent under Alternative D, and 14 percent under Alternative F. Minerals resources would still be available. The roadless character and primitive opportunities on these lands would be maintained.

Long-term changes in plant and animal species diversity, in excess of the expected range of variability in the Hinchinbrook-Hawkins Islands Roadless Area, are not anticipated under any alternative (see pages C-3 and C-4). See FEIS, Chapter 3 for a more detailed disclosure of the effect of Wilderness/non-Wilderness management.



<b>Copper River Wetlands Roadless Area</b>
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**NAME:** 13 Copper River Wetlands

**ACRES (GROSS):** 97,180

**ACRES (NFS):** 88,650

**PROVINCE:** Pacific Gulf Coastal Forest-Meadow Province

**ECOSECTION:** 245A Northern Gulf Forelands Section, M245A Northern Gulf Fjordlands Section

**ECOSUBSECTION:** 245Aa Copper River Delta Subsection (69,450 acres),

245Ab Copper River Subsection (6,400 acres),

M245Ac Prince William Sound Islands Subsection (12,800 acres)

#### **A. Description**

**(1) Relationship to RARE II Areas:** This unit encompasses the RARE II roadless area 017. It has a RARE II WARS rating of 18. It was recommended for further planning in the RARE II EIS.

**(2) History:** This area was originally settled by the Eyak people who migrated down the Copper River. The Copper River Highway follows the track of the old Copper River Railroad, which brought copper from the Kenicott mine at McCarthy to Cordova during the early 1900s to 1930s.

**(3) Location and Access:** The Copper River Wetlands roadless area is located east of the town of Cordova and south of the Copper River Highway. The Copper River forms its eastern boundary and the Gulf of Alaska its southern boundary. The north boundary is the Copper River Highway.

#### **(4) Ecosystem**

**(a) Geography and Topography:** The topography consists of the Copper River Delta lowlands and associated barrier islands and sand dunes. The geology consists of recent, relatively flat youthful outwash alluvial sediments associated with periodic flooding from out-burst lakes and periods of heavy precipitation. Many spits, barrier islands, sand bars, and tidal flats are constantly changing due to isostatic rebound from receding glaciers, wave-action, floods, and tectonic uplift. The area includes alluvial outwash, uplifted wetlands, and the barrier and sand dune islands seaward of the mainland. The seaward portion of this subsection consists of uplifted marine tidal sediments and ponds, and the former tidal flats, which were raised above tidal influence by the 1964 earthquake. The landward portion of the subsection consists of alluvial outwash deposited from receding glaciers. The numerous sand bars and barrier islands seaward protect the mainland.

**(b) Vegetation:** Needleleaf forest communities feature western hemlock and Sitka spruce. The forest undergrowth feature such species as salmonberry, devil's club, early and Alaska blueberry, and yellow skunk-cabbage. Broadleaf forests are dominated by black cottonwood. Dominant wetland herbaceous communities include swamp horsetail, marsh fivefinger, buckbean, Lygbyei sedge, Sitka sedge, bur reed, yellow pond lily, dwarf alkali grass, Pacific silverweed, Nootka lupine, fireweed, and beach rye. Characteristic dominants of the shrublands include sweetgale, Sitka alder, Barclay willow, and Sitka willow. Vegetation in the mountainous inclusions present is similar to that reported in the Prince William Sound Mainland Subsection. Due to uplift from the 1964 earthquake, the vegetation in this area is undergoing rapid successional change.

**(c) Soils:** Soils on the uplifted delta are poorly to very poorly drained, deep, and are frequently ponded. They are normally slightly acidic to slightly alkaline. They normally have a shallow surface organic layer. Plant roots are normally in the upper organic or mineral soil.

The soils on most sideslopes are formed in parent material originating from either bedrock or glacial drift. In general they are usually well or moderately well drained, and moderately deep to deep. Soils range from very acidic under well-developed forested stands to slightly acid on treeless sites. Normally the soils have a surface organic layer, which is thickest under a forest canopy or in wetter areas. Tree and plant roots are restricted to the surface organic layer or the upper few inches of the mineral soil.

Shallow, well-drained, moderately acid soils are normally found on tops or small hills and in the alpine. Frequently there is only a thin surface organic layer. Plant roots are restricted to the surface organic layer and the upper few inches of the mineral soil.

Flat plateaus and basins commonly have numerous areas where soil drainage is restricted, which affords the development of very poorly to poorly drained, very acidic, shallow to deep organic soils. These are most common in areas of high precipitation.

Soils in the valley bottoms are usually formed in alluvial deposits and are well to poorly drained, depending on the depth of the water table, and slightly acid. Rooting is normally in the thin surface organic layer and the mineral soils.

**(d) Fish Resource:** The following table displays the mapped (known) amount of habitat available.

Species	Habitat Quality	Spawning Habitat (miles)	Rearing Habitat (miles)
Chum	Moderate	3.6	0
Coho	High	9	29.6
Coho	Moderate	23.9	11.6
Coho	Low	12.2	10.8
Cutthroat	High	0	0.5
Cutthroat	Moderate	0.5	0
Cutthroat	Low	3.8	3.8
Dolly Varden	High	3.2	6.9
Dolly Varden	Low	11.6	8.6
Pink	High	2.7	1.5
Pink	Moderate	0.5	0
Sockeye	High	0	0
Sockeye	Moderate	10.7	0
Sockeye	Low	3.8	0

**(e) Wildlife Resource:** A wildlife habitat model for forested lands was run to show relative values of different habitat types between roadless areas. The model is based on a species list for the Kenai Peninsula and therefore is not totally accurate for the Prince William Sound and Copper River Delta ecosystems. Small changes in the habitat capability index are not significant. Changes of 0.1 or more show a definite difference in capability. Acreage figures for the different habitat types are more important than the habitat capability index. The following tables show species counts for each habitat type and habitat capacity and diversity for wildlife.

	Conifer/ Deciduous	Deciduous	Spruce	Spruce/ Hemlock	Hemlock
Land Birds	56	44	50	51	51
Aquatic Birds	6	7	8	8	8
Mammals	22	18	25	25	25

## Appendix C

### Habitat capability and diversity of wildlife in the Copper River Wetlands Area (13).

Land Cover	Percent	Area (Acres)	Animal Species Diversity Index	Habitat Capability for Forested Habitats			
				Land Birds	Aquatic Birds	Mammals	Combined
Hemlock/spruce	0.7	600	0.90	0.68	0.63	0.68	0.68
Noncommercial	0.0	0					
Seedling/sapling	0.0	0					
Midsuccessional	16.7	100					
Old-growth	83.3	500					
Hemlock	4.9	4,300	0.91	0.43	0.38	0.41	0.41
Noncommercial	81.4	3,500					
Seedling/sapling	0.0	0					
Midsuccessional	7.0	300					
Old-growth	11.6	500					
Spruce	3.8	3,300	0.93	0.47	0.42	0.44	0.46
Noncommercial	75.8	2,500					
Seedling/sapling	0.0	0					
Midsuccessional	3.0	100					
Old-growth	21.2	700					
Deciduous	0.0	0	0.00	0.00	0.00	0.00	0.00
Noncommercial	0.0	0					
Seedling/sapling	0.0	0					
Midsuccessional	0.0	0					
Old-growth	0.0	0					
Conifer/deciduous	0.0	0	0.00	0.00	0.00	0.00	0.00
Noncommercial	0.0	0					
Seedling/sapling	0.0	0					
Midsuccessional	0.0	0					
Old-growth	0.0	0					
Shrubs	49.2	43,100					
Nonshrub vegetation	17.7	15,500					
Lakes	10.2	8,900					
Other (e.g., rock, ice)	13.0	11,400					
Data missing	0.6	1,550					
<b>Total</b>	<b>100.0</b>	<b>86,650</b>	<b>0.61<sup>13</sup></b>				

<sup>13</sup> The combined diversity index includes shrub, nonshrub vegetation, lakes, rock, ice, and no data. It is not just the mean of the timbered habitats.

