BIOLOGICAL OPINION

on the

Effects of the
"Winter Motorized Recreation Forest Plan Amendment
for the Flathead National Forest" ("A24")
on Grizzly Bears

Action Agency:	U.S. Department of Agriculture Flathead National Forest Kalispell, Montana
Consultation Conducted by:	U.S. Fish and Wildlife Service Montana Ecological Services Field Office Helena, Montana
Date Issued:	December 19, 2008

Introduction

This document represents the U.S. Fish and Wildlife Service's (Service) biological opinion on the proposed *Winter Motorized Recreation Forest Plan Amendment for the Flathead National Forest* (hereafter "A24") and its potential effects on grizzly bears (*Ursus arctos horribilis*), in accordance with section 7 of the Endangered Species Act (Act), as amended (16 USC 1531 et seq.). The Service prepared this opinion in response to a July 22 request by the Flathead National Forest (Forest) for reinitiation of consultation on the proposed action (U.S. Forest Service in litt. 2008). The reinitiation was based on specific modifications of the language in the March 19, 2004 biological assessment (BA), to address concerns raised in a May 28, 2008 District Court Order, Missoula Division (CV 06-73-M-DWM)(*Ib*.).

Section 7 (b)(3)(A) of the Act requires that the Secretary of the Interior issue biological opinions on federal agency actions that may affect listed species or critical habitat. Biological opinions determine if the action proposed by the action agency is likely to jeopardize the continued existence of listed species or destroy or adversely modify critical habitat. Section 7 (b) (3) (A) of the Act also requires the Secretary to suggest reasonable and prudent alternatives to any action that is found likely to result in jeopardy or adverse modification of critical habitat, if any has been designated. This biological opinion addresses only impacts to federally listed species and does not address the overall environmental acceptability of the proposed actions.

This biological opinion is based on the information provided in the March 19, 2004, Biological Assessment for Terrestrial Wildlife Species: Winter Motorized Recreation Forest Plan Amendment (U.S. Forest Service 2004a), as modified by U.S. Forest Service in litt. (2008); the Flathead National Forest Winter Motorized Recreation Amendment 24 Final Environmental Impact Statement, December 2003 (U.S. Forest Service 2003); A19 Monitoring reports (U.S. Forest Service 2004b, 2005, 2008b); telephone and electronic mail communications with Forest biologists and many other sources of information. The complete record for this consultation is on file at this office.

Consultation History

April 28, 2003: The Forest transmitted its first request for formal consultation on the grizzly bear and the accompanying biological assessment, which was received by the Service on April 30, 2003. This request was subsequently withdrawn, pending further analysis by the Forest, because of changes in the proposed action stemming from public involvement and the NEPA process. Subsequently, between April 2003 and November 2003, the project experienced delays due to some Forest Service staffing changes and due to the wildfire emergencies and resulting workloads in summer through fall of 2003.

November 12, 2003: The Forest transmitted its second request for formal consultation on the grizzly bear and for written concurrence on the gray wolf and Canada lynx; which the Service received November 19, 2003. The package was forwarded to the Service's Kalispell sub-office for consideration, where it was received December 1, 2003.

December 11, 2003: The Service (B. Conard) contacted the Forest (M. Comer, T. Chute, R.

Carlin) via phone to express concerns over the proposed definition changes in Appendix TT of Amendment 19 to the Forest Plan, which would be affected by A24.

January 20, 2004: The Forest (T. Chute) transmitted (via email) to the Service (A. Vandehey and B. Conard) some proposed verbiage on how road densities calculations could be treated under A24 in spite of the definitions in Appendix TT. The Forest suggested that this verbiage could be used as Terms and Conditions to the Biological opinion (rather than changing the Forest's proposed language in their amendment).

February 6, 2004: The Service disagreed with the approach suggested on January 20, 2004, and urged the Forest to change the wording in their proposal to address the concerns. The Forest (T. Chute) and the Service (A. Vandehey and B. Conard) discussed (via phone) some proposed wording for Appendix TT and how various calculations of road densities would be treated under A24. The Forest transmitted their proposal to the Service via email on the same day. The Service continued to have concerns with the proposed wording of Appendix TT.

February 27, 2004: Staff from both the Forest and the Service met at Seeley Lake Ranger Station to discuss the larger issue of program of work for the coming year. The Service verbally reminded the Forest that a Service response was pending to the February 6, 2004, Appendix TT wording proposal.

March 8, 2004: The Service (B. Conard) reminded the Forest (J. Ingebretson) via email that the definitions in Appendix TT were still problematic and that further discussion was needed.

March 19, 2004: The Forest transmitted a request (and BA) for formal consultation on the determination for grizzly bear and for written concurrence on the determinations for gray wolf and Canada lynx; the Service received this request on March 22, 2004. This BA contained the February 6, 2004, verbiage proposed by T. Chute.

April 30, 2004: The Forest (R. Carlin & K. Smolt) and the Service (B. Conard and {via phone} A. Vandehey) met to resolve the final wording of definitions in Appendix TT.

May 26, 2004: Following some editorial changes resulting from the April 30, 2004, meeting, the Forest (R. Carlin) transmitted the final version of Appendix TT to the Service (B. Conard) via email. In turn, the Service transmitted a letter to the Forest acknowledging formal consultation was initiated; the Service stated it would strive to use the start date of March 19, 2004, for the 135-day timeline (i.e., the Service would strive for an August 2004 BO even though the 135-day statutory deadline was in October 2004).

August 3, 24-26, 2004: The Service (B. Conard) and the Forest (R. Carlin) communicated via emails and voicemail for a status check on the A-24 biological opinion, anticipating a late September draft.

September 9, 2004: The Forest (R. Carlin) contacted the Service (B. Conard) via phone for another update. Conard informed Carlin that a late September draft was still likely.

September 20, 2004: The Service distributed an internal rough draft of the biological opinion to select reviewers for internal comments.

October 8, 2004: The Service (B. Conard) contacted the Forest (R.Carlin) to arrange an October 27, 2004, meeting to review and hand off an interagency draft of the biological opinion.

October 27, 2004: The Service met with the Forest to provide an overview of an interagency rough draft biological opinion.

October 29, 2004: The Service transmitted an interagency draft biological opinion to the Forest for a more comprehensive review.

November 23, 2004: The Forest replied with written comments related to the proposed terms and conditions of the Incidental Take Statement.

February 10, 2005: The Service (A.Vandehey, B. Conard, and B. Dickerson) met internally to discuss the final edits for the terms and conditions. B. Conard notified the Forest (S. Anderson) of the status of the biological opinion.

March-April 2005: The Forest and the Service exchanged information about last-minute adjustments to the baseline (e.g., addition of West Side Salvage decisions); the Service clarified some confusion found in the literature regarding records of grizzly bear disturbance in dens by snowmobiles; Service conducted a final internal review and then shared the final draft with the Forest for a final external review for accuracy.

April 2005-February 2006: Due to the ongoing formal consultation on both Amendment 19 and Amendment 24, the Service and the Forest mutually agreed to release the A24 biological opinion after the A19 opinion. The A19 opinion was completed October 25, 2005. Meanwhile the Service experienced staffing turnover and shortages. By October/November 2005, it was impossible for the FNF to implement a decision on A24 for the 2005-2006 winter season, so the Service made the decision to defer completion of the A24 in favor of other high-priority work. The A24 biological opinion was finalized in March 2006.

May 28, 2008: District Court issued an Order (CV 06-73-M-DWM) setting aside the biological opinion on A24 because it "failed to comply with the Endangered Species Act in setting the environmental baseline" and therefore its finding of no jeopardy was not in accordance with law.

July 22, 2008: The Forest requests reinitiation of consultation on A24 (USFS in litt. 2008).

BIOLOGICAL OPINION

I. DESCRIPTION OF THE PROPOSED ACTION

A. Background

The proposed federal action is the *Winter Motorized Recreation Forest Plan Amendment for the Flathead National Forest,* commonly referred to as *Amendment 24* or, hereafter, *A24*. A24 is a proposed amendment to the Flathead National Forest Land and Resource Management Plan (Forest Plan) (U.S. Forest Service 1986). According to the BA (U.S. Forest Service 2004a):

> "*The existing Forest Plan does not adequately address winter motorized access. In response to administrative appeals of the Forest Plan, the Associate Chief of the Forest Service directed the Regional Forester "to clarify the LRMP management direction to eliminate any confusion about motorized use in MA-2A areas" (Associate Chief final decision for Forest Plan Appeal #1467). For various reasons* [,] *that clarification of the Forest Plan did not occur.*
>
> *In the years since the Forest Plan was approved, both motorized and non-motorized winter recreation use and technology have increased. Some forest users have expressed concern for wildlife and other resources in light of increasing numbers of snowmobiles in the backcountry, or felt their opportunities for a quiet winter recreation experience were diminishing.*
>
> *This concern was evidenced in 1999 when litigation was brought against the Flathead National Forest by the Montana Wilderness Association (MWA) for allowing snowmobiling to occur in areas where the Forest Plan assigns a Recreation Opportunity Spectrum (ROS) of primitive and semi-primitive non-motorized recreation.*
>
> *In response to* [the 1999 MWA] *lawsuit, a Federal Magistrate recommended to the deciding Judge that the Flathead National Forest be ordered to close all Management Area (MA) 2A to motorized use. These MA 2A areas include many popular snowmobile play areas, as well as groomed snowmobile trails. The parties to the lawsuit (plaintiff Montana Wilderness Association, defendant Flathead National Forest, and intervener Montana Snowmobile Association (MSA) agreed to settle the case. As part of the settlement agreement, the parties created maps, and a temporary closure order for certain areas of the forest was put into place. The court-approved settlement agreement includes preparation of a Forest Plan amendment in an open public forum to develop Forest-wide winter motorized recreation direction, with the settlement agreement maps (Alternative 2) as the proposed action. However, the settlement agreement failed to define when snowmobile use is appropriate on the forest. Alternative 6 (the preferred alternative in the FEIS and proposed action in this BA) was developed with the aid of the settlement agreement parties and represents a good compromise of where and when winter motorized recreation is appropriate on the Flathead National Forest."*

The purpose and need for A24 is to:

1. Clarify Forest Plan management direction to eliminate any confusion about motorized use in MA-2A areas (as per August 31, 1988, Associate Chief's final decision for Forest Plan Appeal #1467).
2. Meet the requirements of a Settlement Agreement resulting from a lawsuit challenging the Forest Plan.
3. Determine long-term winter recreation management direction related to motorized use.

In May, 2008, a District Court Order set aside the Service's 2004 biological opinion on A24 (CV 06-73-M-DWM). The Court found that "In establishing the environmental baseline from which it assessed the effects of A24 on the grizzly bear, the U.S. Fish and Wildlife Service considered the current state of actual springtime snowmobile use on the Forest, rather than the existing (although largely unenforced) rules prohibiting snowmobile use in the spring. In other words, the baseline for measurement and analysis accepts illegal use and then proceeds based on that faulty idea" (at page 2). The Court found that this enabled the Service to bolster the alleged benefits to grizzly bears resulting from A24, when in fact the Forest Plan was changed to allow more spring snowmobiling than was permitted before. The Court found that with this degraded backdrop the Service concluded that A24 was an improvement over the environmental baseline.

This biological opinion addresses the Court's concerns about our original description and analysis of the environmental baseline, and consequently, the resulting overall effects of the proposed action.

In response to the Court Order, the Forest did not change the proposed action detailed in Alternative 6 of the FEIS (U.S. Forest Service 2003). Rather, the Forest modified its effects analysis and determination of effects in the 2004 BA, related specifically to the Court's interpretation of the language and meaning of the Forest Plan (as amended by A19). The Forest provided these modifications of the 2004 BA in its July 22, 2008 correspondence to the Service (U.S. Forest Service in litt. 2008).

The Forest's modified BA indicated that spring time restrictions on snowmobiling were not strictly enforced due to an incorrect interpretation of the Forest Plan. In other words, as the Court found, restrictions against spring snowmobiling in the recovery zone were actually required under the Forest Plan as amended by A19. The BA then indicated that snowmobiling had been occurring throughout open areas on the Forest as long as snow conditions permitted. The Forest's letter transmitting the modifications to the BA (U.S. Forest Service in litt. 2008) states that "Based on the Court's decision, the proposed 52,400 acres available for use during the non-denning period should be considered an increase in area available for snowmobile use from the environmental baseline".

Thus, due to lack of enforcement of the Forest Plan's restrictions on spring snowmobiling within the recovery zone, there may have been some undocumented and unquantified effects on grizzly bears from spring snowmobiling. This opinion acknowledges that point. However, we base our analysis of the effects of the proposed action primarily on the fact that the Forest Plan under A24 would, contrary to the prior Forest Plan prohibition on snowmobiling after March 15, allow spring snowmobiling on 52,400 acres in designated areas within the recovery zone, which represents an increase in area available for snowmobile use after March 15 compared to the environmental

baseline

B. Description of the Proposed Action

The Forest proposes Alternative 6 from their Final Environmental Impact Statement for the Winter Motorized Recreation Amendment (U.S. Forest Service 2003, FEIS). Alternative 6 is the NEPA alternative analyzed in the BA and, for purposes of this biological opinion, is the only alternative considered in detail by the Service. Hereafter, references to A24 generally rely on Alternative 6 as analyzed in the BA. This biological opinion contains occasional references to other alternatives of the NEPA document for comparison purposes; for example the management situation under Alternative 1 (the Forest Plan alone), or Alternative 2 (the interim settlement agreement).

A24 proposes both "programmatic" and "site-specific" decisions related to use of snowmobiles on the Forest. A24 would programmatically determine where and when snowmobile use would be allowed on Flathead National Forest lands and would amend the Forest Plan accordingly (the term "snowmobile" is defined to include any "over the snow" motorized vehicle).

Snowmobiling would be "programmatically" allowed on approximately 787,200 acres. Considering the current site-specific closures that would remain in place, areas available for snowmobiling would total approximately 690,900 acres involving approximately 3,000 miles of roads/routes on the Forest.

However, in practical terms, thousands of acres are not actually useable by snowmobiles due to slope (steepness) or vegetation (e.g., too densely forested). The Forest estimates that about 63,000 acres have received the most common use "where slope and vegetation do not impede snowmobile use" (U.S. Forest Service, 2003 FEIS: chapter 3, page 7, and elsewhere). The Forest did not include much of Tally Lake Ranger District in this estimate, where "a nominal amount of riding occurs" (*Ibid*.). Tally Lake Ranger District is "generally lower elevation and rolling topography," which "does not provide an aesthetic snowmobile experience" (*Ibid*.). Under A24, 57,200 acres of the most commonly used acres would remain available (more than 100 percent of what is available under interim direction and about 91 percent of that available in the original Forest Plan). Table 1 summarizes the acreage available to snowmobiling in comparison to the total acreage administered by the Forest.

Generally, the remainder of affected Northern Continental Divide Grizzly Bear Ecosystem (NCDE) recovery zone lands on the Forest outside the North Fork drainage would be open to snowmobile use with exceptions being: designated Wilderness, Jewel Basin Hiking Area, Coram Experimental Forest, LeBeau Research Natural Area, proposed Wilderness, or other specific closures based on resource concerns (e.g., certain "Management Areas" defined in the Forest Plan). Many of these areas were closed to snowmobiling previously, but additional acreage would be closed to snowmobiles by A24. A24 would allow snowmobile use in discrete areas of the North Fork drainage, including higher elevation "play areas," Tuchuck Campground, and small areas of bottomland between private property and residences along the North Fork Flathead River.

Table 1. Summary of acreage administered by the Flathead National Forest and total acreage on which snowmobiling would be permitted or prohibited (largely from biological assessment Table 3).

