

Kenai National Wildlife Refuge
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COMPATIBILITY DETERMINATION

The National Wildlife Refuge System Administration Act of 1966, as amended (16 U.S.C. 668dd-668ee) states that “The Secretary is authorized, under regulations as [s]he may prescribe, to – (A) permit the use of any area within the [National Wildlife Refuge] System for any purpose, including but not limited to hunting, fishing, public recreation and accommodations, and access wherever [s]he determines that such uses are compatible’ and that “... the Secretary shall not initiate or permit a new use of a refuge or expand, renew, or extend an existing use of a refuge, unless the Secretary has determined that the use is a compatible use and that the use is not inconsistent with public safety.” A compatible use is defined as “A proposed or existing wildlife-dependent recreational use or any other use of a national wildlife refuge that, based on sound professional judgment, will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of the national wildlife refuge.” The compatibility determination is to be a written determination signed and dated by the Refuge Manager and Regional Chief of the National Wildlife Refuge System, signifying that a proposed or existing use of a national wildlife refuge is a compatible use or is not a compatible use.

Applicable compatibility regulations in 50 CFR Parts 25, 26, and 29 were published in the Federal Register October 18, 2000 (Vol. 65, No. 202, pp 62458 – 62483).

Use: Snowmachine Use

Refuge: Kenai National Wildlife Refuge

Establishing and Acquisition Authorities: The Refuge was first established as the Kenai National Moose Range by Executive Order 8979 on December 16, 1941. The boundaries were modified, purposes expanded, and name changed to Kenai National Wildlife Refuge under the provisions of the Alaska National Interest Lands Conservation Act (ANILCA) on December 2, 1980 (Public Law 96-487 Stat. 2371).

Refuge Purposes: The Executive Order purpose was primarily to “... protect the natural breeding and feeding range of the giant Kenai moose on the Kenai Peninsula, Alaska...”. ANILCA purposes for the Refuge include: “(i) to conserve fish and wildlife populations and habitats in their natural diversity including, but not limited to moose, bear, mountain goats, Dall sheep, wolves and other furbearers, salmonids and other fish, waterfowl and other migratory and nonmigratory birds; (ii) to fulfill the international treaty obligations of the United States with respect to fish and wildlife and their habitats; (iii) to ensure to the maximum extent practicable and in a manner consistent with the purposes set forth in paragraph (i), water quality and necessary water quantity with the refuge; (iv) to provide in a manner consistent with subparagraphs (i) and (ii), opportunities for scientific research, interpretation, environmental education, and land management training; and (v) to provide, in a manner compatible with these purposes, opportunities for fish and wildlife oriented recreation.” The Wilderness Act of 1964 (Public Law 88-577) purposes are to secure an enduring resource of wilderness, to protect and preserve the wilderness character of areas within the National Wilderness Preservation System,

and to administer this wilderness system for the use and enjoyment of the American people in a way that will leave them unimpaired for future use and enjoyment as wilderness.

Policy (FWS 603 2.8) directs that pre-ANILCA purposes remain in force and effect, except to the extent that they may be inconsistent with ANILCA or the Alaska Native Claims Settlement Act, and that such purposes only apply to those areas of the Refuge in existence prior to ANILCA. The Executive Order purpose to protect Kenai moose, however, is treated as complimentary to the broader ANILCA purpose of conserving fish and wildlife populations; therefore, no special attention is given the Executive Order purpose in this compatibility review process.

Sec. 4(a) of the Wilderness Act provides that the purposes of the Act are to be within and supplemental to the purposes for which national wildlife refuges are established and administered. These purposes are applied to the approximately 1.3 million acres of Congressionally designated wilderness within the Refuge. While these purposes do not apply to the remaining approximately 700,000 acres of Refuge lands that are not designated as wilderness, we must consider the effects of uses on any Refuge lands that might affect the wilderness areas.

National Wildlife Refuge System Mission: The National Wildlife Refuge System Mission is “To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

Description of Use: Snowmachine use has been an evolving activity within the Refuge since it was first permitted. In the earliest years of the Kenai National Moose Range commercially manufactured snow travelers/snow goes/snowmobiles/snowmachines did not exist and the Range was closed to motorized travel off established roads. With the initiation of oil and gas activities (ultimately permitting the use of some off-road winter travel to meet industrial needs) and the general availability of manufactured snowmachines to the public in the early to mid-1960s, public pressure increased to allow some public use of snowmachines in the Range. Such use was permitted by regulation as early as 1966 and justified in part by, “due to a serious public relations problem which had become critical with the development of oil and gas resources, this additional recreational use would contribute to support for and stability of the Kenai National Moose Range” (Federal Register 65-13680, December 22, 1965). Little analysis was made to the potential impact to wildlife or habitat but basic restrictions on size of machines, time of use, and type of use were established in the early rulemakings. Over the years Refuge files document both the growing use of snowmachines and the growing concern over potential impacts to wildlife and habitats; however, no comprehensive studies have been conducted to evaluate the long-term changes in use patterns and potential impacts.