**(f) Threatened, Endangered and Sensitive Species:** No federally listed threatened or endangered species occur within the area. The following Alaska Region sensitive species are known or suspected to occur in or near the area:

Crucifer, no common name ( <i>Apragmus escholtzianus</i> )	known
Norberg arnica ( <i>Arnica lessigii</i> ssp. <i>norbergii</i> )	known
Goose-grass sedge ( <i>Carex lenticularis</i> var. <i>dolia</i> )	known
Northern rockcress ( <i>Draba borealis</i> var. <i>maxima</i> )	suspected
Kamchatka rockcress ( <i>Draba kamtschatica</i> )	known
Tundra whitlow-grass ( <i>Draba kananaskis</i> )	known
Truncate quillwort ( <i>Isoetes truncata</i> )	suspected
Calder lovage ( <i>Ligusticum calderi</i> )	suspected
Pale poppy ( <i>Papaver alboroseum</i> )	known
Choris bog orchid ( <i>Platanthera chorisiana</i> )	suspected
Smooth alkali grass ( <i>Puccinellia glabra</i> )	known
Kamchatka alkali grass ( <i>Puccinellia kamtschatica</i> )	suspected
Unalaska mist-maid ( <i>Romanzoffia unalascensis</i> )	suspected
Circumpolar starwort ( <i>Stellaria ruscifolia</i> ssp. <i>aleutica</i> )	suspected

**(5) Current Use and Management:** This area falls within Management Area 9 Copper River in the 1984 Forest Plan. The primary management goals for this area are to conserve wildlife and fish habitat as required by Section 501(b) of ANILCA, develop dusky Canada geese habitat program, increase and improve dispersed and developed recreation opportunities, maintain landscape character, and provide for waterfowl research opportunities. There is a large commercial fishing industry associated with the Copper River.

**(6) Historic motorized use:** There are no Forest developed roads open to motorized use within this unit. Motorized use of the uplands during the snow free period is prohibited.

**(7) Appearance (Apparent Naturalness):** The majority of the area is natural appearing, where only ecological change has occurred. The area has not been mapped for scenic integrity.

**(8) Surroundings (External Influences):** The Copper River Highway forms the northern boundary of the unit. To the west private land separates the unit from Orca Inlet and Cordova. The Gulf of Alaska lies to the south and the Copper River forms the eastern boundary.

**(9) Attractions and Features of Special Interest:** The Copper River Delta is a major migratory bird staging area, especially in the spring. Millions of shorebirds pass through the area.

## B. Capability of Management as Wilderness or in an Unroaded Condition

**(1) Manageability and Management Area Boundaries:** The boundaries of the management area are poorly defined where Forest Service land abuts state or private land. The buffer between

the Copper River Highway and the roadless unit is not well defined on the ground. The mean high tide line defining state land is very difficult to locate.

**(2) Natural Appearance and Integrity:** The area has a very high degree of natural integrity. While some evidence of human activity exists these activities have had little or no effect on the natural integrity of the area. The apparent naturalness is has been only slightly affected by human activity.

**(3) Opportunity for Solitude:** The opportunity for solitude in the area is very low as a result of the area’s small size, lack of topographic and vegetative screening and many permanent off-site intrusions. The distance from the perimeter to the core is between six and twelve miles.

**(4) Opportunity for Primitive Recreation:** The opportunity for primitive recreation is low as a result of little diversity of opportunities and few challenges to the recreational user.

ROS Class	Acres
Primitive 2(P2)	22,700
Semi-primitive Nonmotorized (SPNM)	48,350
Semi-primitive Motorized (SPM)	15,500
Roaded Natural (RN)	2,000
Roaded (R)	100

There are two recreation cabins in the unit.

**(5) Special Features (Ecologic, Geologic, Scientific):** The Copper River Delta is a unit of the western shorebird reserve network.

**C. Availability for Management as Wilderness or in an Unroaded Condition**

**(1) Resource Potentials**

**(a) Recreation Potential:** High potential for wildlife/bird viewing.

**(b) Fish Resource:** There is a high opportunity for fish habitat improvement.

**(c) Wildlife Resource:** There is a moderate opportunity for wildlife habitat improvement (dusky Canada goose and moose).

**(d) Timber Resource:** There are 810 acres tentatively suitable for timber harvest within the unit.

**(e) Land Use Authorizations:** None listed.

**(f) Minerals:** No mineralized zones have been identified within this roadless area. There is one exploratory prospect mine on National Forest System land but no mining claims within the unit.

**(g) Cultural Resources:** There are 3 known cultural sites within the area.

**(h) Areas of Scientific Interest:** The proposed Copper Sands RNA is estimated at 1,520 acres in the Revised Forest Plan.

**(2) Management Considerations**

**(a) Timber:** There is a low potential for commercial timber harvest.

**(b) Fire:** Wildfire is not a significant problem in this area.

**(c) Insect and Disease:** No major outbreaks of insects or diseases have been detected in this unit.

**(d) Land Status:** There are 8,530 acres of state and private lands within the roadless area. About 70 percent of these lands are adjacent to major road access. The other 30 percent can only be reached by water. Wilderness designation could affect access to these lands.

**D. Wilderness Evaluation**

**(1) Nearby Roadless and Wilderness Areas and Uses:** The Sheridan Glacier roadless area is separated from this unit by the Copper River Highway. To the east and across the Copper River lies the Bering Lake roadless area. Hinchinbrook-Hawkins roadless area is separated from this unit by Orca Inlet. The Wrangell-Saint Elias National Park and Preserve Wilderness is about 50 miles to the northeast.

**(2) Distance from Population Centers (Accessibility):** Cordova lies just to the north of the unit and accesses the area from the Copper River Highway or by boat. Anchorage is approximately 130 air miles away. Cordova can only be accessed by boat or fixed-wing aircraft.

**(3) Interest by Proponents:** There is a high interest in Wilderness designation.

**(4) Relative Contribution to the National Wilderness Preservation System:** If the Copper River Wetlands Roadless Area were designated as Wilderness it would add about 69,000 acres of the Copper River Delta Ecosubsection, 6,000 acres of the Copper River Ecosubsection, and 12,000 acres of the Prince Williams Sound Islands Ecosubsection to the National Wilderness Preservation System. Habitat for wildlife and fish typically found on the Copper River Delta would be protected. Habitat manipulation would only be done to restore natural ecosystem conditions. Wilderness management would protect the very low opportunity for solitude in the area. World-class habitat for waterfowl and shorebirds would be managed in a Wilderness environment.

## E. Environmental Consequences

**(1) Management Area Prescriptions:** The following table shows the management area prescriptions by alternatives for the Copper River Wetlands Roadless Area. Management area prescriptions are listed in the FEIS, Chapter 2.

<b>Management area prescriptions by alternative.</b>								
<b>Prescription #</b>	<b>NA</b>	<b>Preferred</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>
131						90	90	39,030
133							5,330	
134							28,740	28,40
140							1,520	1,520
141	10,230	1,520			1,520	1,520		11,690
210		11,690						
211	100			10	69,530	70,990	45,300	
212				7,330	11,780	11,690		
213		71,200			110	110		
221	3,280	3,280	3,280	3,280	3,280	3,280	3,280	3,280
231							3,430	3,430
241	960	960	960	960	960	960	960	960
244	11,690		11,900					
321	62,390		72,510	77,070		10		
<b>Total</b>	<b>88,650</b>	<b>88,650</b>	<b>88,650</b>	<b>88,650</b>	<b>88,650</b>	<b>88,650</b>	<b>88,650</b>	<b>88,650</b>

**(2) Environmental Impacts:** Under Alternatives F, 44 percent of the Copper River Wetlands Roadless Area would be recommended for Wilderness designation and under Alternative D, 38 percent would be recommended. The wilderness character and primitive opportunities on these lands would be protected. Mineral and timber outputs on these lands would be foregone. None of the Copper River Wetlands Roadless Area is recommended for Wilderness designation under any other alternatives.

Under Alternative B, 87 percent of the Copper River Wetlands Roadless Area would be available to be managed with new Forest Service road construction. Under Alternatives A, 82 percent would be available and under the No Action Alternative 70 percent would be available. However, during the first decade, now new roads are projected. Mineral and timber resources would be available. Over time, as new roads are constructed, the roadless character and primitive opportunities on some of these lands would be lost.

Road construction would be conditional on 14 percent of the Copper River Wetlands Roadless Area under the No Action Alternative and Alternative A. Minerals resources would be available. Over time, if new roads are constructed, the roadless character and primitive opportunities on some of these lands could be lost.

Under the Preferred Alternative and Alternatives C and D all of the Copper River Wetlands Roadless Area would be managed for non-Wilderness roadless values, 62 percent under Alternative E, 56 percent under Alternative F, 16 percent under the No Action Alternative, 13 percent under Alternative B, and 4 percent under Alternative A. Minerals resources would still be available. The roadless character and primitive opportunities on these lands would be maintained.

Long-term changes in plant and animal species diversity, in excess of the expected range of variability in the Copper River Delta Roadless Area, are not anticipated under any alternative (see pages C-3 and C-4). See FEIS, Chapter 3 for a more detailed disclosure of the effect of Wilderness/non-Wilderness management.