	Proposed Action Alternative 6	Interim Direction - Settlement Agreement. Alternative 2	No Action. Pre-settlement direction. Existing Forest Plan. Alt. 1
Acreage Administered by the Flathead Nation Forest	2,345,000	(same)	(same)
Acres of Designated Wilderness – no snowmobiling. (% of Forest)	1,075,500 (46%)	(same)	(same)
Programmatic Acres Available for Snowmobiling (% of Forest).	787,200 (34%)	784,400	1,142,000 (49%)
All Acres Available for Snowmobiling (% of Forest)	690,900 (29%)	(not calculated)	1,080,400 (46%)
*Acres estimated to be the most commonly used terrain where slope and vegetation do not impede snowmobile use. Does not include most of Tally Lake RD, where use is reportedly nominal.	57,200	57,100	63,000

*FEIS – Chapter 3, pages 4-14

On those areas considered "open," snowmobiling would be allowed from December 1 through March 31 with the exception of three specific spring snowmobiling areas and one set of snowmobile routes:

- Until May 31 in the Lost Johnny area.
- Until May 15 in the Challenge Creek area.
- Until April 30 in the Six-mile area.
- Groomed routes in Canyon Creek would remain open for snowmobile use until April 15.

These three areas and the Canyon Creek routes are displayed in Appendix WW of A24 and are to be managed as distinct, bounded areas. Newly closed areas proposed in A24 would take effect through the amendment but additional site-specific changes could be made at the project level without amending the Forest Plan. Such future decisions may alter routes and areas based on new information, resource conflicts, or other concerns. Such decisions would be subject to appropriate NEPA review and possibly Section 7 consultation depending on the potential effects.

Snowmobiles would be allowed to travel 100 feet on either side of the road corridors open to snowmobiling in otherwise closed areas. On those roads, use would generally be allowed between December 1 and March 31. Beginning on April 1, roads designated as "restricted" by the Forest Travel Plan (as implemented through Amendment 19 of the Forest Plan), would generally be closed to snowmobile use, with the exception of those in the extended spring seasons areas. Roads already considered "open", and areas and roads located outside the NCDE recovery zone would have no programmatic date restrictions on snowmobile use. Amendment 24 would not alter locations of existing groomed snowmobile routes.

A24 would modify Forest Plan Appendix TT of Amendment 19 (U.S. Forest Service 1995) in two ways: first, by altering the definition of *restricted road, reclaimed road,* and *security core* (for specific details, see Appendix A of this biological opinion) - and second, by defining the grizzly bear denning season as December 1 through March 31.

Current A19 definitions do not permit restricted and reclaimed roads to be used by motorized vehicles during the non-denning period. In short, the proposed action would change the definitions of *restricted* and *reclaimed* road to account for the extended season snowmobile use in the three specific areas and one route system, all mentioned earlier. The Forest would document and report the effects of spring snowmobiling in their annual monitoring report for A19. This approach was discussed with the Montana Level 1 Terrestrial Biologists Team (unpublished notes, 12/9/2003). Amendment 24 would change the numeric standards for compliance with A19 (as amended) for only those Bear Management Unit (BMU) subunits affected by specific spring exceptions for snowmobile use under proposed Appendix TT (see Appendix A of this document). It is important to note that A24 addresses only snowmobile use, and does not apply to wheeled motorized use such as trucks and cars. Amendment 24 would allow snowmobile use of routes that are currently restricted under the Forest travel plan and core area after March 31, in the four designated extended use areas. However, this allowed motorized use does not include the use of cars, trucks or other wheeled vehicles on restricted roads in these areas during the extended seasons.

The Forest also proposes to change the administrative dates for non-denning season from March 16-November 15 to April 1-November 30 to reflect the most recent information on denning chronology for grizzly bears on the Forest.

A24 **does not** change or alter Forest standards or guidelines for open motorized route density, total motorized route density, grizzly bear core area, or other travel management parameters established in A19 **except** in those BMU subunits where the numeric standards are affected by site-specific exceptions for spring snowmobiling during the specific proposed extended season. The Forest and the Service completed formal consultation on A19 (U.S. Fish and Wildlife Service 2005) and concluded that current conditions, including scheduled progress toward A19 objectives, would not likely jeopardize the continued existence of grizzly bears. A19 establishes access standards on the Forest within the grizzly bear recovery zone, and implementation expectations for those standards, while A24 outlines allowable snowmobile use of the roads and trails across the entire Forest.

The Service strongly emphasizes the following conclusions embodied in the A19 formal consultation history leading up to the October 2005 biological opinion:

- The need for access management on the Forest within the grizzly bear recovery zone is well established in order to conserve and recover the grizzly bear.
- A19 adopted the broad brush "19-19-68" standards in lieu of site-specific information.

- The record clearly recognizes the limitations of such landscape-scale planning and anticipated adjustments during Forest plan implementation and revision.
- As expected, some grizzly bear subunits have undergone site-specific planning, resulting in

adjustments to the A19 ("19-19-68") programmatic standards.

- The parties also identified alternative access management strategies (e.g., Ake et al.1998) but the Forest has not adopted such methodology, mainly for logistical/implementation reasons.
- The Service concluded (1995; 2005) that implementation of A19 would not likely jeopardize the continued existence of the grizzly bear – but in doing so, the Service **did not** conclude that alternative approaches were inadequate to avoid jeopardy or unadvisable; **nor** did the Service conclude that non-compliance with A19 would jeopardize the grizzly bear. Rather, non-compliance with or modification of specifics of a proposed action, or terms and conditions in any biological opinion, may trigger reinitiation of formal consultation in order to reevaluate the effects to the species that were not previously considered..
- The Service recognizes that some grizzly bear subunits on the forest are not in compliance with the broad "19-19-68" standards, nor have they undergone site-specific planning; hence the Service's 2005 biological opinion and its conclusions on the revised implementation schedule for A19.
- The Forest's BA clearly establishes that the proposed action, A24, may adversely affect individual grizzly bears. Therefore, at issue here is whether the proposed action, in the above context, is likely to jeopardize the continued existence of grizzly bears.

II. STATUS OF THE SPECIES

A. Species Description, Life History, and Population Dynamics

Much of the following information is summarized from the grizzly bear recovery plan (U.S. Fish and Wildlife Service 1993); more specific information can be obtained in that document. Grizzly bears are large (averaging 400-600 lbs for males, and 250-350 lbs for females) and long-lived (up to 40 years old) (Storer and Tevis 1955), but usually no more than 15-25 years in the wild. Grizzly bears are omnivorous, opportunistic feeders that require caloric intake in excess of maintenance requirements, particularly in later summer and fall, in order build fat levels to survive denning.

Grizzly bears' search for energy-rich food appears to be a driving force in their behavior, habitat selection, and intra/inter-specific interactions. They are highly dependent upon learned food locations within their home ranges. Adequate nutritional quality and quantity are important factors for successful reproduction and survival of young. Grizzly bear diets typically follow phenological vegetative, tuber or fruit development, and they will seek out concentrated food sources including carrion, and live prey such as fish (very rare in the NCDE), mammals, and insects. Grizzly bears are also easily attracted to human-related food sources including gardens, grain, compost, bird seed, livestock, pet and livestock feed, hunter gut piles, bait, and garbage. Bears that lose their natural fear and avoidance of humans, usually as a result of food rewards, become habituated, and may become food-conditioned. Both behaviors increase the chance of human-caused grizzly bear mortality as a result of real or perceived defense of human property or

life actions.
Adult grizzly bears are individualistic and normally solitary except during short breeding relationships and when females have cubs. Grizzly bears will tolerate each other at closer distances when food sources are concentrated, and siblings may associate for several years following weaning (Murie 1944, 1962; Jonkel and Cowan 1971; Craighead 1976; Egbert and Stokes 1976; Glenn et al. 1976; Herrero 1978).

Grizzly bears may have one of the lowest reproductive rates among terrestrial mammals, resulting primarily from the late age at first reproduction, small average litter size, and the long interval between litters. Mating occurs from late May through mid-July. Females in estrus will accept more than one adult male (Hornocker 1962), and can produce cubs from different fathers the same year (Craighead et al. 1995). Age of first reproduction and litter size may be nutritionally related (Herrero 1978; Russell et al. 1978). Average age at first reproduction in the lower 48 states for females is 5.5 years, and litter size ranges from 1 to 4 cubs that stay with the mother up to 2 years. Males may reach physiological reproductive age at 4.5, but may not actually reproduce due to other dominant males preventing mating. Female grizzly bears have a strong affinity to their young and documented abandonment is rare, although observations of females with cubs and later in the year without cubs indicate that loss of cubs happens occasionally due to unknown reasons. Male grizzly bears are documented to kill cubs and occasionally female grizzly bears, and females will generally avoid males except during the breeding season.

Natural grizzly bear mortality is known to occur from intra-specific predation, but the degree this occurs in natural populations is not known. Parasites and disease do not appear to be significant causes of natural mortality (Jonkel and Cowan 1971; Kistchinskii 1972; Mundy and Flook 1973; Rogers and Rogers 1976). As animals highly dependent upon their knowledge of the resource distribution in their habitat, displacement into unknown territory (such as subadult dispersal or displacement from preferred habitat due to human activity and disturbance) may lead to submarginal nutrition, reduced or curtailed reproduction, or greater exposure to adult predatory bears or human-related food sources (which can lead to human-caused mortality). Starvation and loss in dens during food shortages have been surmised, but have not been documented as a major mortality factor. Natural mortality in relatively secretive animals such as grizzly bears can be extremely difficult to document or quantify.

Human-caused mortality has been better quantified than natural mortality. However, recent models speculate that in some areas reported mortality may be up to 50 percent of actual mortality (McLellen et al. 1999). The Grizzly Bear Recovery Plan (U.S. Fish and Wildlife Service 1993) assumes that there is one unknown, unreported human-caused mortality for every two known human-caused mortalities; and calculations of sustainable mortality are based on this assumption.

Between 1800 and 1975, grizzly bear populations in the lower 48 states declined drastically. Fur trapping, mining, ranching, and farming pushed westward, altering habitat and directly killing grizzly bears. Grizzly bears historically were targeted in predator control programs in the 1930's. Predator control was probably responsible for extirpation in many states that no longer support grizzly bears. More recent human-caused mortality in Montana includes legal hunting (discontinued in 1991), management control actions, collisions with motor vehicles and trains, defense of life, defense of property, mistaken identity by black bear hunters, malicious killing, and

other poaching (e.g., bear parts).

Grizzly bears normally avoid people. Grizzly bear response to human activity can be classified into three general categories: 1) *displacement*, where animals avoid these areas with resulting changes in habitat and resource availability; 2) *habituation*, where animals continue to use these areas with lowered avoidance response to human activities with resulting increases in mortality risk; and 3) *behavioral change*, where animals continue to use areas with human use but change their periods of activity to those times where humans are not present (such as becoming nocturnal).

B. Denning Ecology and Chronology

Grizzly bear denning ecology and chronology are of particular relevance because A24 involves winter motorized recreation – an activity that overlaps with the denning season.

Low food availability, deep snow, and low ambient air temperatures appear to make winter sleep essential to bears' survival (Craighead and Craighead 1972a, 1972b). Bears are homeo-hypothermic hibernators; their body temperature drops no more than five degrees C during winter and is maintained there indefinitely. With normal fat reserves, bears are capable of fasting for six months with only slight reductions in body temperature. However, they do exhibit "…marked depression in heart rate and respiratory frequency, but a relatively slight drop in body temperature" (Craighead and Craighead 1972a). Of importance is the fact that grizzly bears do not enter deep torpor and remain responsive and easily awakened during the denning period and can be aroused with minimal levels of disturbance. This is in contrast to some "deep" hibernators such as ground squirrels, which are difficult to awaken when hibernating and may take up to 30 minutes to become responsive.

Grizzly bears typically excavate dens and need secure environments that are well-covered with a blanket of snow for up to five months, generally beginning in fall and extending until spring (Craighead and Craighead 1972b; Pearson 1975). Typically, grizzly bears do not re-use dens from year to year (Hamer et al. 1977; Servheen and Lee 1979b, Servheen 1981, Shoen and Beir 1986).

Denning ecology of grizzly bears in the NCDE is described in three major studies: Servheen and Klaver (1983), Aune and Kasworm (1989), and Mace and Waller (1997), although other reports exist. Table 2 compares the den site characteristics of the three major studies. Servheen and Klaver (1983) described 41 dens in the Mission and Rattlesnake Mountains of the NCDE. Thirty-nine dens were located in open, side-hill parks, while two were under forest canopy; 39 were between 6,726 and 8,202 feet elevation; slope angle of sites averaged 30 degrees; and dens occurred on all aspects except northwest (*Ibid*.). Aune and Kasworm (1989) documented 70 grizzly bear dens on the east side of the NCDE. These dens were located in open and forested mountain slopes at elevations ranging from 5,100-8,167 feet elevation; slope angle of den sites averaged 57 percent (range 15-80 percent); and although dens occurred on all aspects, 77 percent were located on northerly aspects (*Ibid*.). Mace and Waller (1997) documented 78 denning episodes from 30 radio-collared grizzly bears between 1987 and 1994 in the Swan Mountains of the NCDE. The average elevation of dens was 6,476 feet, ranged 6,371 to 6,578 feet; on average dens were 109 feet from the nearest ridge top (*Ibid*.). Grizzly bear dens were located on a variety of aspects but most (36 percent) were on easterly aspects; mean slope at the den sites was 63

percent; and dens were located more often in open (40 percent) and open-timbered (42 percent) habitats than in timbered areas (*Ibid*.). No significant differences were found in den site selection between sex and age classes.

Table 2. Grizzly bear den site characteristics from three studies in the Northern Continental Divide Ecosystem: Servheen and Klaver (1983), Aune and Kasworm (1989), and Mace and Waller (1997).

STUDY	NUMBER OF DENS	COVER TYPE	ELEVATION	SLOPE*	ASPECT
Servheen and Klaver (1983)	41	39 in open, side-hill parks	39 between 6726-8202 feet elevation	Average slope = 57.7%	All aspects
Aune and Kasworm (1989)	70	Open and forested slopes	Ranged 5100-8167 feet elevation	Average slope = 57% (range 15-80%)	All aspects but 77% on northerly.
Mace and Waller (1997)	78	Open 40%, open-timbered 42%, and timbered 18%.	Average elevation = 6476 feet	Mean slope = 63%	Variety of aspects but 36% easterly

*some slope data was reported in *degrees* in the original literature and was converted to *percent* slope here for comparison purposes.

Grizzly bears in the NCDE typically enter their dens in early to mid-November and exit in early to mid-April (Servheen and Klaver 1983; Aune and Kasworm 1989; Mace and Waller 1997). Grizzly bears on the east side of the NCDE entered their dens on a mean date of November 6 (Aune and Kasworm 1989); while bears on the west side exhibited a mean date of November 4 in the Swan Mountains (Mace and Waller 1997) and the third week of November in the Mission Mountains (Servheen and Klaver 1983).

Timing of den exit was also similar between the studies: median date of exit was April 7 on the east side (Aune and Kasworm 1989); April 14 in the Swan Mountains (Mace and Waller 1997), and early April in the Mission Mountains (Servheen and Klaver 1983). Females with cubs (pregnant upon den entry) enter their dens earlier and emerge later than other sex and age classes (Aune and Kasworm 1989; Mace and Waller 1997). Pregnant females also spent more time near the den before entry and more time in the vicinity of the den (with cubs) after emergence.