As early as 1971 Refuge regulations prohibited snowmachine use within portions of the Refuge including areas important to wintering wildlife and/or other non-motorized Refuge uses. Many of the alpine areas and areas within the Swanson River and Swan Lake Canoe Routes were closed to snowmachine use. Snowmachines continued to be prohibited as an aid to big game hunting. In 1972 areas adjacent to the headquarters site near Soldotna were closed and racing and use of snowmachines on roads was also prohibited. Restrictions on the size of snowmachines (must be less than 40 inches wide) were maintained and additional adjustments to restrictions in alpine areas and within the Skilak Loop area were later instituted. Currently approximately 1.25 million acres (64 %) of the Refuge are open to snowmachine use each winter after the Refuge Manager determines adequate snow cover exists.

Over time, the allowable dates for snowmachine use changed from January 1 to March 31; to December 1 to March 31; ultimately to December 1 to April 30; however, under each set of dates the exact opening and closing time was determined by the Refuge Manager and announced to the public. The times of allowed use were authorized only when snow depths were sufficient to protect underlying vegetation and terrain. The following illustrates that actual times of snowmachine opening and closing dates for the past 30 years:

WINTER	OPEN	CLOSE
76/77	12/20/76	4/30/77
77/78	01/25/78	4/30/78
78/79	12/07/78	4/30/79
79/80	12/14/79	4/30/80
80/81	NOT OPENED	
81/82	12/01/81	4/05/82
82/83	12/01/82	3/23/83
83/84	01/06/84	3/17/84
84/85	03/06/85	4/26/85
85/86	NOT OPENED	
86/87	01/10/87	4/01/87
87/88	12/01/87	4/22/88
88/89	12/01/88	4/19/89
89/90	12/01/89	4/16/90
90/91	12/05/90	4/12/91
91/92	12/01/91	4/27/92
92/93	01/04/93	2/27/93
93/94	01/05/94	4/03/94
94/95	12/01/94	4/30/95
95/96	02/09/96	4/07/96
96/97	12/01/96	4/13/97
97/98	12/24/97	3/22/98
98/99	12/04/98	4/21/99
99/00	12/26/99	4/30/00
00/01	02/13/01	3/25/01
01/02	12/22/01	4/30/02
02/03	NOT OPENED	
03/04	12/13/04	4/18/04
04/05	12/18/04	3/19/05
05/06	01/22/06	4/09/06
06/07	12/24/06	4/15/07

Due to variable weather conditions, the dependability of having suitable snow cover to allow snowmachine use at any given date each winter is uncertain. Only once in 30 years has the Refuge been open to snowmachine use for the entire period potentially allowed by regulation, and in three winters there was inadequate snow accumulation to permit snowmachine use at all. Because of the enthusiasm from many members of the public to use snowmachines for winter recreational pursuits, the Refuge Manager's annual decisions on this matter are subject to considerable social pressure and discussion.

Snowmachine use on the Refuge includes activities related to small game hunting, trapping, ice fishing, travel to private cabins, and winter sight-seeing. In addition snowmachining is viewed by many as a winter recreation activity itself, much like skiing or snowshoeing. The definition of “traditional activities” under Section 1110(a) of the Alaska National Interest Lands Conservation Act (ANILCA) has not been defined for Kenai NWR.

As with other types of outdoor recreation equipment, evolving technology has increased the comfort, reliability, range, speed, and functionality of snowmachines. These technological changes have both increased and decreased the potential for certain types of impacts such as many newer machines being able to travel to areas previously inaccessible and heavier machines which can compact snow more vs. new technologies that make snowmachines quieter and cleaner. This trend may continue and the Environmental Protection Agency has instituted phased standards for snowmachines that began in 2006 that will continue to result in increase fuel economy and reduced exhaust emissions.

Information on snowmachine use levels on the Refuge over time are largely anecdotal but are generally accepted as steadily increasing over time. In the Refuge’s 1994 compatibility determination addressing snowmobile use, managers wrote, “A single rider can easily travel 100 to 150 miles daily. Although exact figures are not known, as many as 150 snowmachines have been observed in a single day. Conservatively, 10,000 to 15,000 miles of snowmobile tracks may be laid on a single winter day.”