<b>Sheridan Glacier Roadless Area</b>
---------------------------------------

**NAME:** 14 Sheridan Glacier

**ACRES (GROSS):** 316,210                      **ACRES (NFS):** 231,810

**PROVINCE:** Pacific Gulf Coastal Forest-Meadow, Coastal Trough Humid Tayga, Pacific Coastal Mountains Forest-Meadow,

**ECOSECTION:** 245A Northern Gulf Forelands,

M135A Alaska Mountains,

M245A Northern Gulf Fjordlands,

M244A Chugach Mountain

**ECOSUBSECTION:** 245Aa Copper River Delta (41,600 acres),

245Ab Copper River (11,800 acres,

M245Ac Prince William Sound Islands (26,700 acres),

M135Aa Tasnuna River (1,300 acres),

M244Aa Chugach Icefields (150,410 acres)

#### **A. Description**

**(1) Relationship to RARE II Areas:** RARE II roadless area 016 covers the portion of the unit south of the pre 1980 Forest boundary. North of the old Forest boundary the area was not evaluated under RARE II. Roadless area 016 has a WARS rating of 22. It was recommended for further planning in the RARE II EIS.

**(2) History:** The Eyak Natives occupied parts of this area prior to Euro/Russian contact. Copper mining started in about 1897 in this area.

**(3) Location and Access:** The Sheridan Glacier roadless area is located east of Cordova and north of the Copper River Highway. It is bounded on the north by the Tasnuna River roadless area, Native corporation land and state land, on the east by the Copper River and Native corporation lands and Bering Lake roadless area, on the south by the Copper River Highway, Native corporation land and the Copper River Wetlands roadless area, and the west by Orca Inlet, state land and Fidalgo-Gravina roadless areas.

#### **(4) Ecosystem**

**(a) Geography and Topography:** The northern portion lies within the Chugach Icefields subsection. The topography is very rugged with jagged mountains and nunataks surrounded by ice fields and glaciers. Elevations range from about 1,500 to 13,000 feet. The lithology consists of numerous types of marine siltstones and meta-sandstones. At lower elevation the topography consists of

the Copper River Delta lowlands. The geology consists of recent, relatively flat youthful outwash alluvial sediments associated with periodic flooding from out-burst lakes and periods of heavy precipitation. Many sand bars and tidal flats are constantly changing due to isostatic rebound from receding glaciers, wave-action, floods, and tectonic uplift. The area includes alluvial outwash and uplifted wetlands consisting of alluvial outwash deposited from receding glaciers. .

**(b) Vegetation:** Vegetation is scarce within the ice and rock-dominated subsection. Predominant plants are lichens and dwarf shrubs (e.g., crowberry, starry cassiope, luetkea, bog blueberry). Within the Copper River and Copper River Delta subsections needleleaf forest community's feature western hemlock and Sitka spruce. The forest undergrowth feature such species as salmonberry, devil's club, early and Alaska blueberry, and yellow skunk-cabbage. Broadleaf forests are dominated by black cottonwood. Dominant wetland herbaceous communities include swamp horsetail, marsh fivefinger, buckbean, Lygbyei sedge, Sitka sedge, bur reed, yellow pond lily, dwarf alkali grass, Pacific silverweed, Nootka lupine, fireweed, and beach rye. Characteristic dominants of the shrublands include sweetgale, Sitka alder, Barclay willow, and Sitka willow. Vegetation in the mountainous inclusions present is similar to that reported in the Prince William Sound Mainland Subsection. Due to uplift from the 1964 earthquake, the vegetation in this subsection is undergoing rapid successional change

**(c) Soils:** The soils on most sideslopes are formed in parent material originating from either bedrock or glacial drift. In general they are usually well or moderately well drained, and moderately deep to deep. Soils range from very acidic under well-developed forested stands to slightly acid on treeless sites. Normally the soils have a surface organic layer, which is thickest under a forest canopy or in wetter areas. Tree and plant roots are restricted to the surface organic layer or the upper few inches of the mineral soil.

Shallow, well-drained, moderately acid soils are normally found on tops or small hills and in the alpine. Frequently there is only a thin surface organic layer. Plant roots are restricted to the surface organic layer and the upper few inches of the mineral soil.

Flat plateaus and basins commonly have numerous areas where soil drainage is restricted, which affords the development of very poorly to poorly drained, very acidic, shallow to deep organic soils. These are most common in areas of high precipitation.

Soils in the valley bottoms are usually formed in alluvial deposits and are well to poorly drained, depending on the depth of the water

table, and slightly acid. Rooting is normally in the thin surface organic layer and the mineral soils

**(d) Fish Resource:** The following table displays the mapped (known) amount of habitat available.

Species	Habitat Quality	Spawning Habitat (miles)	Rearing Habitat (miles)
Chum	Moderate	2.8	0
Coho	High	0	8
Coho	Moderate	11.3	11.3
Coho	Low	9.3	1.4
Cutthroat	Moderate	0	2.2
Dolly Varden	High	0	2.2
Dolly Varden	Moderate	0.1	0.1
Dolly Varden	Low	2.7	0.5
Pink	Moderate	0.4	0
Pink	Low	0.1	0
Sockeye	High	0	19,666 acres
Sockeye	Moderate	17.5	0
Sockeye	Low	2.9	0

**(e) Wildlife Resource:** A wildlife habitat model for forested lands was run to show relative values of different habitat types between roadless areas. The model is based on a species list for the Kenai Peninsula and therefore is not totally accurate for the Prince William Sound and Copper River Delta ecosystems. Small changes in the habitat capability index are not significant. Changes of 0.1 or more show a definite difference in capability. Acreage figures for the different habitat types are more important than the habitat capability index. The following tables show species counts for each habitat type and habitat capacity and diversity for wildlife.

	Conifer/ Deciduous	Deciduous	Spruce	Spruce/ Hemlock	Hemlock
Land Birds	56	44	50	51	51
Aquatic Birds	6	7	8	8	8
Mammals	22	18	25	25	25

**Habitat capability and diversity of wildlife in the Sheridan Glacier Area (14).**

Land Cover	Percent	Area (Acres)	Animal Species Diversity Index	Habitat Capability for Forested Habitats			
				Land Birds	Aquatic Birds	Mammals	Combined
Hemlock/spruce	2.1	4,720	0.89	0.61	0.56	0.64	0.61
Noncommercial	0.4	20					
Seedling/sapling	0.0	0					
Midsuccessional	31.8	1,500					
Old-growth	67.8	3,200					
Hemlock	5.3	11,900	0.91	0.43	0.38	0.41	0.41
Noncommercial	81.5	9,700					
Seedling/sapling	0.0	0					
Midsuccessional	6.7	800					
Old-growth	11.8	1,400					
Spruce	2.9	6,630	0.90	0.47	0.43	0.53	0.49
Noncommercial	31.7	2,100					
Seedling/sapling	0.5	30					
Midsuccessional	34.7	2,300					
Old-growth	33.2	2,200					
Deciduous	0.8	1,900	0.59	0.24	0.20	0.44	0.28
Noncommercial	0.0	0					
Seedling/sapling	15.8	300					
Midsuccessional	84.2	1,600					
Old-growth	0.0	0					
Conifer/deciduous	0.0	10	0.77	0.37	0.23	0.37	0.29
Noncommercial	0.0	0					
Seedling/sapling	0.0	0					
Midsuccessional	100.0	10					
Old-growth	0.0	0					
Shrubs	13.9	31,600					
Nonshrub vegetation	1.1	2,400					
Lakes	2.3	5,100					
Other (e.g., rock, ice)	44.2	100,100					
Data missing	27.5	67,450					
<b>Total</b>	<b>100.0</b>	<b>231,810</b>	<b>0.20<sup>14</sup></b>				

<sup>14</sup> The combined diversity index includes shrub, nonshrub vegetation, lakes, rock, ice, and no data. It is not just the mean of the timbered habitats.

**(f) Threatened, Endangered and Sensitive Species:** No federally listed threatened or endangered species occur within the area. The following Alaska Region sensitive species are known or suspected to occur in or near the area:

Crucifer, no common name ( <i>Apragmus escholtzianus</i> )	known
Norberg arnica ( <i>Arnica lessigii</i> ssp. <i>norbergii</i> )	known
Goose-grass sedge ( <i>Carex lenticularis</i> var. <i>dolia</i> )	known
Northern rockcress ( <i>Draba borealis</i> var. <i>maxima</i> )	suspected
Kamchatka rockcress ( <i>Draba kamtschatica</i> )	known
Tundra whitlow-grass ( <i>Draba kananaskis</i> )	known
Truncate quillwort ( <i>Isoetes truncata</i> )	suspected
Calder lovage ( <i>Ligusticum calderi</i> )	suspected
Pale poppy ( <i>Papaver alboroseum</i> )	known
Choris bog orchid ( <i>Platanthera chorisiana</i> )	suspected
Smooth alkali grass ( <i>Puccinellia glabra</i> )	known
Kamchatka alkali grass ( <i>Puccinellia kamtschatica</i> )	suspected
Unalaska mist-maid ( <i>Romanzoffia unalascensis</i> )	suspected
Circumpolar starwort ( <i>Stellaria ruscifolia</i> ssp. <i>aleutica</i> )	suspected

**(5) Current Use and Management:** This area falls within Management Area 9 Copper River in the 1984 Forest Plan. The primary management goals for this area are to conserve wildlife and fish habitat as required by Section 501(b) of ANILCA, develop dusky Canada geese habitat program, increase and improve dispersed and developed recreation opportunities, maintain landscape character, and provide for waterfowl research opportunities.