Mace and Waller (1997, pg. 41) recommended "*that the denning season for cumulative effects models in the western portion of the NCDE be based on the dates when females were first noticed in the vicinity of their dens during the autumn (8 Oct), and the last date when females were near the den during spring (26 May).*" These dates include the widest possible range for females in or near the den for this area. It is important to clarify that the most probable start date for female den emergence in this vicinity is April 1, not May 26 (May 26 is the last date that females were documented *near* dens). Similar grizzly bear denning chronology data were reported for the Yellowstone ecosystem. Based on 14 years of den data, 90 percent of grizzly bears denned by the end of November (Haroldson et al. 2002). Grizzly bears may spend some time in the den vicinity prior to denning (Judd et al. 1986). Adult males typically emerge between mid-February and late March; subadults and single females in late March or early April, and females with cubs emerge between early and mid-April (Judd et al. 1986, Craighead and Craighead 1972b, Vroom et al. 1977, Haroldson et al. 2002).

Den affinity during the winter is evidently strong; few grizzly bears have been documented to leave dens during the denning period, possibly due to the deep snow conditions and consequent energy required for another excavation. Male grizzly bears have been documented outside of dens in each month of the year and Aune and Kasworm (1989, pg. 80) documented two instances of a female grizzly bear moving from one den location to a second location during the winter denning period.

C. Current status and distribution

The grizzly bear originally occupied a variety of habitats from the Great Plains to mountainous habitats throughout western North America from Central Mexico to the Arctic Ocean. Since the 1800's, grizzly bear numbers were reduced from over 50,000 to about 1,000 south of Canada. Today, the grizzly bear occupies less than two percent of its former range south of Canada (U.S. Fish and Wildlife Service 1993). In the conterminous 48 States, only five remaining areas have either remnant or self-perpetuating populations. These remaining populations, often associated with National Parks and wilderness areas, are principally located in mountainous regions in Washington, Idaho, Wyoming, and Montana.

The grizzly bear was classified as threatened in the conterminous 48 states on July 28, 1975 (40 Federal Register 31736). The Service identified the following as factors establishing the need to list: (1) present or threatened destruction, modification, or curtailment of habitat or range; (2) over utilization for commercial, sporting, scientific, or educational purposes; and (3) other manmade factors affecting its continued existence. Currently, the two primary challenges in grizzly bear conservation are the reduction of human-caused mortality and the conservation of remaining habitat (U.S. Fish and Wildlife Service 1993).

The original grizzly bear recovery plan was approved on January 29, 1982 (U.S. Fish and Wildlife Service 1982). The plan was revised and approved on September 10, 1993 (U.S. Fish and Wildlife Service 1993). The grizzly bear recovery plan (*Recovery Plan*) details recovery objectives and strategies for the grizzly bear recovery zones (Figure 2) in the ecosystems where grizzly bear populations persist: the Yellowstone Grizzly Bear Ecosystem (YGBE), NCDE, Cabinet-Yaak Ecosystem (CYE), and Selkirk Ecosystem (SE).

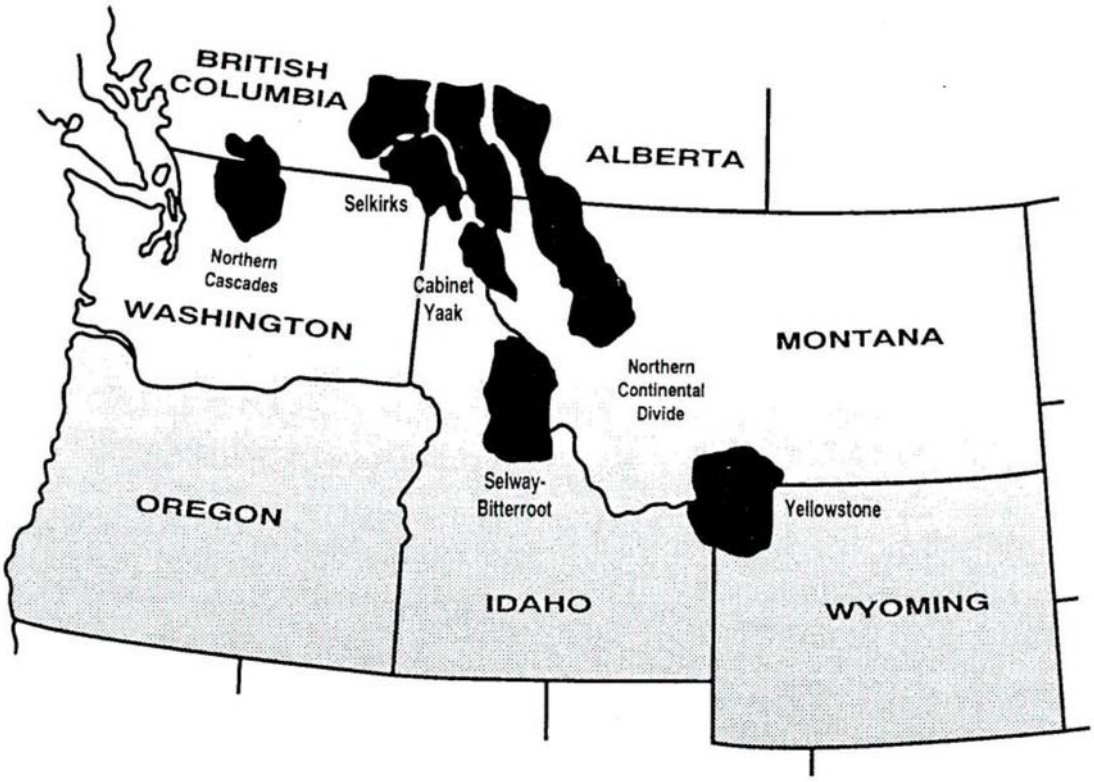


Figure 2. Present grizzly bear ecosystems in the conterminous 48 States, 1990 (the San Juan Mountains area of Colorado is not shown).

The Recovery Plan also includes recovery strategies for the North Cascades Ecosystem in Washington, where only a very few grizzly bears are believed to persist, and for the Bitterroot Ecosystem of Idaho and Montana where suitable grizzly bear habitat still occurs. The San Juan Mountains of Colorado were also identified as an area of grizzly bear occurrence, but not as a recovery unit because it was "still being evaluated as a potential recovery area." No evidence of grizzly bears have been found in the San Juan Mountains since a bear was killed there in 1979; grizzly bears could be extinct from this area today. The Recovery Plan defines a recovered grizzly bear population as one that can sustain the existing level of known and unknown human-caused mortality that exists in the ecosystem and one that is well-distributed throughout the recovery zone. The Recovery Plan established recovery criteria for each grizzly bear zone. Population recovery criteria are measured within the recovery zones and an adjacent 10 mile buffer. The Service plans to revise the 1993 Recovery Plan based on new information, within the near future.

1. Northern Continental Divide Ecosystem (NCDE) - The proposed federal action under consultation in this biological opinion falls within, and adjacent to, the NCDE recovery zone, so the status of the grizzly bear population in this ecosystem is described in the most detail (hereafter, the acronym *NCDE* alone refers to the greater cross-boundary ecosystem, whereas *NCDE recovery zone* applies to the grizzly bear recovery zone associated with the NCDE). The NCDE extends from the Rocky Mountains of northern Montana into contiguous areas in Alberta and British Columbia, Canada. The U.S. portion of the NCDE includes parts of five National Forests

(Flathead, Kootenai, Helena, Lewis and Clark, and Lolo), four wilderness areas (Bob Marshall, Mission Mountains, Great Bear, and Scapegoat) and one wilderness study area (Deep Creek North). National Forest System lands encompass 63 percent of the NCDE. The Flathead National Forest administers approximately 3,985 square miles (40 percent) of the 9,633 square mile NCDE recovery zone. Additionally, the NCDE includes Glacier National Park (GNP), the Flathead Indian Reservation (Confederated Salish-Kootenai tribal land), the Blackfeet Indian Reservation, adjacent private and State lands, and lands managed by the Bureau of Land Management.

All grizzly bear recovery zones are subdivided into smaller units to facilitate both the assessment of projects and recovery objectives**.** In the NCDE, twenty-three Grizzly Bear Management Units (BMUs) were formally delineated throughout the recovery zone. The Forest designated 94 percent of Flathead National Forest administered land within the NCDE recovery zone as MS-1, and 5 percent as MS-2 grizzly bear habitat, as defined in the Interagency Grizzly Bear Guidelines (51 FR 42863). The Forest encompasses 11 (or portions of 11) BMUs, which were designed for the following purposes:

1. Assess the effects of existing and proposed activities on grizzly bear habitat without having the effects diluted by consideration of too large an area.
2. Address unique habitat characteristics and grizzly bear activity and use patterns.
3. Identify contiguous complexes of habitat that meet year-long needs of the grizzly bear.
4. Establish priorities for areas where land use management needs would require cumulative effects assessments.

The exact size of the grizzly bear population in the NCDE is not known. The nature of the species and the rugged terrain it inhabits makes a complete population census difficult, if not impossible. Thus, until recently, the 1993 Recovery Plan relied on population parameters that were more easily monitored were used as an alternative index to population size. The Recovery Plan incorporated a number of measurable surrogate parameters to assess population status, including the number of females with cubs, the distribution of family groups, and the relationship between the minimum population estimate and known, human-caused grizzly bear mortality.

Recovery Plan demographic recovery outlined for the NCDE recovery zone includes the following criteria:

1. Observation of 22 females with cubs of the year (unduplicated sightings), 10 in Glacier National Park and 12 outside the park, over a 6-year average both inside the recovery area and within 10 mile area immediately surrounding the NCDE recovery zone, excluding Canada.
2. Twenty-one of the 23 BMUs occupied by females with young from a running 6-year sum of verified observations, and with no two adjacent BMUs unoccupied.
3. Known, human-caused mortality not to exceed four percent of the current minimum population estimate (based on most recent 3-year average of females with young).
4. No more than 30 percent of the known, human-caused mortality shall be females.
5. The mortality limits cannot be exceeded in more than 2 consecutive years for recovery to be achieved.

6. Recovery in the NCDE recovery zone cannot be achieved without occupancy of the Mission Mountains portion of the NCDE recovery zone.

The recovery criteria in the Recovery Plan were based on *minimum* population estimates and were intentionally conservative, given the type of estimation methods available when the plan was written (1993). The population estimate and consequent mortality limits depended on the field count of females and cubs. There was no established effort for this count in the NCDE and counting effort varied considerably among years. Thus, the Service had acknowledged that females and cubs were poorly counted in the NCDE and therefore that the resulting population estimate was a *minimum*. It was unknown, from year to year, how conservative the estimate was since the counting effort was not consistent.

In 2003 and 2004, the U.S. Geological Services (USGS) and Montana Fish, Wildlife and Parks (MFWP) initiated two population monitoring research efforts. The USGS used a population estimation method based on DNA from grizzly bears, collected at hair snagging sites throughout the NCDE. This fall, the results of the research were accepted for publication (Kendall et al. in press) and released to the public (http://www.nrmsc.usgs.gov). Results indicated a population of 765 grizzly bears in the NCDE in 2004. Ninety-five percent confidence intervals around that estimate suggest from 715 to 831 bears.

The DNA-based population estimate of 765 grizzly bears for 2004 reveals that Recovery Plan methods used to estimate a minimum population severely underestimated the population. For the year 2004, the Recovery Plan minimum population estimate for the NCDE (calculated and released in 2005) was 299 grizzly bears. Thus, the DNA-based population estimate was over two times higher than the recovery plan estimate.

This difference in population estimates is important because the Recovery Plan's annual sustainable human-caused grizzly bear mortality limits (four percent of the population, of which no more than 30 percent is female) for any particular year are based on the Recovery Plan population estimate for that year. Thus, given that the Recovery Plan population estimate for 2004 significantly underestimated the NCDE population, the sustainable mortality levels for 2004 were underestimated as well. We reasonably assume that 1993 Recovery Plan population estimates significantly underestimated the population in other years as well, and therefore sustainable mortality criteria were highly conservative as well (see Table 3 below).

The Service will more thoroughly reassess methods of sustainable mortality estimation during the revision of the Recovery Plan to incorporate this new information regarding the NCDE grizzly bear population. For the interim, the Service's grizzly bear recovery coordinator developed an interim revision to the Recovery Plan method to estimate sustainable mortality limits, based on the DNA-based population estimate (C. Servheen, USFWS in litt. 2008).

The interim revision to the Recovery Plan method retains the conservative limits for sustainable known, human-caused mortality. The Recovery Plan concludes that a recovering grizzly bear population can sustain a human-caused total mortality rate of 4 percent, of which no more than 30 percent is female. The interim revision replaces the previous *minimum* population estimate with the statistically valid DNA-based estimate. Grizzly bear populations increase and decrease slowly.

Therefore, at this point in time, it is reasonable to assume that the grizzly bear population has not increased or decreased appreciably since 2004 (C. Servheen, in litt. 2008). Thus the interim revised method uses the sustainable mortality limits calculated for 2004 for each year after.

Using the interim revised Recovery Plan method and the 2004 DNA-based grizzly bear population estimate of 765 bears, the known, human-caused total grizzly bear mortality limit was **30.6** bears, of which no more than **9.18** would be female. From 2003-2008, the running 6-year average of known, total human-caused mortality was **21** (Table 3). Comparing this average with the limits derived using the DNA-based estimate, 21was below sustainable levels of 30.6. Female mortality however, averaged **9.5** per year and thus exceeded the sustainable limit of 9.18. In contrast, if we use the 2004 Recovery Plan population estimate, both total and female grizzly bear mortality limits for were exceeded.

As noted in previous biological opinions (U.S. Fish and Wildlife Service, 2005, 2006), 2004 human-caused grizzly bear mortality levels were unusually high. The 34 human-caused mortalities recorded included 22 females (5 adult, 5 sub-adults, 3 yearlings, 8 cubs - including those with unknown fate), 11 males (2 adults, 6 sub-adults, 1 yearling, 2 cubs), and 1 unknown (yet undetermined remains). The 2004 mortalities included 11 illegal kills – the highest in seven years (in 2003, 10 illegal kills were reported). Many of the unprecedented number of conflicts in 2004 can be attributed to a dramatic huckleberry crop failure, and resulting conflicts arising from attractants on private lands luring bears onto private property. Much of the recent grizzly bear mortality continues to be associated with conflicts arising from attractants on private lands. Notable is that annual human-caused grizzly bear mortality levels have decreased since 2004 (Table 3). The number of human-caused female mortalities was less than half of 2004 levels each year: 10, 4, 7 and 7 in 2005, 2006, 2007 and 2008, respectively.

In 2004, Montana Fish, Wildlife and Parks initiated an NCDE grizzly bear trend study. To date, 73 females have been captured and radio-collared, with a goal of monitoring 30 to 40 females per year. At this point, it is too early to derive a reliable trend estimate for the population. Between 2004 and 2008, approximately 95 percent of radio-collared females in the NCDE survived each year. Although these are not specific survival rates, this level of adult survival, along with yearling and cub survival, appears to be on par with grizzly bear populations elsewhere that are stable to increasing (Rick Mace, MFWP, pers. comm. 2008)

Other information regarding the overall status of the NCDE grizzly bear population is now available. The USGS study also indicated that in 2004 (from (http://www.nrmsc.usgs.gov)

1) Female grizzly bears were present in all 23 BMUs.
2) The number and distribution of female grizzly bears indicated good reproductive potential.
3) The occupied range of NCDE grizzly bears now extends 2.6 million acres beyond the 1993 recovery zone.
4) The genetic health of NCDE grizzly bears is good, with diversity approaching levels seen in undisturbed populations in Canada and Alaska.
5) The genetic structure of the NCDE population suggests there has been population growth between 1976 and 2007.