From early February 2005 to early March 2005 a first attempt was made to estimate snowmachine numbers entering the Refuge using buried TrafX off-road vehicle sensors to count passing snowmachines. The sensors detect the electromagnetic signature of a passing snowmachine and stored the information for later retrieval. Five trails that access the popular Caribou Hills area were selected for this pilot study. The sensors were in place a month or less with the highest of the dual sensor readings yielding the following results: West of Tinkle Trail (131), Falls Creek Trail (35), Centennial Trail (280), Clam Gulch Trail (510), and Tinkle Trail (163). The mean gap between detections of a snowmachine, or group of snowmachines passing was approximately 42 minutes on weekdays and 25 minutes on weekends. Snowmachine users can enter the Caribou Hills without using these access points and not all users on these trails will necessarily enter the Refuge. Better information on use levels in this area of the Refuge, and any associated impacts of the use, is needed.

Availability of Resources: With approximately 1.25 million acres open to snowmachine use only after announcement of adequate snow cover (between December 1 and April 30), and nearly .75 million acres closed at all times, regular monitoring and enforcement is very difficult. The Refuge does not have adequate resources to patrol the entire area on a regular basis. Additionally, funding has never been adequate to initiate comprehensive studies to better understand the extent and impact of snowmachine use on various Refuge resources. Strictly speaking, when resources are deemed inadequate to properly manage a recreational use, policy dictates that the use be deemed incompatible and not be allowed. Because of ANILCA protections of snowmachine use, however, traditional use must generally be permitted unless substantial resource damage is occurring or is reasonably believed to occur. This changes the burden of proof on restricting a public use for compatibility reasons based solely on the availability of resources necessary to properly manage the activity. The Refuge is hopeful that additional resources for monitoring and research may come following the revised Comprehensive Conservation Plan. The Caribou Hills area snowmachine issue was raised in the 1985 plan and continues to be an important issue remaining unresolved in the current revised plan.

Anticipated Impacts of the Use: Snowmachine use can cause a variety of biological and social impacts that vary greatly depending on the levels of use, location, wildlife species involved, regulations employed to minimize impacts, and compliance with those regulations. Primary impacts to wildlife include increased access to remote areas for legal hunting, ice fishing, and trapping, as well as for illegal take; direct illegal chasing or harassment of wildlife; indirect or unintentional disturbance to wintering wildlife with legal use of snowmachines; compacting of snow with potential effects to small mammals and vegetation; damage to vegetation when inadequate snow or ice cover exists (may be legal or illegal use depending on timing and conditions); and contaminant concerns from unburned fuel in snowmachine exhaust. Human safety and interference with non-motorized Refuge visitor experiences and values are also important issues as are potential conflict with Wilderness values, including impacts to solitude and remote area experiences. All of these issues, threats to wildlife and habitats, safe visitor experiences, and protection of wilderness values are all resource issues appropriately addressed by this compatibility determination.

Little work has been done at Kenai NWR to examine levels and impacts related to snowmachine use; however, considerable work has been completed elsewhere that addresses some of the basic impacts. Years of research at Yellowstone National Park have resulted in planning efforts to reduce the potential impact of snowmachine emissions. Studies completed in the 1990s there concluded that up to one-third of the fuel delivered to the engine was passed through without burning and when compared to automobile emissions, snowmachines can emit 100 times more carbon monoxide and 300 times more hydrocarbons. An estimate of a peak day's emissions (2,000 snowmachines in Yellowstone) resulted in approximately 32 tons of hydrocarbons and 88 tons of carbon monoxide being emitted, and for a full winter season, as much as 1,200 tons of hydrocarbons and 2,400 tons of carbon monoxide could be emitted in the park. The study also found that snowmachines contributed approximately three percent of the annual nitrogen oxide emissions and 37 percent of the particulate matter emissions. A 1996 study showed positive correlations with concentrations of ammonium and sulfates in snow with snowmachine use and noted the potential for pollutants to affect nearby surface waters during snowmelt and spring runoff.

The following information is largely from Denali National Park and Preserve documents finding for a temporary closure to the use of snowmachines for traditional activities (1999).