**(6) Historic motorized use:** There are no Forest developed roads open to motorized use within this unit. Motorized use of the uplands during the snow free period is prohibited.

**(7) Appearance (Apparent Naturalness):** Most of the area appears unmodified. Minor inclusions such as recreation cabins and trails are evident when one is close to them.

**(8) Surroundings (External Influences):** The Copper River Highway runs along the southern and eastern boundary of the unit. This road receives moderate use during the summer. Some of the private land adjacent to the roadless area is currently undergoing timber harvest.

**(9) Attractions and Features of Special Interest:** Scott, Sheridan, Sherman, and Childs glaciers.

## B. Capability of Management as Wilderness or in an Unroaded Condition

**(1) Manageability and Management Area Boundaries:** The exterior boundaries are fairly distinct where they follow topographic divides along the western and northern edge. The southern and eastern edge is 1/4-mile setback from the Copper River Highway.

Where the unit abuts private or state land the boundaries are not distinct.

**(2) Natural Appearance and Integrity:** The unit has a high level of natural integrity. Long-term ecological processes are intact and operating.

**(3) Opportunity for Solitude:** The opportunity for solitude is high. There is a high level of topographic screening. The distance from the perimeter to the core is 7 to 14 miles.

**(4) Opportunity for Primitive Recreation:**

ROS Class	Acres
Primitive 1 (P1)	195,140
Primitive 2 (P2)	5,600
Semi-primitive Nonmotorized (SPNM)	28,400
Semi-primitive Motorized (SPM)	500
Roaded Natural (RN)	2,000
Roaded (R)	70

There are two recreation cabins within the unit and one trail.

**(5) Special Features (Ecologic, Geologic, Scientific):** There are four significant glaciers within the unit.

### C. Availability for Management as Wilderness or in an Unroaded Condition

#### (1) Resource Potentials

**(a) Recreation Potential:** There are moderate recreational opportunities.

**(b) Fish Resource:** Fish habitat enhancement development opportunities are limited within this area. Spawning channel developments are possible.

**(c) Wildlife Resource:** There is little opportunity for wildlife habitat improvement.

**(d) Timber Resource:** There are 8,430 acres of tentatively suitable timber within the unit.

**(e) Land Use Authorizations:** None listed.

**(f) Minerals:** There is a moderate potential mineralized zone in the northwest part of the unit adjacent to Orca Inlet. Within this zone is a small moderately mineralized copper zone. The zone extends into the Hinchinbrook-Hawkins roadless area. There is a small moderate potential mineralized zone containing gold in the McKinley Lake area. Most of the area is rated as undiscovered, highly favorable mineral potential. There are 15 mines and one mining claim on National Forest System land within the unit. The portion of this unit added to the Forest by ANILCA is withdrawn

from mineral entry under ANILCA, Section 502 and is available for mineral leasing.

**(g) Cultural Resources:** There are 2 known sites within the area.

**(h) Areas of Scientific Interest:** Copper River Delta – wildlife/birds/glaciers.

**(2) Management Considerations**

**(a) Timber:** There is little opportunity for commercial timber harvest.

**(b) Fire:** Wildfire is not a significant problem in this area.

**(c) Insect and Disease:** No major outbreaks of insects or diseases have been detected in this unit.

**(d) Land Status:** There are 84,400 acres of state, Native corporation and private lands within the roadless area. About 60 percent of these lands are adjacent to major roads. The other 40 percent has only water access. Wilderness designation could affect these lands.

**D. Wilderness Evaluation**

**(1) Nearby Roadless and Wilderness Areas and Uses:** This unit lies adjacent to the Tasnuna River roadless area. It is separated from the Copper River Wetlands roadless area to the south by the Copper River Highway. The Bering Lake roadless area lies across the Copper River Highway to the east. West of the unit lies the Fidalgo-Gravina roadless area. The Wrangell-St. Elias National Park and Preserve Wilderness is about 10 miles to the northeast.

**(2) Distance from Population Centers (Accessibility):** Cordova lies at the western edge of the unit. Anchorage is about 130 air miles away.

**(3) Interest by Proponents:** There is little interest in Wilderness designation.

**(4) Relative Contribution to the National Wilderness Preservation System:** If the Sheridan Glacier Roadless Area were designated as Wilderness it would add about 41,000 acres of the Copper River Delta Ecosubsection, 11,000 acres of the Copper River Ecosubsection, 26,000 acres of the Prince Williams Sound Islands Ecosubsection, and 150 acres of the Chugach Icefields Ecosubsection to the National Wilderness Preservation System. Habitat for wildlife and fish typically found on the Copper River Delta would be protected. Habitat manipulation would only done to restore natural ecosystem conditions. Wilderness management would protect the high opportunity for solitude in the area. Scott,

Sheridan, Sherman, and Childs Glaciers would be managed in a Wilderness Environment.

### E. Environmental Consequences

**(1) Management Area Prescriptions:** The following table shows the management area prescriptions by alternatives for the Sheridan Glacier Roadless Area. Management area prescriptions are described in the FEIS, Chapter 2.

<b>Management area prescriptions by alternative.</b>								
<b>Prescription #</b>	<b>NA</b>	<b>Preferred</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>
111		11,750		11,750	11,830	11,750	11,750	
131								159,490
133		100			100	100	61,140	
134							5,330	5,330
210		58,890						
211						1,790	1,790	1,790
212				58,940	207,900	148,460	57,100	57,100
213		153,160		100	2,320	61,800		
221	7,850	7,850	7,850	7,850	7,850	7,850	7,850	7,850
231							200	200
244	70,690							
312			70,640					
321	153,270	60	153,320	153,170	1,810	60	50	50
<b>Total</b>	<b>231,810</b>	<b>231,810</b>	<b>231,810</b>	<b>231,810</b>	<b>231,810</b>	<b>231,810</b>	<b>231,810</b>	<b>231,810</b>

**(2) Environmental Impacts:** Under Alternatives F, 71 percent of the Sheridan Glacier Roadless Area would be recommended for Wilderness designation and under Alternative D, 28 percent would be recommended. The wilderness character and primitive opportunities on these lands would be protected. Mineral and timber outputs on these lands would be foregone. None of the Sheridan Glacier Roadless Area is recommended for Wilderness designation under any other alternatives.

Most lands owned by Native corporations are located along the Tasnuna and Copper Rivers, and the Copper River/Copper River Highway. Because the private lands are located on the outer boundaries of the area they would be unaffected by Wilderness designation.

Under Alternative A, 31 percent of the Sheridan Glacier Roadless Area would be available to be managed with new Forest Service road construction. It is projected that under Alternative A, 3.6 miles of new roads could be constructed during the first decade. Mineral and timber resources would be available. Over time, as new roads are constructed, the roadless character and primitive opportunities on some of these lands would be lost.

Road construction would be conditional on 31 percent of the Sheridan Glacier Roadless Area under the No Action Alternative. Minerals resources would be available. Over time, if new roads are constructed, the roadless character and primitive opportunities on some of these lands could be lost.

Under the Preferred Alternative and Alternatives B, C, and D all of the Sheridan Glacier Roadless Area would be managed for non-Wilderness roadless values, 72 percent under Alternative E, 69 percent under the No Action Alternative and Alternative A. Minerals resources would still be available. The roadless character and primitive opportunities on these lands would be maintained. None of the Sheridan Glacier Roadless Area would be affected by Forest Service road construction.

Long-term changes in plant and animal species diversity, in excess of the expected range of variability in the Sheridan Glacier Roadless Area, are not anticipated under any alternative (see pages C-3 and C-4). See FEIS, Chapter 3 for a more detailed disclosure of the effect of Wilderness/non-Wilderness management.