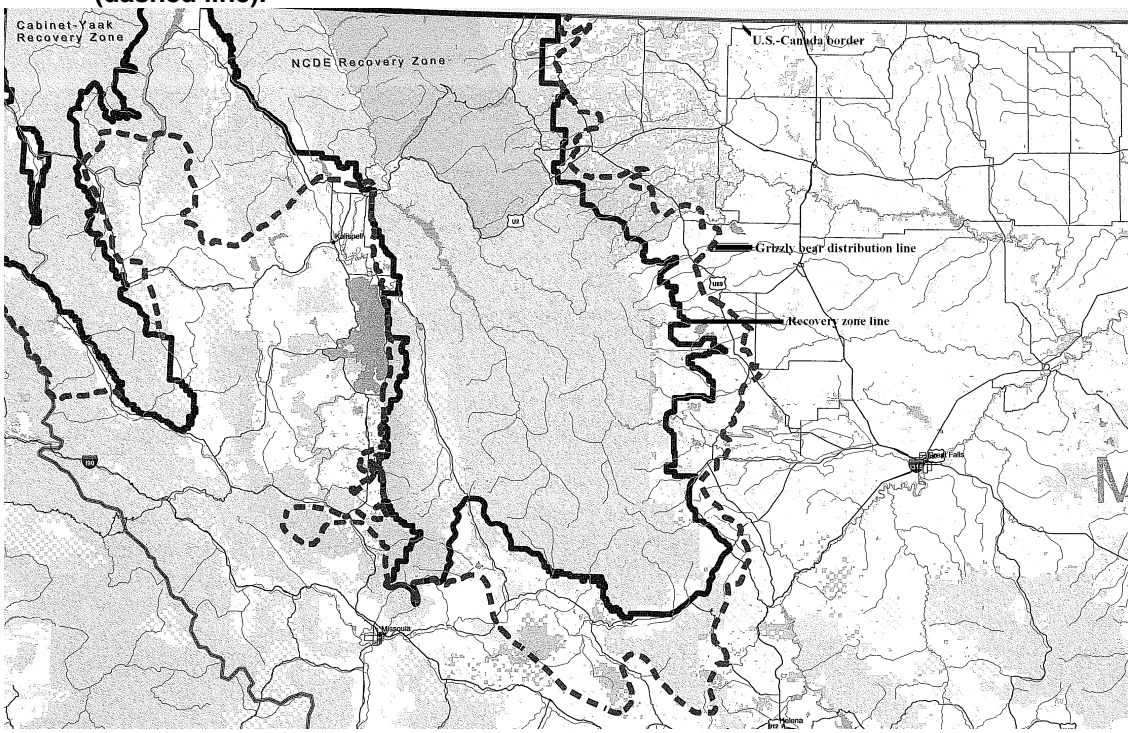
6) Human development is just beginning to inhibit interbreeding between bears living north and south of the U.S. Highway 2 corridor, west of the Continental Divide.

Further, the best available information suggests the NCDE grizzly bear population is expanding its range. In part due to grizzly bear expansion into areas that had previously been unoccupied, the number of grizzly bear-human conflicts has increased. In 2002, a mapping effort by Wittinger et al. (unpublished report 2002) used five years of data to map the area outside the grizzly bear recovery zones where grizzly bears were consistently being documented. Results indicated a relatively recent (5 to 10 years) expansion of grizzly bears outside the NCDE recovery zone boundaries to the east, south and west (*Ibid*.) (Figure 3). Considering the broad distribution of grizzly bear locations, coupled with known grizzly bear distribution within the NCDE recovery zone, this widening occurrence may have been due to increased grizzly bear numbers in several areas of the NCDE recovery zone. This premise is supported by both the NCDE DNA-based population estimate and 2008 occurrences of grizzly bears even further from the recovery zone boundaries than in past years. Grizzly bears were documented in areas of Montana as far south as Drummond (J. Jonkel, MFWP bear specialist, unpublished presentation 2008), east as east of Simms and Shelby, and southeast as far as Wolf Creek (M. Madel, MFWP bear specialist, unpublished presentation 2008).

In summary, despite the growth of the human population and the associated number of grizzly bear-human conflicts and grizzly bear mortalities, the grizzly bear population in the ecosystem appears to be increasing as well. Unfortunately, there have been a few years of high grizzly bear mortality in the NCDE recovery zone – relative to Recovery Plan limits – largely due to illegal killing and bears killed as a result of coming into conflict with people, at or near human developments. However, the distribution of family groups is consistently good and grizzly bears consistently occur outside the NCDE recovery zone. Grizzly bears are being detected further from the recovery zone boundary each year. This information points to a stable to improved condition when taken with other information, especially the 2004 population estimate of 765 bears.

None of the human-caused grizzly bear mortality has been directly or indirectly related to snowmobiling. In fact, no grizzly bear mortality or adverse impacts associated with snowmobile activity have been reported in the NCDE, Cabinet-Yaak Ecosystem, or Greater Yellowstone ecosystem (C. Servheen, pers. comm. 2008; W. Kasworm, pers comm. 2008; M. Haroldson, pers comm. 2001 *in* U.S. Fish and Wildlife Service 2002; respectively).

Figure 3. NCDE grizzly bear recovery zone (solid line) and grizzly bear distribution area (dashed line).



Source: Wittinger et al. 2002

Table 3. Status of the NCDE grizzly bear population in relation to the demographic recovery criteria, 1987 to 2008. Shaded cells indicate parameters exceeding Recovery Plan criteria limits (or interim revised criteria) (adapted from C. Servheen, U.S. Fish and Wildlife Service, unpublished data 2007)

Year	Annual unduplicated females with cubs (22 total) (12 outside/10 inside Glacier Nat'l Park)	Annual adult female mortality	Annual all female mortality	Annual total mortality	4 percent total mortality limit	30 percent all female mortality limit	Annual total mortality 6-yr average	Annual female mortality 6-yr average
1987	29	4	7	11				
1988	25	4	7	9				
1989	37 (22/15)	1	5	12				
1990	14 (7/7)	2	5	14				
1991	21 (13/8)	0	1	5				
1992	22 (10/12)	3	9	15	12.7	3.8	11.0	5.7
1993	21 (12/9)	1	1	5	14.6	4.4	10.0	4.7
1994	27 (21/6)	1	3	6	15.8	4.7	9.5	4.0
1995	35	2	6	12	19.2	5.8	9.6	4.2
1996	17 (7/10)	2	4	10	18.0	5.4	8.8	4.0
1997	13 (9/4)	1	5	12	14.6	4.4	10.0	4.7
1998	33 (22/11)	3	8	19	13.9	4.2	10.7	4.5
1999	18 (13/5)	3	4	17	13.9	4.2	12.7	5.0
2000	24 (13/11)	7	9	19	15.0	4.5	14.8	6.0
2001	26 (15/11)	6	9	19	12.7	3.8	16.0	6.5
2002	23 (16/7)	3	4	15	13.9	4.2	16.8	6.5
2003	19 (11/8)	4	7	16	12.9	3.9	17.5	6.8
2004	21 (8/13)	5	22	34	12.4	3.7	19.8	8.5
2005	23 (17/6)	8	10	25	11.2	3.4	21	9.5
2006	26 (21/5)	1	4	14	13.9	4.2	20	8.7
2007*	**	**	7	25				
2008	**	**	7	11	30.6***	9.18***	21***	9.5***

* Beginning in 2007, FWCs not counted in anticipation of modifying 1993 Recovery Plan methods for estimating minimum population.

** Data no longer collected and/or included

*** Based on interim revised Recovery Plan method

2. Yellowstone Grizzly Bear Ecosystem –
Based on the best scientific and commercial information available, the Service delisted the Yellowstone grizzly bear DPS, effective April 30, 2007. The grizzly bear population in the Yellowstone Grizzly Bear Ecosystem has achieved recovered status. The DPS has sufficient numbers and distribution of reproductive individuals so as to provide a high likelihood that the species will continue to exist and be well distributed throughout its range for the foreseeable future. The State and Federal agencies' agreement to implement the extensive Conservation Strategy and State management plans will ensure that adequate regulatory mechanisms remain in place and that the Yellowstone grizzly bear population will not become an endangered species within the foreseeable future.

More information on this and other post-delisting management documents can be found at:
<http://mountain-prairie.fws.gov/species/mammals/grizzly/yellowstone.htm>.

3. Selkirk Ecosystem &Cabinet-Yaak Ecosystem - Neither the Selkirk Ecosystem nor the Cabinet-Yaak Ecosystem grizzly bear populations have ever attained the Recovery Plan criteria for females with cubs. In 1993, the Service determined that the Cabinet-Yaak grizzly bear recovery zone was warranted "endangered" but precluded by other listing priorities (57 Federal Register 28, pg. 82508251). In 1999, the Service determined that the combined Selkirk Mountains grizzly bear recovery zone was warranted "endangered" but precluded by other listing priorities and suggested that the Selkirk Mountains and Cabinet-Yaak recovery zones might be inter-connected (64 Federal Register 94, pp. 26725-26733, May 17, 1999).

More details for the Cabinet-Yaak Ecosystem and Selkirk Ecosystem can be found at:
<http://mountain-prairie.fws.gov/species/mammals/grizzly/cabinet.htm>
and in the biological opinion on the Access Management Amendment to the Kootenai, Lolo, and Idaho Panhandle National Forest's Plans (U.S. Fish and Wildlife Service 2004).

4. Bitterroot Ecosystem & North Cascades Ecosystem - Grizzly bear recovery efforts in the Bitterroots Ecosystem and North Cascades Ecosystem are in the planning stages. Grizzly bears were eliminated from Bitterroot Mountains decades ago, however suitable habitat occurs. The Service has released a final environmental impact statement addressing the restoration of grizzly bears to the Bitterroot Ecosystem (U.S. Fish and Wildlife Service 2000). In the Northern Cascades Ecosystem, most of the grizzly bear population occurs north of the Canada - U.S. border, but a few grizzly bears persist south of the border. The exact status of the North Cascades Ecosystem population is unknown, but grizzly bear numbers are suspected to be very low and probably less than 15 grizzly bears.

D. Analysis of the Species and Critical Habitat Likely to be Affected

Grizzly bears living in or near the NCDE recovery zone portion of the Forest are most likely to be affected by A24. Management of snowmobile use on Forest lands outside the NCDE recovery zone would not change. Since no critical habitat has been designated for the grizzly bear, none will be affected. A24 would most likely affect some denning habitat and some spring habitat from December 1 to May 31 of each year on at least some portions of the Forest. More details follow in

the *Environmental Baseline* section.

II. ENVIRONMENTAL BASELINE

Regulations implementing the Act (50 CFR 402.02) define the "environmental baseline" as the past and present impacts of all Federal, State, or private actions and other human activities in the *action area*. Also included in the environmental baseline are the anticipated impacts of all proposed Federal projects (in the action area) that have undergone Section 7 consultation and the impacts of State and private actions that are contemporaneous with the consultation in progress. *Action area*, as defined by the Act, includes the entire area that would be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action.

For the purposes of this biological opinion, we have defined the action area to include the entire Flathead National Forest, i.e., the "project area" previously described in the Description of the Proposed Action section. In this section, we include a description and analysis of the environmental baseline. In places, we include summaries of the proposed action for comparison, mostly in table form. We included this information for ease of reading. The effects of the proposed action will be analyzed in the *IV. Effects of the Action* section of this document, where the reader is referred back to tables in this section.

A. Status of the species within the action area

The status of the grizzly bear in the conterminous 48 States, and particularly within the NCDE was discussed in the previous section. Here, the environmental baseline section focuses on the status of the grizzly bear and its habitat in the "action area," in this case the Forest, which constitutes a portion of the NCDE. The highest numbers of grizzly bears in the NCDE live in the Glacier Park region, and immediately adjacent portions of the Forest (Kendall et al. in press). Little more is known about the subset of the NCDE population or about the individual grizzly bears that live in the action area (apart from those data reported for the NCDE as a whole), so this section focuses on the condition of grizzly bear habitat on the Forest, a surrogate for population.

The Forest manages 40 percent of the NCDE recovery zone. As mentioned earlier, for recovery purposes, the Forest was divided into 70 grizzly bear "subunits." The subunits approximate the size of an adult female grizzly bear home range (about 50 square miles) and provide the basic scale for analysis of impacts to grizzly bears. The subunits allow assessment of existing and proposed activities on grizzly bear habitat without having the effects diluted by consideration of too large an area. Sixteen of the Forest's subunits lie entirely within wilderness and are essentially roadless. Of the 54 non-wilderness subunits on the Forest, 40 are predominantly National Forest System lands (i.e., more than 75 percent national forest); while the remaining 14 subunits encompass National Forest System Lands, small private lands, and larger corporate and state land holdings. The recovery zone lands managed by the Forest are bisected by valley bottom with substantial private land holdings in the Swan River Valley. The North Fork and Middle Fork of the Flathead River drainages form the border between the Forest from Glacier National Park, and the valley bottoms there have substantial private inholdings as well. These bottom lands are influenced by State (Swan Valley) and U.S. Highways (Middle Fork) or county roads (North

Fork), as well as roads on private lands.

Status of human access to the Forest

Management of human access to the Forest is a primary tool in moderating and monitoring the impacts of peoples' activities on grizzly bears. The Forest transportation system is also the foundation upon which winter motorized access starts; virtually all snowmobiling originates somewhere on the Forest transportation system, either through transportation of snowmobiles to trail heads, direct avenues for snowmobiling, or as direct avenues from adjacent private land. The Forest transportation system and related travel plan was analyzed through formal programmatic consultation for Amendment 19 (A19) to the Forest Plan and is considered part of the environmental baseline (A19, as amended; with revised implementation schedule) (U.S. Fish and Wildlife Service 2005). The proposed A24 would, in part, determine the extent and duration of snowmobiling on this transportation system and would also change some of the administrative details of A19 (see *Description of Proposed Action*, above).

For the purposes of snowmobiling, most Forest roads (whether classified as open, restricted, or reclaimed) in the NCDE recovery zone portion of the Forest are open to snowmobiling during the grizzly bear denning season currently November 15 – March 15, so long as snow conditions are suitable to prevent resource damage. Some routes are closed to snowmobiling for resource concerns (such as big game winter range). Beginning on March 16 and until November 16, snowmobiling is prohibited by the Forest Plan.

The miles of open road on the Forest increased substantially during the late 1970s and early 1980s as a product of an aggressive program to harvest insect-infested lodgepole pine stands (U.S. Forest Service 1995). Beginning in 1986, the Forest implemented substantial changes in road management and updated its road inventory. Between 1986 and 1995 the miles of open road on the Forest decreased by 25 percent, the miles of roads restricted year-long decreased by approximately 33 percent, and the miles of roads closed year-long increased by over 50 percent. The number of miles of roads open in 1993 was approximately equivalent to the number of miles open in the early 1970's (*Ibid.*). The decision notice for A19 estimated that there were 1,900 miles of open road on the Forest by 1995 (U.S. Forest Service 1995).

A19, as amended, sets objectives for total motorized route density, open motorized route density, and security core habitat for grizzly bears (U.S. Forest Service 1995; U.S. Fish and Wildlife Service 1995, 2005). In 2005, the Forest has compared A19's objectives for *open* and *total motorized access density* and *security core* within the 54 non-wilderness subunits on the Forest (U.S. Forest Service 2005). In the first ten years of A19 implementation, the Forest reduced the miles of open road by 439 miles (59% of what was projected needed) (U.S. Forest Service 2005). Though progress has been made to fully meet the objectives, the Forest could not fully implement the standards in the anticipated timeline. Consequently, the Forest reinitiated formal consultation with the Service on the implementation timeframes in A19 (U.S. Fish and Wildlife Service 2005). Tables 4a and 4b display the latest A19 monitoring data, 2007, for the 54 total subunits in relation to their 1995 condition (U.S. Forest Service 2008).

As of the 2007 A19 monitoring report (U.S. Forest Service 2008), 19 of 40 grizzly bear subunits in

which the Forest has >75% land base were in full compliance with A19 standards, as amended (shaded in Table 4a). Open motorized route densities of less than one mile per square mile occurred in 19 percent or less, or subunit meets amended standards, in 24 of the 40 subunits. Total motorized route densities of less than two miles per square mile occurred in 19 percent or less, or subunit meets amended standards, of 24 of the 40 subunits. Core area was 68 percent or more, or meets amended standards, in 19 of the 40 subunits.