A. Detrimental Effects on Natural Resources

1. Wildlife

Several studies have been conducted that show the direct impact of repeated snowmachine use on wildlife behavior and levels of physiological stress (Aune 1981, Dorrance, et al 1975, Freddy, et al 1986, Moen, et al 1982, Neumann and Merriam 1972, Rudd and Irwin 1985, Simpson 1987, Tyler 1991, Voyageurs National Park 1996). Many of the studies showed behavioral effects on the same species that occur in Kenai NWR. These studies, as well as others on different species such as deer, indicate that snowmachine activity does alter the behavior of a wide variety of animals. They confirm that exposure of wildlife to snowmachine use results in behavior alternation, habitat avoidance, and energy expenditures at critical times when animals are under extreme stress due to winter privations. Of most concern at Kenai NWR is disturbance to wintering moose populations and potential disturbance to denning black and brown bears. Also,

while the Caribou Hills is known as an area important to caribou historically, animals that have been re-introduced into the Refuge in the 1960s and 1980s have avoided the area. While there is no concrete evidence that caribou avoid the Caribou Hills now because of the intense snow machine use, the fact remains that their concentrated use in the area prior to their extirpation was also at a time prior to snowmachine use in the area.

The compacted trails left by the passage of snowmachines have several effects on wildlife. The compaction of the snow can crush small mammals, trap them in their tunnels, or inhibit their movements (Jarvinen and Schmid 1971). Compacted trails also change distribution patterns of animals by providing energy efficient travel ways that alter winter survival rates, predation rates, and distribution patterns, availability of carrion for use by other species, and levels of human conflict (Meagher, et al 1994). Compacted trails allow animals such as coyotes to hunt in areas of normally soft snow and start to compete with animals such as lynx that typically have the advantage in those habitats. Compaction of snow in forage areas can also have other negative effects on wildlife foraging. It increases energy expenditure by ungulates such as caribou that must dig for vegetation in extremely stressful winter months (Fancy and White 1985).

2. Vegetation and Soils

It is well known that snowmachines can cause considerable abrasion and breakage of exposed vegetation, including seedlings, shrubs, and young trees (Greller 1974). Even when there is adequate snow-cover to prevent direct abrasion of vegetation, the compacted trails formed by snowmachines affect the subnivean environment by causing major temperature reductions and changes in snow-pack characteristics (Pesant, et al 1985). These changes alter species composition, change plant density, delay the melting of compacted winter trails, and provide moisture over a longer period of time to the vegetation in the trail area (Pesant 1987, Evans and Fonda 1990, Keddy, et al 1979). Changes in moisture and growing season are important in a northern environment where the growing season is already extremely short. These temperature reductions can change soil surface microstructure, which reduces seed germination suitability of a site, the storage of organs of perennial plants, and spring flower viability (Keddy, et al 1979, Wanek and Schumacher 1975).

B. Conflicts with Other Recreation Users and Detrimental Effects on Wilderness Values

General public comments often are diametrically opposed on support or lack thereof for snowmachine use. This is certainly true with the historic management of this issue at Kenai NWR as well as comments received most recently in scoping efforts for the revised comprehensive conservation plan. Comments from many non-motorized users at Kenai and elsewhere in Alaska establish that the natural quiet, solitude, and undisturbed vistas are important resource values associated with Wilderness areas that many publics expect to be protected now and for future generations. The Caribou Hills area is included in Congressionally designated Wilderness, as are other portions of the Refuge used by snowmachines, but to a lesser extent. The Refuge has a responsibility to manage for Wilderness resources and values while at the same time providing for ANILCA mandates. Some levels of impacts may be tolerated to reach this balance; however, a threshold of tolerance in terms of impacts to Wilderness resources must be established and managed accordingly as well.

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Public Review and Comment: This compatibility determination has been prepared while revising the Refuge's Comprehensive Conservation Plan and Environmental Impact Statement. Future revisions can be accomplished outside of this planning process if deemed necessary and would be completed with public notice and involvement. Legal notice of the draft compatibility determination was published in the Anchorage Daily News and the Kenai Peninsula Clarion on February 25, 2007 which initiated a 45-day public comment period. The notice was also posted on a bulletin board at the Refuge headquarters for the same time period, made available starting February 28, 2007 on a list server fws-akrefugecompatibility@lists.fws.gov to 137 addresses, and made available on the Regional Refuge Planning web site at <http://alaska.fws.gov/nwr/planning/completed.htm>.

Comments on some or all of the (15) compatibility determinations were received from: The State of Alaska, The Wilderness Society, The National Wildlife Refuge Association, Friends of Kenai National Wildlife Refuge, Alaska Trappers Association, Defenders of Wildlife, Kenai Field Office (FWS), and The Humane Society of the United States.

The State of Alaska agreed with the draft finding but included numerous comments regarding the substance of the draft compatibility determination. Edits have been made to some sections based on State of Alaska comments. Comments from The Wilderness Society and Defenders of Wildlife expressed concern that snowmachine use on Kenai NWR was not likely compatible with Refuge purposes at current levels of use. We understand their concern and believe that the study requirements to evaluate the use and impacts in the Caribou Hills will help determine whether the concerns are indeed valid, and if so, direct necessary changes to ensure future compatibility. The National Wildlife Refuge Association and Friends of Kenai National Wildlife Refuge also raised concerns about snowmachine use, and along with The Wilderness Society and Defenders of Wildlife, supported the Caribou Hills snowmachine study.