<b>Bering Lake Roadless Area</b>
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**NAME:** 15 Bering Lake

**ACRES (GROSS):** 1,032,730                      **ACRES (NFS):** 966,240

**PROVINCE:** Pacific Coastal Mountains Forest-Meadow, Pacific Gulf Coastal Forest-Meadow, Coastal Trough Humid Tayga

**ECOSECTION:** St. Elias Mountain Section, Northern Gulf Forelands Section, Alaska Mountains Section

**ECOSUBSECTION:** M244Ba St. Elias Icefields Subsection (394,840 acres),  
245Aa Copper River Delta Subsection (460,100 acres),  
245Ab Copper River Subsection (71,200 acres),  
M135Aa Tasnuna River Subsection (40,100 acres)

#### **A. Description**

**(1) Relationship to RARE II Areas:** The southern portion of this unit encompasses RARE II roadless area 018. It has a WARS rating of 26 and was recommended for further planning in the RARE II EIS. The portion of the unit added in ANILCA was not evaluated during RARE II.

**(2) History:** The Katalla area was settled by the Tlingit people from Southeast Alaska. The Eyak people also resided at Katalla (Johnson 1984). Vitus Bering made first landfall in Alaska at Kayak Island in 1741. In the early 1900s prospects for oil development and a railroad from Katalla to the Kenicott Mine brought over 2,000 people to Katalla. Evidence of the old railroad, log cabins, oil wells, and the refinery are still abundant. Controversy over development in this area led to the dismissal of the first Chief of the Forest Service in 1916. Oil was produced from a small field until the late 1930s.

**(3) Location and Access:** This unit is located east of the Copper River. Access is by boat or floatplane. Although the Copper River Highway abuts a part of the western boundary there are no developed access points from the road. There is barge access from the Katalla River via an existing 2.5-mile road to private land near Katalla. Currently there is an application to drill for oil on the private lands.

#### **(4) Ecosystem**

**(a) Geography and Topography:** The topography consists of the Copper River Delta lowlands and associated barrier islands and sand dunes, and the outwash plains of the Martin, Bering, and Edwards River and the Sandy islands immediately seaward. The geology consists of recent, relatively flat youthful outwash alluvial

sediments associated with periodic flooding from out-burst lakes and periods of heavy precipitation. Many spits, barrier islands, sand bars, and tidal flats are constantly changing due to isostatic rebound from receding glaciers, wave-action, floods, and tectonic uplift. The area includes alluvial outwash, uplifted wetlands, and the barrier and sand dune islands seaward of the mainland. The Don Miller Hills and the hills north of Bering Lake consist of easily weathered marine siltstones, shales, and sandstones. The seaward portion of this subsection consists of uplifted marine tidal sediments and ponds, and the former tidal flats, which were raised above tidal influence by the 1964 earthquake. The landward portion of the subsection consists of alluvial outwash deposited from receding glaciers. The numerous sand bars and barrier islands seaward protect the mainland.

**(b) Vegetation:** Vegetation is scarce within the ice and rock-dominated St. Elias Icefields subsection. Predominant plants are lichens and dwarf shrubs (e.g., crowberry, starry cassiope, luetkea, bog blueberry).

Within the Copper River Delta Subsection needleleaf forest communities feature western hemlock and Sitka spruce. The forest undergrowth feature such species as salmonberry, devil's club, early and Alaska blueberry, and yellow skunk-cabbage. Broadleaf forests are dominated by black cottonwood. Dominant wetland herbaceous communities include swamp horsetail, marsh fivefinger, buckbean, Lygbyei sedge, Sitka sedge, bur reed, yellow pond lily, dwarf alkali grass, Pacific silverweed, Nootka lupine, fireweed, and beach rye. Characteristic dominants of the shrublands include sweetgale, Sitka alder, Barclay willow, and Sitka willow. Vegetation in the mountainous inclusions present is similar to that reported in the Prince William Sound Mainland Subsection. Due to uplift from the 1964 earthquake, the vegetation in this subsection is undergoing rapid successional change.

Within the Copper River Subsection Needleleaf forest communities are rare. Broadleaf forests are common and are dominated by black cottonwood with undergrowth comprised of such shrubs as Sitka alder, devil's club, and Sitka willow. Shrublands of Sitka alder, sweetgale, and feltleaf willow are common with undergrowth featuring such species as polar grass and meadow horsetail. Herbaceous community types present include northern horsetail, beach rye, swamp horsetail, marsh fivefinger, buckbean, Lygbyei sedge, Sitka sedge, bur reed, yellow pond lily, dwarf alkali grass, Pacific silverweed, Nootka lupine, and fireweed.

Within the Tasnuna River Subsection Sitka alder dominates the predominantly scrubland vegetation. White spruce occurs in small patches within the Sitka alder matrix. Black cottonwood forests

mixed with alder occur as inclusions in riparian areas. Many areas along the rivers are not vegetated due to frequent flooding/erosional disturbance.

**(c) Soils:** Soils on the uplifted delta are poorly to very poorly drained, deep, and are frequently ponded. They are normally slightly acidic to slightly alkaline. They normally have a shallow surface organic layer. Plant roots are normally in the upper organic or mineral soil.

The soils on most sideslopes are formed in parent material originating from either bedrock or glacial drift. In general they are usually well or moderately well drained, and moderately deep to deep. Soils range from very acidic under well-developed forested stands to slightly acid on treeless sites. Normally the soils have a surface organic layer, which is thickest under a forest canopy or in wetter areas. Tree and plant roots are restricted to the surface organic layer or the upper few inches of the mineral soil.

Shallow, well-drained, moderately acid soils are normally found on tops or small hills and in the alpine. Frequently there is only a thin surface organic layer. Plant roots are restricted to the surface organic layer and the upper few inches of the mineral soil.

Flat plateaus and basins commonly have numerous areas where soil drainage is restricted, which affords the development of very poorly to poorly drained, very acidic, shallow to deep organic soils. These are most common in areas of high precipitation.

Soils in the valley bottoms are usually formed in alluvial deposits and are well to poorly drained, depending on the depth of the water table, and slightly acid. Rooting is normally in the thin surface organic layer and the mineral soils.

**(d) Fish Resource:** The following table displays the mapped (known) amount of habitat available.

Species	Habitat Quality	Spawning Habitat (miles)	Rearing Habitat (miles)
Chum	High	4.7	0
Chum	Moderate	9.2	0
Coho	High	86	117.1
Coho	Moderate	45.1	43.4
Coho	Low	44.5	19.1
Cutthroat	High	2.2	2.2
Cutthroat	Moderate	0	2.5
Dolly Varden	High	65.8	120.9
Dolly Varden	Moderate	3.9	7.3
Dolly Varden	Low	109.2	53.3
King	Moderate	6	6
Pink	High	1.6	0.8
Pink	Moderate	0.3	0
Pink	Low	5.3	0
Sockeye	High	74.7	154,611 acres
Sockeye	Moderate	111.3	0
Sockeye	Low	17.1	0

**(e) Wildlife Resource:** A wildlife habitat model for forested lands was run to show relative values of different habitat types between roadless areas. The model is based on a species list for the Kenai Peninsula and therefore is not totally accurate for the Prince William Sound and Copper River Delta ecosystems. Small changes in the habitat capability index are not significant. Changes of 0.1 or more show a definite difference in capability. Acreage figures for the different habitat types are more important than the habitat capability index. Habitat capability and wildlife species diversity are shown on the following table. The following tables show species counts for each habitat type and habitat capacity and diversity for wildlife.

	Conifer/ Deciduous	Deciduous	Spruce	Spruce/ Hemlock	Hemlock
Land Birds	56	44	50	51	51
Aquatic Birds	6	7	8	8	8
Mammals	22	18	25	25	25

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**Habitat capability and diversity of wildlife in the Bering Lake Area (15).**


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Land Cover	Percent	Area (Acres)	Animal Species Diversity Index	Habitat Capability for Forested Habitats			
				Land Birds	Aquatic Birds	Mammals	Combined
Hemlock/spruce	5.8	56,230	0.90	0.65	0.60	0.67	0.65
Noncommercial	0.1	50					
Seedling/sapling	0.1	80					
Midsuccessional	22.8	12,800					
Old-growth	77.0	43,300					
Hemlock	3.7	36,200	0.91	0.43	0.39	0.43	0.42
Noncommercial	72.1	26,100					
Seedling/sapling	0.0	0					
Midsuccessional	13.8	5,000					
Old-growth	14.1	5,100					
Spruce	6.7	65,103	0.91	0.46	0.42	0.49	0.46
Noncommercial	50.4	32,800					
Seedling/sapling	0.0	3					
Midsuccessional	23.5	15,300					
Old-growth	26.1	17,000					
Deciduous	0.4	4,190	0.57	0.19	0.23	0.42	0.25
Noncommercial	0.7	30					
Seedling/sapling	1.4	60					
Midsuccessional	97.9	4,100					
Old-growth	0.0	0					
Conifer/deciduous	0.2	1,850	0.77	0.24	0.23	0.38	0.31
Noncommercial	0.0	0					
Seedling/sapling	5.4	100					
Midsuccessional	91.9	1,700					
Old-growth	2.7	50					
Shrubs	20.0	193,900					
Nonshrub vegetation	5.8	55,700					
Lakes	4.8	46,300					
Other (e.g., rock, ice)	6.2	59,800					
Data missing	46.4	446,967					
<b>Total</b>	<b>100.0</b>	<b>966,240</b>	<b>0.35<sup>15</sup></b>				

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<sup>15</sup> The combined diversity index includes shrub, nonshrub vegetation, lakes, rock, ice, and no data. It is not just the mean of the timbered habitats.