Table 4a. Comparison of A19 objectives to the 1995 conditions and the latest (2007) monitoring results for the 40 grizzly bear subunits in which Flathead National Forest ownership totals >75% of the land base (U.S. Forest Service 2008).

#	BMU Subunit	January 1995			January 2007		
		Open Motorized Route Density	Total Motorized Route Density	Security Core	Open Motorized Route Density	Total Motorized Route Density	Security Core
1	Frozen Lake	10	6	80	10	4	80
2	Ketchikan	19	4	65	17	3	68
3	Upper Trail	18	5	84	14	4	88
4	Lower Whale (amended 37-19-47)	60	44	7	36	17	49
5	Upper Whale Shorty	17	13	80	12	10	86
6	Red Meadow Moose	36	25	47	25	17	55
7	Hay Creek	33	21	41	39	13	41
8	Coal and South Coal	23	37	59	25	27	61
10	Werner Creek (am. 29-19-63)	43	48	35	20	21	42
11	Lower Big Creek	35	39	38	19	25	59
12	Canyon McGinnis (am. 19-33-53)	34	44	31	17	35	52
17	Peters Ridge	46	22	30	52	25	34
19	Swan Lake	56	33	29	41	25	45
25	Crane Mountain	51	74	0	32	60	27
31	Beaver Creek	6	24	67	6	25	64
32	Doris Lost Johnny (am. 57-19-36)	58	31	35	57	21	35
33	Wounded Buck Clayton (am. 27-30-65)	38	49	33	30	31	45
35	Emery Firefighter	32	42	38	20	29	38
36	Riverside Paint	23	39	58	24	31	61
37	Jewel Basin Graves	22	26	50	20	23	59
38	Wheeler Quintonkon (am. 25-19-68)	27	33	49	26	22	57
39	Logan Dry Park	33	40	50	30	36	50
40	Lower Twin	9	2	91	9	2	92
41	Twin Creek	0	0	97	0	0	100
42	Moccasin Crystal	7	1	79	7	1	79
43	Stanton Paola	12	3	74	6	3	80
44	Dickey Java	10	1	80	9	0	81
45	Long Dirtyface	0	0	95	0	0	100
46	Tranquil Geifer	0	2	75	0	2	85
47	Skyland Challenge	15	18	58	20	17	63
48	Plume Mtn Lodgepole	0	0	79	0	0	97
49	Flotilla Capitol	0	0	78	0	0	99
50	Ball Branch	41	21	50	11	8	79
51	Kah Soldier	39	45	43	20	26	63
52	Spotted Bear Mtn	20	32	49	20	18	64

53	Big Bill Shelf	12	7	70	11	2	80
54	Jungle Addition	38	31	53	29	17	61
55	Bunker Creek	12	6	69	12	4	85
56	Gorge Creek	0	0	87	0	0	90
57	Harrison Mid	1	0	91	1	0	95

Table 4b. Comparison of A19 objectives to the 1995 conditions and the latest (2007) monitoring results for the 14 grizzly bear subunits in which Flathead National Forest ownership totals </=75% of the land base (U.S. Forest Service 2008).

		January 1995			January 2007		
#	BMU Subunit	Open Motorized Route Density	Total Motorized Route Density	Security Core	Open Motorized Route Density	Total Motorized Route Density	Security Core
9	State Coal Cyclone	39	29	47	35	26	54
13	Cedar Teakettle	31	30	22	26	24	25
18	Noisy Red Owl	26	18	48	20	17	56
20	South Fork Lost Soup	60	47	6	32	44	38
21	Goat Creek	27	49	42	25	59	35
22	Lion Creek	24	39	55	18	45	50
23	Meadow Smith	23	52	42	21	53	41
24	Buck Holland	25	43	34	25	45	39
26	Porcupine Woodward	48	59	21	28	73	15
27	Piper Creek	21	30	57	19	43	52
28	Cold Jim	21	56	42	18	56	42
29	Hemlock Elk	13	29	66	6	30	65
30	Glacier Loon	25	39	40	24	43	44
34	Coram Lake Five	30	49	19	29	46	13

** The Flathead National Forest A19 objectives (for BMU subunits in which they manage <75% of the land base) are: Forest actions shall result in no net increase in OMRD or TMRD and no net loss of core.

During the 2004 consultation on A19, the Forest conducted a comprehensive analysis of core habitat across the Forest. The Forest encompasses 70 subunits with national forest system lands. Thirteen of the subunits are wilderness and provide 100 percent core habitat (U.S. Forest Service 2005). Fifty-four of the non-wilderness subunits are subject to A19. Forty of those subunits feature >/=75 percent Forest ownership and support about 754,875 acres of core habitat (66 percent of the total acreage across all ownerships in these 40 subunits). Fourteen of the 54 non-wilderness subunits feature </=75 percent Forest ownership but the Forest contributes about 178,080 acres of core habitat (or 44 percent of the total acreage across all ownerships in these 14 subunits). The final three subunits encompass only minor Forest management and are not subject to A19.

As of 2007, 18 of the 40 subunits greater than 75 percent Forest meet the A19 security core objective of 68 percent per subunit. Thirteen additional subunits not achieving the core objective provide at least 50 percent core habitat. Of the 18 subunits providing at least 68 percent core, 17 surpass the standard, ranging from 70 to 100 percent. At the Forest scale (action area) as of 2005, the Flathead National Forest contributed about 1,535,102 acres of core habitat across 70 BMU subunits in which they hold land; this amounted to 70 percent core habitat across the total acreage

in subunits, across all ownerships (U.S. Fish and Wildlife Service 2005).

Status of snowmobile access to existing denning habitat

Table 1 (page 7) details the total acres open to snowmobile use on the Forest. In the following discussion, we focus specifically on denning habitat. Grizzly bear denning habitat is obviously an important issue in considering a winter motorized recreation proposal but actual den locations are seldom documented. Grizzly bears tend to be solitary, fairly secretive, widely spaced, and typically do not re-use dens from year-to-year. Much of the NCDE has large areas of wilderness, steep and inaccessible locations, and large areas of forest. Some den sites are located using radio-collared grizzly bears, though the exact denning locations of research bears are often not known and entry dates are not specific except in rare circumstances.

Because of these challenges, the Forest (U.S. Forest Service 2004a) modeled potential denning habitat using a GIS by extrapolated characteristics of known den sites in the NCDE and following, in part, the methodology of Podruzny et al. (2002). The Forest estimated about 420,400 acres of potential denning habitat on the 2,345,000 acre Forest (17.9 percent of the Forest) (Table 5). Most of the potential denning habitat (68 percent or 285,700 acres) is within designated wilderness and is off-limits to snowmobiling; while the remaining 134,700 acres are outside of wilderness (32 percent of the predicted denning habitat).

The Forest estimates about 24 percent (100,896 acres) of the modeled denning habitat on the Forest occurs in areas that were open to snowmobiling under pre-Settlement Agreement conditions (i.e., the existing Forest Plan direction) (Table 5). Under the current, interim Settlement Agreement, 33,300 acres of modeled denning habitat are programmatically open to snowmobiling; however, considering some site-specific closures, only 32,300 acres are administratively open to snowmobiling (U.S. Forest Service 2003, FEIS pg. III-36). Table 5 summarizes the overlap of modeled grizzly bear habitat with acres open to snowmobiling under three management scenarios.

A large percentage of the area available to snowmobiling under the Forest Plan is now closed under the interim direction, and would remain closed under A24. Further, many acres that are legally <u>available</u> are not <u>accessible</u> for snowmobiles due to topography and vegetation. Also, snowmobiles have not actually traveled throughout all of the available areas. Therefore, in practical terms the amount of potential grizzly bear denning habitat that would benefit from the reduction is substantially less than figures indicate. Nevertheless, should vegetative conditions change in the future (e.g. openings created as a result of fire or timber harvest), or snowmobile technology change to enable travel on steeper topography, then the potential denning habitat would have greater protections under A24.

The Forest recognized that only a subset of its modeled denning habitat actually received traffic from snowmobiles due to topography, terrain, and existing routes and therefore tried to quantify the anticipated effects to denning habitat from most of the snowmobiling. Linnell et al. (2000) reported that although individual bears display variable responses to disturbance stimuli, bears may be disturbed by activities within 1,000 meters (about 1094 yards), and disturbances within 200 meters (about 219 yards) may pose a risk of den abandonment. The Forest used this information to model the amount of denning habitat within 200 and 1,000 meters of roads and

routes open to snowmobiling (since roads receive the majority of snowmobiling activity) (Table 6).

Table 5. Acres and percent of modeled grizzly bear denning habitat across the Forest compared to available for winter motorized use (past, present, and proposed). Source: A24 BA.

	Whole Forest	Outside of Wilderness	Available Under Forest Plan	Available Under Interim Direction	Proposed Available Under Alternative 6 (A24)
Acres of Modeled Denning Habitat	420,400	134,700	100,896	33,300*	31,900*
Percent of Modeled Denning Habitat	100%	32%	24%	8%	8%

* Given site-specific closures, the available acres are slightly less: 32,300 acres or 7.7 percent of potential denning habitat under interim direction; and 30,700 – or 7.3 percent - under A24.

Under the existing Forest Plan, on a forest-wide basis, about 0.7 percent (2,700 acres) of modeled grizzly bear denning habitat is within 200 meters of roads/routes where snowmobiling is allowed, and about 9 percent (36,600 acres) of modeled denning habitat is within 1,000 meters of roads/routes where snowmobiling is allowed (U.S. Forest Service 2003, p III-37).

Under the terms of the Settlement Agreement (the existing interim direction), about 0.5 percent (2,100 acres) of modeled denning habitat is within 200 meters of open snowmobile roads and routes while 6 percent (24,300 acres) is within 1,000 meters (Ibid.). The results would be the same (as the Settlement Agreement) under A24 (*Ibid*.); Table 6 summarizes these findings.

Table 6. Overlap of modeled grizzly bear denning habitat on Flathead National Forest with areas where winter motorized use would be allowed within 200 and 1000 meters of roads/routes open for snowmobiling. Source: A24 Biological Assessment.

Alternative	Total Acres of modeled denning habitat *(those acres Outside Wilderness)*	Acres of denning habitat w/in 1000 meters of roads open to winter motorized use	Acres of denning habitat w/in 200 meters of roads open to winter motorized use	% of Denning habitat w/in 1000 meters of roads open to winter motorized use. *(% excluding wilderness)*	% of Denning habitat w/in 200 meters of roads open to winter motorized use. *(% excluding wilderness)*
1 (Forest Plan)	420,400 *(134,700)*	36,600	2,700	9 *(27)*	0.7 *(2.0)*
2 & 6 (Proposal)		24,300	2,100	6 *(18)*	0.5 *(1.5)*

Status of temporal overlap between snowmobiling and post den-emergence grizzly bears

The current Forest Plan and interim direction allow snowmobile use within the NCDE recovery zone portion of the Forest from November 15 to March 15, which are considered the

administrative dates for grizzly bear denning season. Outside of the NCDE recovery zone, are no programmatic seasonal restrictions exist so long as adequate snow exists. Throughout the Forest, any roads open to motorized use yearlong would be open to snowmobiling as long as conditions permit and if not plowed for highway vehicle traffic (U.S. Forest Service 2003, FEIS). Amendment 19 established criteria for *open motorized route density*, *total motorized route density*, and for *percent core areas*, in each of the Forest's subunits. In doing so, numerous open roads have been *restricted* and *reclaimed* in order to create adequate *core* habitat and limit road densities outside core, in order to provide habitat suitable for use by grizzly bears (as well as for other resource reasons). By definition, open and restricted roads, and core areas may receive snowmobile use during the denning period (currently November 16 - March 15 under A19) because grizzly bears are in their dens. Thus the overlap of the general snowmobile season and the post den emergence period for grizzly bears was slight, affecting only those bears that emerged from dens early in the spring, prior to March 15 .

B. Other baseline factors affecting the grizzly bear's environment within the action area

Most human impacts on grizzly bears in the action area are associated with motorized and dispersed recreational use or vegetation management activities. Recreation includes hunting, fishing, camping, horseback riding, hiking, biking, off-road vehicle use, and snowmobiling among other recreational pursuits.

As mentioned earlier, the recovery zone lands administered by the Forest are influenced by three valley bottoms, the Swan River, and Middle and North Fork of the Flathead Rivers. These areas have substantial private inholdings, towns, rural residences, businesses, resorts, roads and highways. The close proximity of people and grizzly bears in the NCDE results in the risk of direct human-caused mortality of grizzly bears in the action area. Direct grizzly bear mortality includes: mistaken identification by hunters, malicious killing, defense of human life or property, and collisions with motor vehicles or trains. Another category of direct grizzly bear mortality is management removals. Grizzly bears are removed to defend human life or property, usually because bears have become bold as a result of food conditioning and habituation at campsites, lodges, resorts and private residences. Most management removals and illegal shooting of bears occurs on private lands (Servheen, unpubl. rept. 2008, NCDE Subcommittee Meeting). No known grizzly bear mortality has been directly or indirectly attributed to people using snowmobiles anywhere in the NCDE (C. Servheen, U.S. Fish and Wildlife Service, pers. comm. 2008).

Human-grizzly bear interactions have been increasing in the ecosystem due, in part, to increasing human use and development, increasing bear numbers, and bears and people both expanding their range of occupancy, increasing the chances of adverse encounters.

Skiing, snowshoeing, snowboarding, hiking, dog-sledding and other winter recreation activities have the potential of overlapping denning habitat and the denning season, including the pre- and post-emergence period. Big Mountain Resort operates in-part on permitted acres on Flathead National Forest and has undergone formal consultation. Blacktail Mountain, another ski area on Flathead National Forest, is outside of the NCDE recovery zone and the area is not considered occupied by grizzly bears.

Human access (via roads and trails) can result in displacement, from or avoidance of, important habitats by grizzly bears. Plowed roads provide vectors for snowmobile access (transporting of snowmobiles) to areas of the Forest. Roads or trails that are snow-covered provide openings and corridors free from trees that invite snowmobile use. Motorized access route density across the

Forest has decreased in recent years, and A19 of the Forest Plan directs the continued decrease where densities are high enough to potentially influence grizzly bear displacement or increase mortality risk.

In the spring, depending upon snow conditions, snowmobiling, skiing, and snowshoeing can occur after March 15 and overlap with the period when bears emerge from dens. The Forest administers special use permits for ski resorts, guided snowmobiling, ice climbing, dog-sledding, Nordic ski races, etc., and these activities have a slight potential to affect grizzly bears if they occur in denning habitat.

Fall activities that could affect pre-denning grizzly bears include hunting, especially late season hunts that occur in November or later. Hunting in spring or fall can impact grizzly bears by bringing hunters and grizzly bears into close proximity, increasing the chances of mistaken identification, defense of life and property, or the potential of food conditioning if hunters do not follow food storage guidelines. Montana Fish, Wildlife, and Parks administers hunting seasons, hunt units, and other regulations related to hunting on private, state and federal lands. The Service analyzed the effects of black bear and elk hunting seasons on grizzly bears in the NCDE recovery zone in a separate biological opinion (U.S. Fish and Wildlife Service 2002a).

Year-round use by people occurs at cabins, campgrounds, lodges, houses and other human developments in the action area. These developments are generally in lower elevations, and have the potential to attract people closer to grizzly habitat. Accommodations and developments facilitate longer visits, and a wider range of recreation activities.

In 2000, an Off-Highway Vehicle Environmental Impact Statement and Record of Decision for Montana and the Dakotas (U.S. Forest Service 2001a) classified federal lands as closed to off-road/trail wheeled, motorized use unless specifically designated open. However, motorized use as defined for this action did not include snowmobile use.