Determination (check one below):

Use is Not Compatible

Use is Compatible With Following Stipulations

Stipulations Necessary to Ensure Compatibility: The following stipulations have been incorporated in Kenai NWR special regulations (50 CFR 36.39 (i)(4)) to help ensure snowmachine use on the Refuge is compatible with its purposes:

Snowmachines are authorized between December 1 and April 30 only after the Refuge Manager determines that there is adequate snow cover to protect underlying vegetation and soils.

Snowmachines are limited in size to no greater than 46-inches in width and 1,000 pounds in weight.

All areas above timberline, except Caribou Hills, are closed to snowmachine use.

The area with sections 5, 6, 7, and 8, T. 4 N., R. 10 W., S.M., AK., east of the Sterling Highway right-of-way, including the Refuge headquarters complex, the environmental education/cross country ski trails, Headquarters and Nordic Lakes, and the area north of the east fork of Slikok Creek and northwest of a prominent seismic trail to Funny River Road, is closed to snowmachine use.

An area, including the Swanson River Canoe Route and portages, beginning at the Paddle Lake parking area, then west and north along the Canoe Lakes (Dave Spenser) Wilderness boundary to the Swanson River, continuing northeast along the River to Wild Lake Creek, then east to the west shore of Shoepac Lake, south to the east shore of Antler Lake, and west to the beginning point near Paddle Lake, is closed to snowmachine use.

An area, including the Swan Lake Canoe Route, and several road-connected public recreational lakes, bounded on the west by the Swanson River Road, on the north by the Swan Lake Road, on the east from a point at the east end of Swan Lake Road south to the west bank of the Moose River, and on the south by the Refuge boundary, is closed to snowmachine use.

Within the Skilak Loop Special Management Area, snowmachines are prohibited, except on Hidden, Kelly, Petersen, and Engineer Lakes for ice fishing access only. Additionally, Upper and Lower Skilak Lake campground boat launches may be used for access points for snowmachine use on Skilak Lake.

Snowmachines may not be used on maintained roads within the Refuge. They may cross a maintained road after stopping and when traffic on the roadway allows for safe crossing.

Snowmachines may not be used for racing.

Harassment of wildlife with snowmachines is prohibited.

Additionally, a study of at least five years, but no more than ten years will be initiated within the Caribou Hills area to study impacts of snowmachines use and recommended management responses. Parameters to be evaluated include but are not limited to use levels, the extent of travel within alpine areas, disturbance to wildlife and habitats, noise generation, and contaminant levels attributable to snowmachine exhaust. The Refuge will work with the State of Alaska in study design and at the completion of the study, if results indicate continuing increased use and/or unacceptable associated impacts, a public regulatory process will be initiated to restrict snowmachine use in the area to ensure compatibility and public safety. Such restrictions could include use limits, designation of specific trails for use, speed limits, restrictions on night riding, limits on the type of machine allowed (to reduce pollution and/or noise, etc.), or other regulatory requirements to address specific concerns. Any regulatory results from the evaluation would apply to the Caribou Hills only and not to the remainder of the Refuge that would not be part of the study. The study will be initiated within one-year of the completion of the revised CCP, and recommendations for regulatory actions, if any, will be made within one-year after completion of the study.

Justification: Snowmachine use on Kenai NWR is a historically permitted and regulated activity that has increasing levels of participation and popularity. Because of the increase levels of use, Refuge regulations and restrictions have been put in place over time to protect Refuge resources, provide for public safety, and minimize conflict with other Refuge users. These regulations are

believed to largely mitigate the negative impacts associated with snowmachine use. Because of ANILCA protections of snowmachine use, any additional restrictions on the activity must follow specific regulatory procedures, yet the activity must be determined to be compatible with Refuge purposes, and be a safe public activity, to be allowed. Current regulations are seemingly adequate with one possible exception - the increasing levels of use within the Caribou Hills. Studies to examine snowmachine use and related impacts in this area to Refuge resources are necessary to evaluate the use and recommend any potential changes to ensure continued compatibility. Completion of this effort is a necessary condition to this current compatibility determination.

Signature (Refuge Manager): /s/ Robin L. West 6/13/07
Signature and Date

Concurrence (Regional Chief): /s/ Todd J. Logan 8/14/07
Signature and Date

Mandatory 10-year Re-evaluation Date: 8/14/17