**(f) Threatened, Endangered and Sensitive Species:** No federally listed threatened or endangered species occur within the area. The following Alaska Region sensitive species are known or suspected to occur in or near the area:

Crucifer, no common name ( <i>Apragmus escholtzianus</i> )	known
Norberg arnica ( <i>Arnica lessigii</i> ssp. <i>norbergii</i> )	known
Goose-grass sedge ( <i>Carex lenticularis</i> var. <i>dolia</i> )	known
Northern rockcress ( <i>Draba borealis</i> var. <i>maxima</i> )	suspected
Kamchatka rockcress ( <i>Draba kamtschatica</i> )	known
Tundra whitlow-grass ( <i>Draba kananaskis</i> )	known
Truncate quillwort ( <i>Isoetes truncata</i> )	suspected
Calder lovage ( <i>Ligusticum calderi</i> )	suspected
Pale poppy ( <i>Papaver alboroseum</i> )	known
Choris bog orchid ( <i>Platanthera chorisiana</i> )	suspected
Smooth alkali grass ( <i>Puccinellia glabra</i> )	known
Kamchatka alkali grass ( <i>Puccinellia kamtschatica</i> )	suspected
Unalaska mist-maid ( <i>Romanzoffia unalascensis</i> )	suspected
Circumpolar starwort ( <i>Stellaria ruscifolia</i> ssp. <i>aleutica</i> )	suspected

**(5) Current Use and Management:** The entire area falls within Management Area 9 Copper River in the 1984 Forest Plan. The primary management goals for this area are to conserve wildlife and fish habitat as required by Section 501(b) of ANILCA, develop dusky Canada geese habitat program, increase and improve dispersed and developed recreation opportunities, maintain landscape character, and provide for waterfowl research. There is a current road use permit for a 2.5 mile road near the mouth of the Katalla River to access private lands.

**(6) Historic motorized use:** Motorized use consists of watercraft such as jet boats and airboats and motorboats. Snowmobiles may be used between Dec 1 and April 30. All other use of motorized vehicles is prohibited off of Forest Development Roads. There was an oil-drilling rig that was transported across an existing road near Katalla in the later 1980s. Drilling for oil and gas has been taking place since the turn of the century.

**(7) Appearance (Apparent Naturalness):** Most of the area appears unmodified. The scenic integrity has not been mapped for this area.

**(8) Surroundings (External Influences):** Commercial fishing off the mouth of the Copper River and vehicle use on the Copper River Highway are the biggest human external influences. The Gulf of Alaska dominates the southern end of the unit and use is very limited. The northern edge abuts the Wrangell-St. Elias National Park. The eastern edge is undeveloped Bureau of Land Management land or state land.

**(9) Attractions and Features of Special Interest:** The Copper River delta provides a spring stopover area for millions of migrating shorebirds.

## **B. Capability of Management as Wilderness or in an Unroaded Condition**

**(1) Manageability and Management Area Boundaries:** The Forest boundary forms the northern and eastern edge of the unit. This boundary is not clearly delineated on the ground. The western edge is the buffer along the Copper River Highway and the eastern bank of the Copper River. The southern edge is the Gulf of Alaska. State land below mean high tide is not clearly defined on the ground. Native corporation selections along the western edge may make the western boundary difficult to locate on the ground. Native corporation land in the Carbon Mountains area on the eastern side of the unit is not clearly delineated on the ground. An easement was issued to a Native corporation for access to their private lands.

**(2) Natural Appearance and Integrity:** This area has a very high degree of natural integrity. Most long-term ecological processes are intact and operating. While some evidence of human activity exists (e.g., mining operations, old railroad bed, and cabins), these activities have had little or no effect on the natural appearance of the area.

**(3) Opportunity for Solitude:** The opportunity for solitude in this area is outstanding. The area is very large, has a high level of topographic screening and few permanent off-site intrusions. The distance from the perimeter to the core is about 15 miles.

### **(4) Opportunity for Primitive Recreation:**

<b>ROS Class</b>	<b>Acres</b>
Primitive 1 (P1)	687,740
Primitive 2 (P2)	220,900
Semi-primitive Nonmotorized (SPNM)	24,600
Semi-primitive Motorized (SPM)	27,000

There are two recreation cabins within the unit.

**(5) Special Features (Ecologic, Geologic, Scientific):** The Copper River Delta is a unit of the western shorebird reserve network.

## **C. Availability for Management as Wilderness or in an Unroaded Condition.**

### **(1) Resource Potentials**

**(a) Recreation Potential:** The area has a high potential for recreation.

**(b) Fish Resource:** Fish habitat is currently in near optimal condition. Opportunities for habitat enhancement outside the Copper River and Carbon Mountain road corridors are minimal.

**(c) Wildlife Resource:** The area has a high potential for wildlife habitat improvement.

**(d) Timber Resource:** There are 75,780 acres of potentially suitable timber in the unit.

**(e) Land Use Authorizations:** None listed.

**(f) Minerals:** There is a zone of low oil potential extending from the Katalla area eastward to the Forest boundary. Approximately 150,000 barrels of oil were produced in the early 1900s. A zone of coal is located in the Carbon Mountains area and is mostly in private ownership. There are 20 mines within the unit. The portion of this unit added to the Forest by ANILCA is withdrawn from mineral entry under ANILCA, Section 502. The area is open for "hardrock" mineral leasing under the Mineral Leasing Act of 1917. The mountainous area to the north is rated as under evaluated, unevaluatable mineral potential. There are two areas in the south part of the area rated as undiscovered highly favorable mineral potential.

**(g) Cultural Resources:** There are 45 known cultural sites within the area.

**(h) Areas of Scientific Interest:** Copper River Delta.

## **(2) Management Considerations**

**(a) Timber:** There is a moderate opportunity for commercial timber harvest.

**(b) Fire:** Wildfire is not a significant problem in the unit.

**(c) Insect and Disease:** No major outbreaks of insects or diseases have been detected in this unit (Holsten et al. 1996).

**(d) Land Status:** There are 60,855 acres of Native corporation land in the unit and 1,763 acres of private land. State land in the unit totals 3,872 acres. Wilderness designation could affect access to these lands. The 1982 CNI Settlement Agreement (CNI Agreement) granted Chugach Natives Incorporated, now known as Chugach Alaska Corporation (CAC), the exclusive right and privilege to drill for, mine, extract, remove and dispose of all the oil and gas deposits on 10,680 acres in the Katalla area, until December 31, 2004. Currently CAC is requesting access to drill for oil and gas into the reserved mineral estate.

Under the CNI Agreement, CAC received title to the subsurface estate of 9,150 acres at Controller Bay.

The CNI Agreement identified two access routes to be available to the Bering River coal fields. An easement was issued to CAC on March 9, 2000 for the route depicted as running generally from the Copper River Highway (Alaska Route 10) to the coal fields. This road is known as the Carbon Mountain Road. The route beginning at the coast of the Gulf of Alaska, between Strawberry Point and Point Martin and proceeding north to the coal fields, is yet to be conformed to the rules and regulations of the Secretary of Agriculture and conditions held in the CNI Agreement.

The acres encumbered by the access rights are not included in the roadless area.

#### **D. Wilderness Evaluation**

**(1) Nearby Roadless and Wilderness Areas and Uses:** The Wrangell-St. Elias National Park to the north is Wilderness. East of the unit lie the Sheridan Glacier, Copper River Wetlands, and Tasnuna River roadless areas. The Copper River Highway separates the Bering Lake roadless area from the Sheridan Glacier roadless area.

**(2) Distance from Population Centers (Accessibility):** Cordova lies 27 miles to the west along the Copper River Highway and on the other side of the Copper River. Anchorage is over 140 miles away. Access to the unit is extremely difficult. There is access from salt water near Katalla. Floatplanes and helicopters land along beaches.