Timber harvest can open the landscape, making more area open to snowmobiles for a 5-20 year period, depending on the type of harvest, snow precipitation and depth, amount of residual material, habitat type and the site productivity. Timber sales on much of the Flathead National

Forest tend to be restricted to the non-denning season because of severe weather and snow depths. Winter logging that occurs tends to be lower elevation and not in or near denning habitat. Individual timber sales have either undergone consultation (if necessary) or are in process.

Livestock grazing on the Forests is limited and no conflicts between grizzly bears and livestock have been reported on the Forest.

There are a number of naturally or semi-naturally occurring factors that may influence grizzly bear habitat in the NCDE, although each involves management decisions and/or actions to some degree. Whitebark pine provides an important food source for grizzly bears but has been affected by an accidentally-introduced pathogen known as "blister rust." Blister rust has resulted in significant declines of whitebark pine in the NCDE. Ungulate populations are healthy in the ecosystem and winter killed ungulates are an important food supply. Ungulate populations and winter kill are largely influenced by weather conditions but are also monitored and managed by Montana Fish, Wildlife & Parks. The recolonization of wolves has increased competition for ungulate prey and winter-killed carrion. Although wolves in northwest Montana recolonized naturally from Canada (as opposed to the direct reintroductions to Yellowstone and Central Idaho), their populations have been influenced by numerous management actions. Recent fires may have affected available food and cover over the short term, particularly to individual grizzly bears with heavily burned home ranges. However over time, fire typically stimulates many forage species and berries preferred by bears, thus benefitting bears, provided alternate food supplies and cover is available to maintain bears through the immediate aftermath of the fire.

IV. EFFECTS OF THE ACTION

The effects of the action include the direct, indirect, interrelated and interdependent effects of the proposed amendment (A24) to the Forest Plan. This section is organized into three sections: First, a discussion of the ***General Factors to be Considered***. General factors may include broad discussion of actions or issues considered, which do not necessarily occur or apply within the action area, and are not necessarily related to the proposed action (A24); they provide background information for the subsequent analysis. Second, the *general factors* section is followed by an ***Analysis for Effects of the Proposed Action***, in which the features of the proposed action (A24) are reviewed to better place the possible effects into the context of the actual proposal (A24). Third, and finally, a conclusion is reached as to the expected ***Species Response to the Proposed Action*** given the potential effects and the context of those effects here.

A. General Factors to be Considered

The Service found no specific studies in the literature on the effects of snowmobile use on grizzly bears or other bear species. Thus, potential effects were extrapolated from other studies and anecdotal information, with necessary cautions. Available information is generally anecdotal, such as grizzly bear responses to various stimuli other than snowmobiles, collected during research. Such reports typically lack information related to the timing of disturbance, type of den, winter conditions, or other important factors necessary to assess the significance of the grizzly bear's response. Some information collected on other species of bears may have some relevance, but even the data on these species is incidental and largely theoretical.

Also, the literature summarized below is from a variety of den habitats (caves as dens, dens excavated in snow or soil, etc.), snow conditions, activity levels, and elevations. Snow is an excellent sound barrier (Blix and Lentfer 1992) and impacts to denning bears would likely be less in deep snow situations than in shallow snow conditions. As we reviewed this general information

on disturbances to denned bears, we did so in light of the fact that available information indicates that most of the grizzly bears in the NCDE excavate dens that are eventually blanketed under deep snow. The noise and human activity related to snowmobiling would likely have the greatest potential to affect denned grizzly bears during the early and late denning period, when snow depth has not yet accumulated or when snow is breaking up and melting during the spring.

In fall 2000, the science and resource management staff of the Biological Resources Management Division of the National Park Service and the Rocky Mountains Cooperative Ecosystem Studies Unit at the University of Montana organized an expert workshop to summarize the state-of-science on monitoring the effects of snowmobiles on wildlife in national parks and surrounding lands. Participants in the workshop used a Delphi method to assess the effects of snowmobile use on wildlife, including grizzly bears (Graves and Reams eds. 2001). The participants outlined *possible* impacts to bears and prioritized research to address these impacts. Importantly, impacts to emergent bears were identified as a higher concern than impacts to denning bears.

There are several possible outcomes of snowmobile use and bears in close proximity: bears could be directly impacted (i.e., either killed or injured), or the encounter could cause indirect effects (ranging from insignificant stimulus to a deleterious disturbance), or in the case of a denned bear there might be no effect at all.

However, there are no records of grizzly bears being directly affected by snowmobiles in any grizzly bear recovery zone (e.g. no records of bears being hit by snowmobiles) (Servheen, pers. comm. 2008; Kasworm, pers. comm. 2008) (*direct effects* as used here defined as direct injury or death). Therefore, potential direct effects are (if they occur) or non-existent and therefore discountable and warrant no additional analysis; that is not to say that a mortality caused directly by a snowmobile would be insignificant, simply that the cause-effect relationship is obvious and requires no further analysis. In accordance with the findings of Graves and Reams (eds. 2001), we focused our analysis on the more likely *potential* for disturbance of grizzly bears and the subsequent, indirect effects such as the displacement of cubs, rather than on direct injury or death.

1. Potential Effects During the Denning Period

Some indications of bear species' responses to human disturbance are available as related to the distances of dens from centers of human activity. The fact that some bear dens were documented within 1 kilometer (0.6 mile) of human activity centers (Linnell et al. 2000) indicates that bears do not totally avoid denning habitat based on its proximity to human disturbance. Caution should be used when making inferences with this information, however. Some bears were found denning close to human activities, but that does not mean that all bears can or will do so. Further, information usually has not included long-term productivity or survival of study animals. Linnell et al. (2000) summarized distances of bear dens to various centers of human activity as documented by nine studies of brown and black bears; distances ranged from 0.1 to 6.5 km (~109 yards to 4 miles) and did not account for differences in altitude or other factors such as den characteristics, snow depth or activity levels. Harding and Nagy (1980) noted successful grizzly bear dens from 1.6 to 6.4 km (~1 to 4 miles) from active mining camps, although no dens were found within 1 km (~0.6 mile) of active drilling and staging camps. Schoen et al. (1987) noted that brown bears in Alaska gradually, from year-to-year, located their annual dens away from an

area of increasing mining activity. Short distances to disturbance sources reported for the European brown bear dens were reportedly in proximity to long-established sources (Linnell et al. 2000), suggesting that some bears may become habituated to disturbance sources.

In the Greater Yellowstone Ecosystem, Haroldson (pers. comm. 2001 *in* U.S. Fish and Wildlife Service 2002b) noted that grizzly bears captured in the Togwotee Pass area (this area receives heavy snowmobile use) during the non-denning period did not den in the area despite the presence of denning habitat, and even though grizzly bears enter their dens prior to most snowmobile activity. Instead, these grizzly bears denned in nearby wilderness areas. It is unknown whether den site selection in this case was due to higher quality denning habitat in the wilderness or due to grizzly bear avoidance of heavy snowmobile use on the pass.

Regardless of any apparent den site selection/avoidance related to disturbance sources, anecdotal evidence suggests that bears may respond to external disturbance or stimuli while in the den. When considering snowmobile disturbance, such stimulus may not be present when dens are being selected, but only after denning commences. There are no systematic data available on how denning bears react to disturbance using controlled stimuli (Linnell et al. 2000). However, bear responses to denning disturbance appears to occur along a continuum (*Ibid*.). Responses range from waking, to increases in temperature or heart rate, to den abandonment; and the physiological costs to the bear increase as responses escalate.

Heart rates and movement sensors have detected changes in denned grizzly bears near disturbance, but little comparable baseline information has been recorded to document the normal movement/heart rates or variability in undisturbed denned bears. Movement, including shivering and shifting, in denning bears is theorized to be important in maintaining the temperature of the bear within 5 degrees of normal temperatures and apparently occurs whether or not there is obvious disturbance. The response of an individual bear to noise may vary with age, sex, experience, presence of young or not, terrain, temperament, denning season chronology (early, mid, or late in denning season), weather, and habituation tendencies of each animal. The impacts of such response have not been documented.

Linnell et al. (2000) summarized the few *incidental* events describing disturbance to denning bears and noted that activities within 1 km of a den were most likely to elicit response. They also noted that individual bears responded differently, and some bears indicated no response. Repeated exposure to the same stimuli without negative associations caused responses by bears to decline rapidly (*Ibid.*). In other words, bears may become used to, or habituated to, such disturbance. Reynolds et al. (1986) documented that in three of the five cases where three brown bears were exposed to human activity (seismic shots, drilling, or vehicles driving at distances of 1 to 2 km), the bears displayed increased heart rates or increased physical activity, but noted that a snow-tractor driven within 100 meters of the den caused no observed response. Schoen et al. (1987), and Smith and Van Daele (1990) noted increased activity from denned bear "activity collars" during radio-tracking overflights, but Reynolds et al. (1986) noted no response in heart rates of two denning bears exposed to fixed wing aircraft. Reynolds et al. (1986) noted of bears with increased heart rates that "all emerged in the spring with no observed deaths of accompanying offspring." Swenson et al. (1997) speculated that fall hunting, which occurs early in the denning period in Sweden, may contribute to fall disturbance and early den abandonment by European

brown bears. Human activities such as hunting, survey work, shooting, fishing and dogs were thought to have a greater impact than industrial activity.

The Service found no primary-source reports in the literature of grizzly bear den abandonment directly attributed to snowmobile activity. However, there are several second-hand interpretations in the literature. Following is a summary of our findings to reduce any scientific controversy.

The biological assessment of the effects of snowmobiling on Yellowstone Grizzly Bear Ecosystem grizzly bears (U.S. Forest Service 2001b) reported "*Knight and others (1976) cited a radio-collared grizzly that abandoned its den after snowmobile activity nearby"* [the BA indirectly cited Knight and others (1976) from Schallenberger 1980]. Note the year 1976, as it is important below.

We checked Schallenberger (1980) who indeed wrote (verbatim, page 273): "Knight et al. (1976) reported the possible disturbance of a denning grizzly bear in the Yellowstone ecosystem. The radio-marked bear abandoned its den after snowmobile activity nearby." Schallenberger's literature cited section lists "*Knight, R., J. Basile, K. Greer, S. Judd, L. Oldenburg, and L. Roop. 1976. Yellowstone grizzly bear investigations, annual report of the Interagency Study Team, 1975. USDI Natl. Park Serv. Misc. Rep. 9. 46 pp."*

We reviewed Knight et al. (1976, as cited above) but found no evidence of this incident in the paper. The only reference to snowmobile activity was on page 34, with regard to grizzly bear No. 4 - a three-year-old female): "She was immobilized and reinstrumented on December 14. Then she made a northern movement of seven airline miles. She then returned south nine airline miles and was denned by December 22. Indications of considerable snowmobile activity were observed both in the area where she was reradioed and in the northern area shortly after she was reradioed."

So we are unclear as to where Schallenberger got his information. The "Knight et al. 1976" citation above covered activities of the researchers in the year 1975 but was *released* in 1976. We speculated the citation could have been in error, given that the Yellowstone annual reports ran for many years, with each release covering at least the previous calendar year of activities. Therefore we checked the April 1977 annual report (Knight et al. 1977), which covered most of the research in year 1976; and we also checked Knight et al. (1978), in which the balance of 1976 (and most of

1977) research results are reported. We found no incident in these papers resembling the snowmobile-related den abandonment described in Schallenberger (1980). However, there is another, possibly related, source of the 1976 incident.

Evidence of grizzly bear den abandonment caused by snowmobiles is also attributed to Jonkel (1980) in at least two sources. First, in the Grizzly Bear Compendium (IGBC 1987, page 77): "Jonkel (1980b) reported that 1 grizzly bear den was abandoned after snowmobile disturbance and another after foot disturbance (emphasis added)." And second, Bennett (1995, page 7), who essentially repeated the findings of the Compendium (IGBC 1987) with respect to Jonkel (1980) but wrote: "Jonkel (1980) observed that 1 grizzly bear den was abandoned after snowmobile disturbance (emphasis added)." On a related note, in direct response to the A24 proposal considered in this biological opinion, K. Hammer (January 23, 2004, comment letter, page 2) cited Bennett (1995) as evidence of grizzly bear den abandonment in the NCDE due to snowmobiles;

but for reasons described here, we feel this conclusion is erroneous.

In fact, Jonkel (1980) did not provide a first-hand report of den abandonment resulting from snowmobiles. He compiled disturbance information on two species of bear from a variety of sources, including his personal observations. With regard to the incident in question, Jonkel (1980, page 2) wrote: "Snowmobile…1976 – Yellowstone Park: sub-adult male; 300 yards from a snowmobile trail. He moved, but not far. In subsequent years it was found that he changed dens successfully during January in other years." Jonkel does not attribute the incident to personal observation as he does with a different incident in his paper. Later, Jonkel (*Ibid*. page 3) recommends a course of management action with respect to potential winter disturbance of grizzly bears. His recommendation is based in part on his conclusion that "…one grizzly is known to have abandoned its den after snowmobile disturbance…" but with all due respect to Jonkel, this particular incident is inconclusive; the cause-effect link of snowmobiling to den abandonment is anecdotal at best, especially since this specific bear was known to exhibit similar, successful den movement behavior in subsequent years.

Since Jonkel's (1980) reported 1976 den abandonment incident occurred in Yellowstone, where Knight et al. (1976; 1977; 1978) were working, and since Jonkel cites *Dick Knight, Yellowstone Grizzly Study Team* as a source of data on page 3, we can speculate that this is another reference to the incident reported by Schallenberger (1980), which dated to *around* 1976. Both Jonkel and Schallenberger were affiliated with the Border Grizzly Project, University of Montana, in 1980 when their respective papers were written; it is possible the incident was reported via personal communication with Knight.

In conclusion, we have not found a direct reference to the incident in the Yellowstone annual reports covering the 1976 data but do not dispute that it did – or could – occur. Our purpose above was to sort out the compounding references in the literature discussing den abandonment attributed to snowmobiles. We do not dismiss the potential for such snowmobile effects.

In other places and circumstances, den abandonment has been documented in association industrial activity and direct approach (Reynolds et al. 1986; Schoen et al. 1987; Harding and Nagy 1980; Jonkel 1980; Craighead and Craighead 1972b). Harding and Nagy (1980) found that one grizzly bear abandoned its den after having the den driven over by a seismic vehicle. None of these reports record the effects on grizzly bears from general, recreational snowmobile use.

On the other hand, other events with seemingly similar levels of disturbance have not led to den abandonment (Jonkel 1980; Reynolds et al. 1986; Mace and Waller 1997; Linnell et al. 2000). In fact, Mace and Waller (1997) conducted their work in the action area under consideration in this biological opinion and reported no abandonment of dens by grizzly bear even though snowmobiles were often seen within 2 km of den sites. Likewise, the Interagency Grizzly Bear Study Team has intensively researched grizzly bear ecology in the Yellowstone Grizzly Bear Ecosystem from the 1970's to present but this research has never documented den abandonment attributed to snowmobiles.

Swenson et al. (1997) documented 9 percent of brown bears over 194 bear-winters abandoned or changed dens; in 12 of 18 events, human activity was noted at or within 100 meters of the

abandoned den; there was no significant difference in brown bear den abandonment in a "protected area" versus areas where there was military activity and timber harvest. "Most abandonment occurred early in the denning period, before mid winter. Bears moved up to 30 km before denning again." Theoretically, as the costs of abandoning a den and re-locating to another den increase, grizzly bears should be expected to tolerate greater levels of activity without abandonment. Grizzly bears require strong parental investment and females stay with their young for several years. Abandonment of young is rare, but costly when it occurs. Den abandonment has caused cub mortality in black and brown bears (Linnell et al. 2000). Swenson et al. (1997) documented 60 percent of adult females with cubs of the year that abandoned dens during winter lost at least one cub to mortality, versus only 6 percent cub mortality in females that did not abandon dens. Cub mortality is difficult to document and causes are difficult to ascertain.

2. Potential Effects Outside the Den

In agreement with Graves and Reams (eds. 2001), we find that disturbance from snowmobiles may be most consequential shortly before or after den emergence of a female with cubs. Females and their cubs remain in the den site area for several weeks after emergence from dens (Haroldsen et al. 2002; Mace and Waller 1997). Females with cubs have high energetic needs, and cubs have limited mobility for several weeks after leaving the den. Disturbance levels that cause a female to prematurely leave the den in spring or move from the den area could impair the fitness of the female and safety of the cubs. If cubs attempt to follow their mother, they would likely experience decreased fitness and the family group may be pushed to less suitable habitat. In the judgment of the Service, snowmobile-related impacts on post-den emergence females with cubs are more likely to impart serious consequences than any potential impacts to denning grizzly bears.

Changing snow conditions in spring could, in part, help reduce the probability grizzly bears being impacted by snowmobiles. At the time of emergence (March-April), snow conditions are changing rapidly. The same conditions that help lead to bear emergence (e.g., water infiltrating the den) (Schoen et al. 1987; Craighead and Craighead 1972a) lead to poor quality snow for snowmobiling. Snow is melting at lower elevations, making access to higher elevations more difficult for snowmobilers. Female grizzly bears with cubs typically emerge later in the season, when these snow and melt conditions are even more prevalent. This is a general observation, with site specific circumstances of access and season being very important variables.

B. Analyses for Effects of the Action

With the above potential impacts in mind, as well as other sources of information cited throughout, the Service considered the specific features of the A24 proposal in order to put the potential impacts in perspective.

1. Proximity and Distribution of Effects

The Service compared the spatial area proposed for snowmobiling with the most relevant habitats for grizzly bears: a) denning habitat, and b) spring habitat. Summer and fall habitats were not at issue since no snowmobiling would overlap with these seasons.

a. Effects of snowmobile use on denned grizzly bears: **Amendment 24 would reduce the overlap (in acres) of potential denning habitat and areas programmatically open to snowmobiling under the Forest Plan from 24 percent (100,896 acres) of the potential denning habitat on the Forest, to 8 percent (31,900 acres) of the potential denning habitat.**

In review, to arrive at the above findings, the Forest estimated 420,400 acres of potential denning habitat on the Forest; about 18 percent of the 2,345,000 acre Forest (see Table 1). About 68 percent (285,700 acres) of this potential denning habitat is within designated wilderness and is off-limits to snowmobiling entirely; the remaining 32 percent (134,700 acres) is outside of wilderness. Of this, the Forest estimates about 24 percent (100,896 acres) of the modeled denning habitat on the Forest occurs in areas that were open to snowmobiling under pre-Settlement Agreement and the existing Forest Plan direction (see Table 1). Under the current, interim Settlement Agreement, about 8 percent (33,300 acres) of modeled denning habitat are programmatically open to snowmobiling. However, considering some site-specific closures, only 32,300 acres are administratively open to snowmobiling (U.S. Forest Service 2003, FEIS, pg. III-36). The proposed action would reduce the acres of modeled denning habitat open to snowmobiling from 24 percent to about 8 percent (31,900 acres) (see Table 5). Thus, A24 would reduce the total acres of modeled denning habitat that would be open to snowmobile use.

In practical terms, much of this area that is or is proposed to be legally available to snowmobile use is not actually used by snowmobilers due to unfavorable terrain or dense vegetation. Under the existing Forest Plan (Alternative 1 of the FEIS), about 0.7 percent (2,700 acres) of modeled grizzly bear denning habitat is within 200 meters of roads/routes where snowmobiling is allowed, and about 9 percent of modeled denning habitat is within 1,000 meters of roads or routes where snowmobiling is allowed (U.S. Forest Service 2003, p III-37). The proposed action would reduce this acreage to about 0.5 percent (2,100 acres) and 6 percent (24,300 acres) of modeled denning habitat within 200 and 1000 meters of open snowmobile roads and routes, respectively (*Ibid.*) (see Table 6.).
In our review of literature and information regarding disturbance effects on denned bears, we found that the potential for disturbance of grizzly bears in their dens is very low due to the low probability of a direct encounter between a snowmobile and a den site. Even in that unlikely case, the excellent insulative properties of snow buffer and substantially reduce the noise. Therefore we anticipate few if any adverse effects on grizzly bears in areas where snowmobile use is proposed, and do not expect injury of denned grizzly bears.

b. Effects of snowmobile use on grizzly bears in spring habitat*:* **The potential effects of snowmobiling on grizzly bears using spring habitat are removed or mitigated in two ways under A24.**

The proposed action changes the administrative dates for the grizzly bear non-denning period from March 16 to November 15, to April 1 to November 31. The proposed general snowmobile season would fall during the denning period, beginning and ending on December 1 and March 31. Thus, This change moves snowmobiling season "back" two weeks in the fall, and allows two weeks "longer" during the spring. The Service agrees with this change and the Forest's supporting rationale. This change in administrative dates for the grizzly bear denning season would be

consistent with the best scientific and commercial information, which became available after the signing of A19 in 1995 when the dates of March 16 – November 15 were established. First, this revised chronology is compatible with the work of Mace and Waller (1997), which detailed grizzly bear use of habitat in the Swan Mountains, Montana, within the action area. Also, the changes are also compatible with the recommendations of the interagency NCDE Access Technical Group (NCDE Access Technical Group, unpublished report 2002), which concluded that "grizzly bear access management will apply during the non-denning period, and include April 1 through November 30 of each year." In other words, motorized use of road and trails, other than snowmobiles, was necessary beginning on April 1, when most grizzly bears were no longer denned and could be affected by such use. Additional rationale was provided by Lewis Young (Flathead National Forest), unpublished memo, April 11, 2003, which is found as Appendix B of the A24 BA. Finally, the dates of March 31 for end of denning and April 1 for start of spring season were discussed and agreed to (for consistency among Montana National Forests) by an interagency team of U.S. Forest Service and U.S. Fish and Wildlife Service biologists (the "Montana Level 1 Terrestrial Biologists Team," unpublished notes, 12/9/2003).

The potential for conflicts between snowmobile use and grizzly bear needs during the spring becomes an issue after den emergence (generally April 1 for females with cubs, earlier for males and lone females), at which time snowmobiling in most of the Forest (98 percent) will be prohibited under the proposed action (considered in more detail under *timing* below). Second, even where snowmobiling after March 31 is permitted, the areas that would be suitable for spring snowmobiling - areas with snowpack - typically do not directly overlap with spring grizzly bear habitat, which is mostly snow-free early in the spring season. Further, the subset of the population using these habitats in early spring (prior to early-mid April) is most likely to be males and lone females. These grizzly bears are mobile and able to travel to seek out undisturbed habitat, if needed. Females with cubs and young are likely to remain at the higher elevation denning habitat in the early spring.

Upon emergence from their dens in the spring, grizzly bears typically move to spring habitat, lower elevations where their dietary needs may be met. Spring foods are found in melted-out areas with early greening herbaceous vegetation in low elevations, riparian areas, and in melted-out avalanche chutes. Grizzly bears also feed on dead ungulates from winter kill on winter ranges and in some locations grizzly bears prey on elk calves (usually available after June 1). Such areas are not suitable for spring snowmobiling due to lack of deep snow; spring snowmobile use typically occurs at higher elevations with consistent, deep snowpack.

As reported earlier, the timing of the emergence of grizzly bears from dens was similar between the major studies in the NCDE: median date of exit was April 7 on the east side (Aune and Kasworm 1989); April 14 in the Swan Mountains (Mace and Waller 1997 and early April in the Mission Mountains (Servheen and Klaver 1983), all later than March 31, the proposed date for ending the snowmobile season. "Females with cubs" (those pregnant upon den entry and giving birth to cubs in the den) – as opposed to "females with young" (females who enter their dens with cubs-of-the-year or older offspring) - emerge later than other sex and age classes (Aune and Kasworm 1989; Mace and Waller 1997). Females with cubs also spent more time in the vicinity of the den (along with their cubs) after emergence, at higher elevation denning habitat.

Under the proposed A24, in compliance with the direction in A19, snowmobiling season would end on March 31 on over 735,000 acres, over 98 percent of the Forest (Table 1), and over 413,000 acres of grizzly bear denning habitat, over 98 percent of bear denning habitat on the Forest (see Table 5). This closure would provide security for the vast majority of females with cubs within the recovery zone during the period they most likely would emerge from dens and eventually move to spring habitat.

Within the NCDE recovery zone portion of the Forest, extended season snowmobiling (after March 31) would be allowed on a total of 52,400 acres divided among in three areas, and along one route system (see Tables 7 and 8 in next section). The three areas and one route system are: Doris-Lost Johnny (until May 31), Challenge (until May 15), and Six-mile area (until April 30), and the Canyon Creek routes (until April 15) (extended season areas). The extended season areas represent an increase over current Forest Plan direction in area open to snowmobile use after March 15. However, it is important to note that in total, these 52,400 acres encompass a *variety* of habitat types; only a small subset of these acres support *spring* habitat.

As temperatures increase and snow melts, areas with spring vegetation in these extended season areas will become available to grizzly bears in some years during the extended snowmobile use period (depending upon snowpack), mostly at lower elevations on south and/or west aspects. However, the effects of snowmobile use on grizzly bears in spring habitat during the extended season areas are limited.

Spring habitat areas are used by grizzly bears after they are mostly snow-free and vegetation is greening up. Further, the trail-heads in these extended season areas are typically at lower elevations and will melt-out sooner than the higher elevation zones. This will generally reduce snowmobile use in areas with spring habitat and correspondingly reduce (but not eliminate) snowmobiling in higher elevation areas where access is required via routes leading from lower elevations.

Some snowmobile use may occur near spring habitat where snow-packed areas are found near melted-out areas. An example would be snow-covered north or east aspects of a drainage where

south and west aspects may be snow-free. However we expect this use to be limited, occur prior to when females with cubs would be in the area, and rapidly diminish as the season progresses and temperatures increase.

As snow-pack recedes to higher elevation during the period after April 1, snowmobiles will likely be towed by <u>wheeled</u> vehicles through spring habitat to reach trail-heads or areas with snow. This motorized use would have effects on grizzly bears in area. However, recall that A24 does not affect access management of motorized wheeled vehicles. Such use of wheeled vehicles (e.g. cars and trucks) could occur <u>only</u> along established open motorized routes in accordance with the Forest travel plan, which has undergone formal consultation for A19 (U.S. Fish and Wildlife Service 2005) and is considered part of the baseline. Use of <u>restricted</u> roads by wheeled vehicles would not be allowed in subunits with extended snowmobile use seasons. Thus along snow-free <u>open</u> roads, A24 would not expand impacts to spring habitat beyond what is already permitted.

Direct and indirect effects of such motorized use have already been analyzed through the A19 consultation. Again, this is an important point, as in general, spring habitat is occupied by grizzly bears once snow has mostly melted off and green vegetation is available.

Use of snow-free routes and areas by snowmobilers has been documented on the Forest. Some machines can travel limited distances on dirt, and some riders choose to use snow-free dirt routes to access snow-packed areas as the snow-pack recedes to higher elevations. Under A24, such use would be allowed off-road and on roads otherwise restricted from motorized use by the travel plan; the exception is the Canyon Creek during extended use area , where A24 allows snowmobile use from April 1 to 15 along the designated route only and no off-route travel is permitted. Such off-road use and use of restricted routes, if frequent, could result in disturbance in spring habitat occupied by grizzly bears. Further, such use on restricted or reclaimed routes can impede shrub and tree growth or destroy regenerating vegetation on the route, which would delay the reclamation of such routes that is beneficial to bears. However this use is not common throughout the Forest (A24 FEIS page 3-8). One report documents such use and its adverse impacts (Hammer 2002), but documents only a small number of individual sites. In any case, A24 would (a) allow such use only in the extended use areas or on otherwise open roads, which comprise a small portion of the recovery zone; and (b) such use is likely to be most pervasive during years with late snow pack; and (c) females with cubs move to spring habitat later in the season, when cubs have more mobility. We do not dispute such bare-ground use by snowmobilers occurs, however recreationists do tend to shift their sports to golfing, mountain-biking and other such warmer weather activities in the spring (A24 FEIS page 3-5). Snowmobiling tends to drop off dramatically in the spring. Therefore we expect adverse impacts to grizzly bears would occur only infrequently. Further, we do not expect this type of disturbance would occur at levels that would result in displacement that injures grizzly bears, or impairs breeding, feeding or sheltering.

The Forest expects the numbers of snowmobilers to increase as the popularity of the sport expands and as the human population in Northwest Montana increases. This would result in higher numbers of snowmobiles along established routes, however the acres of Forest impacted would remain constant if A24 if adopted (U.S. Forest Service 2003).

2. Timing of Effects

A24 would allow snowmobile use after March 31 on a total of 52,400 acres across three areas. This may result in adverse effects on females with cubs that den in these areas because on average, females with cubs emerge from dens beginning around the April 1. However, such effects would be limited as the extended use areas encompass about 1.6 percent of the denning habitat on the Forest.

The Service considered the seasonal timing implications of A24 in relation to the important habitats discussed above. In general, snow conditions result in snowmobile seasons that overlap with the grizzly bear denning period. However, left unregulated, snowmobile use could potentially extend through the den emergence period for females with cubs (April) in most years. Favorable snow conditions during some years make snowmobile use possible into June in higher elevation areas, where bears den. Females with cubs typically emerge from dens and stay near the site for a couple of weeks. Females with cubs have high energetic needs in the spring, and cubs

have limited ability to travel for several weeks after emergence from the den. Thus, females and cubs could be adversely affected if disturbance from snowmobiles caused them to move from the den site area.

As mentioned earlier in the previous section, the proposed action would modify the administrative period dates for the denning period based on new information, and correspondingly prohibit snowmobiling from April 1 through November 30 of each year, with the exception of the four areas with extended snowmobile seasons.

To review, female grizzly bears on the Flathead Forest begin emerging from their dens about April 1, with a median date of April 7, with males typically beginning to emerge about two weeks earlier (Mace and Waller 1997, pg 37). Grizzly bears typically spend a few days to a few weeks at or near the den before moving to other locations to begin feeding. During this time the grizzly bears were observed to be very lethargic and approachable. After leaving the den site grizzly bears usually move to lower elevation habitats like riparian areas and avalanche chutes for much of their foraging during spring (Mace and Waller 1997, pg 16).

Grizzly bears significantly under-used habitats near roads that were used by motorized vehicles such as cars and trucks (Mace and Waller 1997). Similarly, we expect that snowmobile activity after den emergence dates could disturb and/or displace grizzly bears. The greatest probability of interactions at or near dens would obviously be expected where potential denning habitat overlaps with open snowmobile areas and/or the influence zones around roads or routes. As discussed in more detail above (under section 1.b *Effects on grizzly bears in spring habitat*), once grizzly bears move away from den sites and toward spring habitats, there will be little potential for conflict with snowmobiles. There, grizzly bears would be exposed to the baseline road densities limited under A19. Grizzly bears in spring habitat would be most affected by wheeled vehicles hauling snowmobiles along open roads in lower elevations of the Forest. However, **A24 would not result in additional acreage of spring habitat being impacted by wheeled motorized vehicles beyond what is currently occurring along open routes under A19.**

Under A24, snowmobiling would continue to be allowed throughout the denning season as it is now under the current Forest Plan, with the updated dates for the denning season - November 30 to March 31. On most of the Forest, the snowmobile season would end on March 31, to avoid or minimize disturbance to females with cubs emerging from dens. However, the proposed action would allow an overlap of snowmobile use with the period during which females with cubs emerge from dens on a total of 52,400 acres in the extended season areas and routes. However, this overlap area would include only 6,700 acres (1.6 percent) of the modeled denning habitat (420,400 acres) on the Forest (Table 7). The extended season use would be restricted to three specific areas and one route system (Table 7): Doris-Lost Johnny (until May 31), Challenge (Until May 15), and Six-mile area (until April 30), and the Canyon Creek routes only (until April 15). The proposed extended season would involve 13 of 70 grizzly bear subunits on the Forest (Table 8). The extended season areas represent an increase of 52,400 acres over current Forest Plan direction in area open to snowmobile use after April 1, however, encompass only a total of about 1.6 percent of the denning habitat on the Forest.