**(3) Interest by Proponents:** There is a high interest in Wilderness designation.

**(4) Relative Contribution to the National Wilderness Preservation System:** If the Bearing Lake Roadless Area were designated as Wilderness it would add about 460,000 acres of the St. Elias Icefields Ecosubsection, 460,000 acres of the Copper River Delta Ecosubsection, 71,000 acres of the Copper River Ecosubsection, and 40,000 acres of the Tasnuna River Ecosubsection to the National Wilderness Preservation System. Habitat for wildlife and fish typically found on the Copper River Delta would be protected. Habitat manipulation would only done to restore natural ecosystem conditions. Wilderness management would protect the outstanding opportunity for solitude in the area. World-class habitat for waterfowl and shorebirds would be managed in a Wilderness environment.

## E. Environmental Consequences

**(1) Management Area Prescriptions:** The following table shows the management area prescriptions by alternatives for the Bering Lake Roadless Area. Management area prescriptions are described in the FEIS, Chapter 2.

<b>Management area prescriptions by alternative.</b>								
<b>Prescription #</b>	<b>NA</b>	<b>Preferred</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>
133		442,900			340,410	856,380	825,050	825,050
134						68,600	121,480	121,480
135		453,780						
211	420,890			817,310	622,720	38,850		
213		67,870						
231						720	18,020	18,202
312			90					
321	543,660		964,460	47,240	1,420			
522	1,690	1,690	1,690	1,690	1,690	1,690	1,690	1,690
<b>Total</b>	<b>966,240</b>	<b>966,240</b>	<b>966,240</b>	<b>966,240</b>	<b>966,240</b>	<b>966,240</b>	<b>966,240</b>	<b>966,240</b>

**(2) Environmental Impacts:** Under Alternatives E and F, 98 percent of the Bering Lake Roadless Area would be recommended as Wilderness. Under Alternative D, 96 percent would be recommended for Wilderness; under the Preferred Alternative, 46 percent, and under Alternative C, 35 percent. The wilderness character and primitive opportunities on these lands would be protected. Mineral and timber outputs on these lands would be foregone. Valid existing rights to subsurface mineral estate and private lands exist and would be subject to reasonable access. None of the Bering Lake Roadless Area is recommended for Wilderness designation under any other alternatives.

Under Alternative A, all of the Bering Lake Roadless Area would be available to be managed with new road construction. Under the No action Alternative, 56 percent would be available for new Forest Service road construction and under Alternative B, 5 percent. Mineral and timber resources would be available.

It is projected that under the No Action Alternative 8 miles of new roads could be constructed during the first decade. Under Alternative B, 4 miles could be constructed and under Alternative A, 30.6 miles. Over time, as new roads are constructed, the roadless character and primitive recreation opportunities on these lands will be lost.

Under Alternative B, 95 percent of the Bering Lake Roadless Area would be managed for non-Wilderness roadless values, 65 percent under Alternative C, 54 percent under the Preferred Alternative, 44 percent under the No Action Alternative, 4 percent under Alternative D, and 2 percent under Alternatives E and F. Minerals

resources would still be available. The roadless character and primitive opportunities on these lands would be maintained.

Long-term changes in plant and animal species diversity, in excess of the expected range of variability in the Bering Lake Roadless Area, are not anticipated under any alternative (see pages C-3 and C-4). See FEIS, Chapter 3 for a more detailed disclosure of the effect of Wilderness/non-Wilderness management.



**Tasnuna River Roadless Area**

**NAME:** 16 Tasnuna River

**ACRES (GROSS):** 438,890                      **ACRES (NFS):** 349,540

**PROVINCE:** Coastal Trough Humid Tayga Province, Pacific Coastal Mountains Forest-Meadow Province

**ECOSECTION:** M135A Alaska Mountains Section, M244A Chugach Mountain Section

**ECOSUBSECTION:** M135Aa Tasnuna River Subsection (117,400 acres),  
M244Aa Chugach Icefields Subsection (232,140 acres)

**A. Description**

**(1) Relationship to RARE II Areas:** This unit is part of the 1980 ANILCA addition to the Forest and was not evaluated during RARE II.

**(2) History:** The Copper River was a migration and travel corridor for Native people moving from the Interior to the coast. The Copper River Railroad, running from Cordova to the Kenicott mine at McCarthy followed the Copper River along the edge of this unit.

**(3) Location and Access:** This unit lies west of the Copper and Tasnuna Rivers within the portion of the Forest added by ANILCA in 1980. Access is extremely difficult. The only points of access, except by air, are along the rivers by watercraft.

**(4) Ecosystem**

**(a) Geography and Topography:** The Tasnuna River Subsection includes the alluvial deposits of the Tasnuna, Wernicke and Copper River drainages, and the steep adjacent sideslopes. The rivers are of glacial origin and have developed an extensively braided system. The geology consists of numerous types of marine siltstones, and meta-sandstones.

Within the Chugach Icefields Subsection the topography is very rugged with jagged mountains and nunataks surrounded by ice fields and glaciers. Elevations range from about 1,500 to 13,000 feet. The lithology consists of numerous types of marine siltstones and meta-sandstones.

**(b) Vegetation:** Sitka alder dominates the predominantly scrubland vegetation of the Tasnuna River Subsection. White spruce occurs in small patches within the Sitka alder matrix. Black cottonwood forests mixed with alder occur as inclusions in riparian areas. Many areas along the rivers are not vegetated due to frequent flooding/erosional disturbance.

Vegetation is scarce within the ice and rock-dominated Chugach Icefields Subsection. Predominant plants are lichens and dwarf shrubs (e.g., crowberry, starry cassiope, luetkea, bog blueberry).

**(c) Soils:** The soils on most sideslopes are formed in parent material originating from either bedrock or glacial drift. In general they are usually well or moderately well drained, and moderately deep to deep. Soils range from very acidic under well-developed forested stands to slightly acid on treeless sites. Normally the soils have a surface organic layer that is thickest under a forest canopy or in wetter areas. Tree and plant roots are restricted to the surface organic layer or the upper few inches of the mineral soil.

Shallow, well-drained, moderately acid soils are normally found on tops or small hills and in the alpine. Frequently there is only a thin surface organic layer. Plant roots are restricted to the surface organic layer and the upper few inches of the mineral soil.

Flat plateaus and basins commonly have numerous areas where soil drainage is restricted, which affords the development of very poorly to poorly drained, very acidic, shallow to deep organic soils. These are most common in areas of high precipitation.

Soils in the valley bottoms are usually formed in alluvial deposits and are well to poorly drained, depending on the depth of the water table, and slightly acid. Rooting is normally in the thin surface organic layer and the mineral soils.

**(d) Fish Resource:** The following table displays the mapped (known) amount of habitat available.

Species	Habitat Quality	Spawning Habitat (miles)	Rearing Habitat (miles)
Coho	Moderate	0	6
Coho	Low	0.3	0.3
Dolly Varden	High	0	0.3
Dolly Varden	Low	6.3	6
King	Moderate	6.4	6.4
Pink	Low	0.6	0
Sockeye	High	0	?
Sockeye	Moderate	6.3	?

**(e) Wildlife Resource:** A wildlife habitat model for forested lands was run to show relative values of different habitat types between roadless areas. The model is based on a species list for the Kenai Peninsula and therefore is not totally accurate for the Prince William Sound and Copper River Delta ecosystems. Small changes in the habitat capability index are not significant. Changes of 0.1 or more show a definite difference in capability. Acreage figures for the different habitat types are more important than the

## Appendix C

habitat capability index. The following tables show species counts for each habitat type and habitat capacity and diversity for wildlife.

	Conifer/ Deciduous	Deciduous	Spruce	Spruce/ Hemlock	Hemlock
Land Birds	56	44	50	51	51
Aquatic Birds	6	7	8	8	8
Mammals	22	18	25	25	25

### Habitat capability and diversity of wildlife in the Tasnuna River Area (16).

Land Cover	Percent	Area (Acres)	Animal Species Diversity Index	Habitat Capability for Forested Habitats			
				Land Birds	Aquatic Birds	Mammals	Combined
Hemlock/spruce	0.0	0	0.00	0.00	0.00	0.00	0.00
Noncommercial	0.0	0					
Seedling/sapling	0.0	0					
Midsuccessional	0.0	0					
Old-growth	0.0	0					
Hemlock	0.0	0	0.00	0.00	0.00	0.00	0.00
Noncommercial	0.0	0					
Seedling/sapling	0.0	0					
Midsuccessional	0.0	0					
Old-growth	0.0	0					
Spruce	0.0	0	0.00	0.00	0.00	0.00	0.00
Noncommercial	0.0	0					
Seedling/sapling	0.0	0					
Midsuccessional	0.0	0					
Old-growth	0.0	0					
Deciduous	0.0	0	0.00	0.00	0.00	0.00	0.00
Noncommercial	0.0	0					
Seedling/sapling	0.0	0					
Midsuccessional	0.0	0					
Old-growth	0.0	0					
Conifer/deciduous	0.0	0	0.00	0.00	0.00	0.00	0.00
Noncommercial	0.0	0					
Seedling/sapling	0.0	0					
Midsuccessional	0.0	0					
Old-growth	0.0	0					
Shrubs	0.0	0					
Nonshrub vegetation	0.0	0					
Lakes	0.5	1,700					
Other (e.g., rock, ice)	0.1	200					
Data missing	99.5	347,740					
<b>Total</b>	<b>100.0</b>	<b>349,540</b>	<b>0.00<sup>16</sup></b>				

<sup>16</sup> The combined diversity index includes shrub, nonshrub vegetation, lakes, rock, ice, and no data. It is not just the mean of the timbered habitats.

**(f) Threatened, Endangered and Sensitive Species:** No federally listed threatened or endangered species occur within the area. The following Alaska Region sensitive species are known or suspected to occur in or near the area:

Crucifer, no common name ( <i>Apragmus escholtzianus</i> )	known
Norberg arnica ( <i>Arnica lessigii</i> ssp. <i>norbergii</i> )	known
Goose-grass sedge ( <i>Carex lenticularis</i> var. <i>dolia</i> )	known
Northern rockcress ( <i>Draba borealis</i> var. <i>maxima</i> )	suspected
Kamchatka rockcress ( <i>Draba kamtschatica</i> )	known
Tundra whitlow-grass ( <i>Draba kananaskis</i> )	known
Truncate quillwort ( <i>Isoetes truncata</i> )	suspected
Calder lovage ( <i>Ligusticum calderi</i> )	suspected
Pale poppy ( <i>Papaver alboroseum</i> )	known
Choris bog orchid ( <i>Platanthera chorisiana</i> )	suspected
Smooth alkali grass ( <i>Puccinellia glabra</i> )	known
Kamchatka alkali grass ( <i>Puccinellia kamtschatica</i> )	suspected
Unalaska mist-maid ( <i>Romanzoffia unalaschensis</i> )	suspected
Circumpolar starwort ( <i>Stellaria ruscifolia</i> ssp. <i>aleutica</i> )	suspected

**(5) Current Use and Management:** The entire area falls within Management Area 9 Copper River of the 1984 Forest Plan. The primary management goals for this area are to conserve wildlife and fish habitat as required by Section 501(b) of ANILCA, increase and improve dispersed and developed recreation opportunities, maintain landscape character, and provide for waterfowl research.

**(6) Historic Motorized Use:** There is no known historic motorized use in the area. The Copper River Railroad operated along the east boundary until the 1930s, when it was abandoned.

**(7) Appearance (Apparent Naturalness):** Most of the area appears unmodified. The scenic integrity has not been mapped for this area.

**(8) Surroundings (External Influences):** There are no close by external influences affecting the character of the unit. The unit is surrounded by undeveloped federal and private land.

**(9) Attractions and Features of Special Interest:** None listed.

## B. Capability of Management as Wilderness or in an Unroaded Condition

**(1) Manageability and Management Area Boundaries:** The Forest boundary forms three sides of the unit. The watershed divide to the Sheridan Glacier forms the southern edge. Private (Native Corporation) land along the Copper and Tasnuna Rivers are not well delineated and difficult to identify on the ground. The northern most portion of the unit is separated from the southern part by private (Native Corporation) land along the Wernicke River.

**(2) Natural Appearance and Integrity:** This area has a very high degree of natural integrity. Most long-term ecological processes are intact and operating.

**(3) Opportunity for Solitude:** The opportunity for solitude in this area is outstanding. The area is very large, has a high level of topographic screening and no permanent off-site intrusions. The distance from the perimeter to the core is 12-14 miles.

**(4) Opportunity for Primitive Recreation:** The entire area is inventoried Primitive 1 ROS class.

There are no recreation cabins or established trails within the unit.

**(5) Special Features (Ecologic, Geologic, Scientific):** Outstanding icefields.

### C. Availability for Management as Wilderness or in an Unroaded Condition

#### (1) Resource Potentials

**(a) Recreation Potential:** Wilderness, remoteness.

**(b) Fish Resource:** Few opportunities for fish habitat improvement.

**(c) Wildlife Resource:** There is little opportunity for wildlife habitat improvement.

**(d) Timber Resource:** There is no identified land potentially suitable for timber management within the unit.

**(e) Land Use Authorizations:** None listed.

**(f) Minerals:** There is an undiscovered, highly favorable mineral potential zone for copper covering the northern two thirds of the unit. Most of the area is rated as highly favorable for undiscovered resources. There are four old mines within the unit but no mining claims. All of this unit was added to the Forest by ANILCA and is withdrawn from mineral entry under the mining law. The "hardrock" minerals are available for leasing under Section 502 of ANILCA.

**(g) Cultural Resources:** There are 5 known cultural sites within the area.

**(h) Areas of Scientific Interest:** Icefields, high mountains.

#### (2) Management Considerations

**(a) Timber:** There is little opportunity for commercial timber harvest.

**(b) Fire:** Wildfire is not a significant problem in the unit.

**(c) Insect and Disease:** No major outbreaks of insects or diseases have been detected in this unit.

**(d) Land Status:** There are 60,617 acres of Native corporation land and 28,733 acres of state land within the roadless area. Most of the state and Native selections occur along the major river drainages. Road access to these lands is highly unlikely.

#### D. Wilderness Evaluation

**(1) Nearby Roadless and Wilderness Areas and Uses:** The Wrangell-St.Elias National Park lies to the northeast of the unit. It is a Wilderness area. The Bering Lake roadless area lies to the east and the Sheridan Glacier roadless area is to the south.

**(2) Distance from Population Centers (Accessibility):** Cordova is about 20 air miles away. Anchorage is over 150 miles away by air. Access is extremely difficult.

**(3) Interest by Proponents:** There is moderate interest in Wilderness designation.

**(4) Relative Contribution to the National Wilderness Preservation System:** If the Tasnuna River Lake Roadless Area were designated as Wilderness it would add about 232,000 acres of the Chugach Icefields Ecosubsection and 117,000 acres of the Tasnuna River Ecosubsection to the National Wilderness Preservation System. Habitat for wildlife and fish typically found on the Copper River Delta would be protected. Habitat manipulation would only done to restore natural ecosystem conditions. Wilderness management would protect the outstanding opportunity for solitude in the area.

#### E. Environmental Consequences

**(1) Management Area Prescription:** The following table shows the management area prescriptions by alternatives for the Tasnuna River Roadless Area. Management area prescriptions are described in the FEIS, Chapter 2.

<b>Management area prescriptions by alternative.</b>								
<b>Prescription #</b>	<b>NA</b>	<b>Preferred</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>
133		70			70	70	346,730	346,730
134							2,820	2,820
212	8,750							
213		349,480		221,830	349,480	349,480		
321	340,980		349,550	127,720				
<b>Total</b>	<b>349,550</b>	<b>349,550</b>	<b>349,550</b>	<b>349,550</b>	<b>349,550</b>	<b>349,550</b>	<b>349,550</b>	<b>349,550</b>

**(2) Environmental Impacts:** Under Alternatives E and F, all of the Tasnuna River Roadless Area would be recommended as Wilderness. The wilderness character and primitive opportunities on these lands would be protected. Mineral and timber outputs on these lands would be foregone. None of the Tasnuna River Roadless Area is recommended for Wilderness designation under any other alternatives.

The land owned by Native corporations is located along the Tasnuna and copper rivers. These lands are generally in the valley bottoms and would be unaffected by designating the uplands Wilderness.

Under Alternative A, all of the Tasnuna River Roadless Area would be available to be managed with new road construction. Under the No Action Alternative, 97 percent would be available for new Forest Service road construction. No new road construction is projected during the first decade. Mineral and timber resources would be available. Over time, as new roads are constructed, the roadless character and primitive opportunities on some of these lands would be lost.

Under the Preferred Alternative and Alternatives C and D, all of the Tasnuna River Roadless Area would be managed for non-Wilderness roadless values, 64 percent under Alternative B, and 3 percent under the No Action Alternative. Minerals resources would still be available. The roadless character and primitive opportunities on these lands would be maintained.

Long-term changes in plant and animal species diversity, in excess of the expected range of variability in the Tasnuna River Roadless Area, are not anticipated under any alternative (see pages C-3 and C-4). See FEIS, Chapter 3 for a more detailed disclosure of the effect of Wilderness/non-Wilderness management.