Table 7. Extended Snowmobiling areas and overlap with potential grizzly bear denning habitat (adapted from BA).

	Extended Use Areas				
Overlap	Doris-Lost Johnny	Challenge	Six-mile	Canyon Creek*	Total Acres
Proposed Season	Dec 1- May 31	Dec 1- May 15	Dec 1- April 30	April 1- 15	
Flathead NF (acres)	31,800	17,500	3,100	trails only	52,400
Potential Denning (acres)	3,600	2,400	700	(12)*	6,700

* Snowmobile use from April 1 – 15 allowed only on groomed trails that traverse a total of 11.4 acres, including a 100 foot buffer along the trail (K.Ake, in litt. 2008). Table uses rounded data, so 0 acres included in total.

Table 8. Comparison of A19 objectives, current A19 monitoring report status, and proposed spring season conditions for the thirteen grizzly bear subunits affected by proposed extended season snowmobile areas. Shaded areas are in full compliance with A19 (adapted from BA).

Name of Spring Snowmobile Area (acres denning habitat affected)	**Name of affected Grizzly Bear Subunits**	***A19 Monitoring Report Status [OMRD-TMRD-Core] (A-19 Goal is 19-19-68 unless amended)**	****Proposed Spring Condition – with Snowmobile use of Restricted and Reclaimed Roads**
Canyon Creek (routes only) (season to end April 15)	Canyon McGinnis	22-42-31	37-46-27
	**Cedar Teakettle	**(26-23-21)	22-20-20
	Lower Big Creek	19-32-57	19-33-56
	Werner Creek amended 29-19-63	20-22-42	33-37-37
Lost Johnny (3600 acres) (season to end May 31)	Doris Lost Johnny Amended 57-19-36	60-22-31	50-30-27
	Peters Ridge	53-25-34	20-19-65
	Wounded Buck Clayton Amended 27-30-65	37-37-39	43-47-23
Six Mile (700 acres) (season to end April 30)	Ball Branch	15-15-70	2-3-82
	**Noisy Red Owl	**(20-16-56)	12-14-64
	Swan Lake	54-30-31	27-21-56
	Wheeler Quintonkon Amended 25-19-68	27-23-57	26-25-50
Skyland Challenge (2400 acres) (season to end May 15)	Skyland Challenge	20-16-63	33-20-48
	Tranquil Geifer	0-2-85	2-2-86

*Source: U.S. Forest Service 2005. Note that these are more current than the U.S. Forest Service 2003 results reported in the BA (using 2001 data).
***Source: March 19, 2004 Biological Assessment for A24, pp17-18, rounded to the nearest whole percentage here. Includes spring snowmobile use (along routes and in play areas); does not include motorized trails which are not used by snowmobiles, or OHVs during the late spring due to snow cover.
** These subunits have <75% FS Ownership.

No programmatic date restrictions on snowmobiling are proposed for areas outside the NCDE recovery zone portion of the Forest. No programmatic seasonal restrictions occur outside of the recovery area so long as adequate snow exists. Throughout the Forest, inside and outside the recovery zone, any roads open to motorized use yearlong would be open to snowmobiling as long as conditions permit, and if not plowed for highway vehicle traffic (U.S. Forest Service 2003, the A24 FEIS).

Under current Forest Plan direction within the NCDE recovery zone portion of the Forest, snowmobile use is generally allowed from November 15 to March 15, which is considered the

administrative dates for grizzly bear denning season. However, in its BA, the Forest indicated that it had not applied "seasonal restrictions" to snowmobile use of *restricted* and *reclaimed* roads after March 15 in the NCDE recovery zone portion of the Forest. Hence, there may have been ongoing, undocumented, and un-quantified effects upon post-emergent grizzly bears in areas where snow conditions facilitate extended snowmobiling seasons.

As mentioned earlier, the Court found that the impacts of this snowmobile use were not properly analyzed in the context of the environmental baseline section of our 2004 biological opinion on A24. We attempted to analyze these effects in the proper context here. The existing Forest Plan prohibits or restricts snowmobile use (all non-administrative snowmobile use) of roads, trails, and reclaimed routes that were restricted to motorized use under A19. The proposed action would increase adverse effects to grizzly bears over the existing environmental baseline condition, after March 31, by allowing continued snowmobiling on 52,400 acres of grizzly bear habitat. The proposed action would also clarify where snowmobiles can and cannot be used. In any case, the proposed action would now allow use after March 31. New information indicates that females with cubs emerge from their dens in early to mid-April. Thus, adverse effects may occur, but would be limited to those female grizzly bears with cubs that have denned in the extended season areas, which encompass about 6700 acres of denning habitat between the three areas, or 1.6 percent of total denning habitat on the Forest (Canyon Creek routes traverse only 12 acres). Thus, the vast majority of females with cubs on the Forest would not be affected by extended snowmobile seasons. The proposed action would not allow snowmobile use after April 1 on over 98 percent of denning habitat. Based on available information, we do not expect adverse effects to lone female grizzly bears, or males, because these bears are mobile (unencumbered by cubs) and able to leave denning habitat if disturbed, to move to spring habitat.

3. Duration of Effects

A24 would be implemented seasonally for the foreseeable future or until changed by a subsequent decision about land use on the Forest. The effects would be considered chronic in that they would occur year after year. **However, the effects would not have a "threshold effect" in that it would not permanently change the grizzly bears' habitat** (such as might happen in the case of a permanent development). Land managers could respond to significant trends in the grizzly bear population by altering decisions about snowmobiling.

4. Potential Disturbance Frequency of Effects

The Service considered if, and how, the number of potential disturbance-causing events might change over the existing situation with implementation of A24.

In general, snowmobile use patterns are not expected to change between the existing condition and A24, but the total spatial extent of snowmobile use would be reduced (as described above).

Snowmobile activity is greatest on weekends along established use areas, as described in the FEIS (U.S. Forest Service 2003, pp. III-3 through III-6). There, snowmobile use and associated noise would be predictable and relatively frequent. Weekday use and off-trail use is less predictable, much lighter, and less frequent and would be expected to remain so.

In any case, the Service found that the potential for disturbance of grizzly bears in their dens is very low due to the low probability of a direct encounter between a snowmobile and a den site. Even in that unlikely case, the excellent insulative properties of snow buffer and substantially reduce the noise. Grizzly bears that have emerged from dens may or may not be disturbed depending on where they denned, and whether they are male, female or female with cubs. Based on the principles of Knight and Gutzwiller (1995), predictable stimulus by snowmobiles might lead to habituation by some grizzly bears if no related direct harm occurs, but irregular snowmobile use might instigate a greater disturbance effect on an individual bear, if the activity occurs close to a bear den and the bear responds to the activity. Females with cubs that denned in the extended season use areas may experience adverse effects from snowmobile use in the spring. However, the potential for these adverse effects is limited to about 1.6 percent of denning habitat on the Forest. The proposed action would not allow snowmobile use after April 1 on over 98 percent of denning habitat. For more details and rationale, review sections A and B above.

5. Disturbance Intensity/Severity of Effects

The Service considered the state of an individual grizzly bear following snowmobile disturbance and, if applicable, what the ramifications would be to the population and how well the population would recover from impacts. Again, the Service found the potential for snowmobile disturbance to denning grizzly bears to be very improbable and discountable; effects to recently emerged grizzly bears are of greater concern.

In general, response of bear species to disturbance in dens occurs along a continuum from waking, slight body warming, and/or increased heart rate, to movement within the den, raising body temperatures to normal levels along with a 60-80 percent increase in metabolic rate, to den abandonment (Linnell et al. 2000, pg. 407). The Delphi evaluation of snowmobile use on grizzly bears (Graves and Reams ed. 2001) identified similar *possible* impacts.

Disturbance to post-emergent female grizzly bears with cubs is more consequential. As described previously, these bears are more vulnerable to disturbance. The probability of adverse effects is confined to the areas with extended snowmobile seasons. Yet even there, the probability of an encounter between snowmobiles and post-emergent females is still low, given 1) the relatively low number of grizzly bears inhabiting these areas (2.5 grizzly bears per 100 square kilometers (Mace and Waller 1997)) and fewer still females with cubs ; 2) the extended season use has the potential to affect only 1.6 percent of denning habitat on the Forest; and 3) the typical den-site terrain (steep slopes averaging around 60 percent, open timbered slopes). Further, there is some evidence to suggest that if grizzly bears are disturbed in den sites, they may select future den sites some distance from the area and avoid disturbances in ensuing years. However, we do not entirely discount the possibility of adverse effects to some, but likely very few, females with cubs from spring snowmobiling, particularly in those areas with extended seasons.

The disturbance intensity and/or severity of snowmobile use under A24 (or for that matter the existing condition) are difficult to quantify or describe directly. However, potential impacts would, in part, be expected to manifest themselves in the observed status of the population. In any case, such effects to denned grizzly bears – if they are occurring at all – would decline from current conditions because the spatial overlap of grizzly bear habitat and total areas open to snowmobiling would be reduced under A24 (from 24 percent of denning habitat to 8 percent). The likelihood of effects to post-emergent grizzly bears (males and females) would also decline as a result of this reduction due to less denning habitat open to snowmobiling in general. However, adverse effects are possible in the 1.6 percent of denning habitat in areas with extended seasons (particularly to females with cubs); this represents an increase in adverse effects over the current baseline.

C. Species Response to the Proposed Action

Our biological opinion is based the existing available science and information related to disturbances to grizzly bears in dens, research related to disturbances to grizzly bears from other types of motorized vehicles, and on grizzly bear ecology in general. Given the best available information, our opinion is based on the following assumptions:

- Grizzly bear response, or lack of response, to the effects of snowmobiling is related to whether the animal is denned (few/unlikely effects) or has emerged, and if so, females with cubs are more vulnerable (still just a potential, but with more likely and significant effects);
- Grizzly bear response would be reflected in population or demographic parameters and in observational or anecdotal information,

The above assumptions are based on the body of evidence and literature we have examined. If any of these are found to be in error, that information may constitute new information revealing effects of the action not previously considered, and could trigger reinitiation of consultation.

Below, we summarize our conclusions regarding the species response to the proposed action, according to effects of the proposed action on denning grizzly bears, effects on emergent grizzly bears, and the effects on grizzly bears in spring habitat.

1. Snowmobiling as proposed under A24 is not expected to measurably impact <u>denned</u> grizzly bears nor the population. The potential effect of snowmobiles on denned grizzly bears appears to be mitigated by several factors on the Forest:

<u>First, denning habitat appears to occur in great enough abundance and with enough spatial separation from snowmobiling to significantly limit disturbance exposure.</u> Denning habitat is readily available throughout the Forest (see Table 5) and larger NCDE and is broadly distributed. Most of the denning habitat in the NCDE recovery zone portions of the Forest as well as in some areas where grizzly bears occur outside the recovery zone - totaling 92 percent - is legally not available for snowmobile use. From the limited research information we have, grizzly bears appear to den throughout the available denning habitat including those areas open to snowmobile use. Further, Linnell et al. (2000) suggest that displacement from a

denning area for individual bears following human disturbance will not always lead to deleterious effects to those bears, if alternate denning areas are available. Under the current Forest Plan, about *24 percent* of potential denning habitat on the Forest was available for snowmobile use. The proposed action would reduce the potential effects of snowmobiling on grizzly bears to about *8 percent* (30,700 acres) of modeled denning habitat during denning season.

The second factor that reduces the exposure of denning grizzly bears to snowmobile disturbance is the partial physical separation of grizzly bear den locations and features most suitable for snowmobiling. Typical high-use snowmobile areas and potential den sites have a limited likelihood of substantive overlap. Grizzly bears generally den in either timbered habitat or very steep slopes, including the slopes of open basins. Most of the heavy snowmobile use occurs on trails, roads, or open basins and meadows. Some snowmobile riders use steep open basins for "high marking", in which case there is a potential direct overlap between denning habitat and steep open slopes favored for "high marking" by snowmobiles. However, most denning habitat - except for "high-marking" areas - is less favorable for snowmobile use and as such, there is a reduced chance of adverse overlap between grizzly bear den sites and snowmobile traffic.

A third factor that minimizes the exposure of denning grizzly bears to snowmobile disturbance are the insulative properties of deep snow. The literature summarized in section 'A' is from a variety of den habitats (caves, snow, excavated soil, etc.), snow conditions, activity levels, and elevations. However, most of the grizzly bears in the NCDE den in excavated dens that are eventually blanketed under deep snow. Snow is an excellent sound barrier (Blix and Lentfer 1992) and impacts to denning bears would likely be less in deep snow situations than in shallow snow conditions. The noise and human activity related to snowmobiling would likely have the greatest potential to affect grizzly bears during the early and late denning period – when snowmobile use of the Forest is at its lowest levels of the season.

To date no reliable records of den abandonment or other deleterious effects on individual grizzly bears caused by snowmobiles has been documented in the NCDE, or YGBE, or CYE, or SE. If den abandonment caused by snowmobiling was common, at least some grizzly bears leaving dens during winter would be observed or reported in an area with as much skiing, snowmobiling, and back country use as the Forest outside of wilderness receives, but no such observations have been reported. Even so, the reporting of sightings is one thing, but ultimate effects and causes of those effects on certain grizzly bears - including survival, cub survival, etc. – would likely be difficult to ascertain. In the NCDE, male, and even female grizzly bears have been observed in all months of the year, including areas where no known disturbance occurs, but this is rare.

2. The potential effects of snowmobiles on female grizzly bears after den emergence are reduced or minimized by A24 in the following ways:

The potential effects of allowed levels of snowmobiling on post-emergent grizzly bears would increase under the proposed action, in three specific areas and one route, totaling 52,400

acres. The Service concluded that female grizzly bears with cubs are at greatest risk of injury, or even mortality, subsequent to den emergence, because this subset of the population is most likely to linger near denning habitats through April and into May. Other subsets of the population are expected to move quickly toward low elevation spring habitats.

First, A24 would adequately limit risks to grizzly bears after den emergence. Under A24, snowmobile use would end on March 31 on about 98 percent of the Forest, which significantly limits the risk of early spring conflicts between snowmobile riders and grizzly bears. About 2 percent of the Forest would remain open to snowmobiling after March 31. Further, of the habitat that would remain open to snowmobiling, only 6,700 acres are potential grizzly bear denning habitat (about 1.6 percent of potential denning habitat on the Forest). Females with cubs, the subset of the population most vulnerable to deleterious effects of disturbance, would be protected from disturbances generated by snowmobiling activity on over 98 percent of potential denning habitat on the Forest. Therefore, we conclude that only a small number of females with cubs would be affected, if any. However, we do not rule out the possibility entirely, and if affected the impacts on any individual female or cubs could be significant.

Second, under A24, the extended season areas would seasonally "phase-out" one-by-one: the Canyon Creek Routes would close after April 15, Six Mile would close after April 30, Challenge after May 15, and finally Doris-Lost Johnny after May 31. After April 30, about 2 percent of the Forest would remain open to snowmobiling (49,300 acres), including 1.4 percent of the denning habitat (6,000 acres).

Third, during the spring, deteriorating snow conditions that trigger den emergence also reduce snowmobile numbers to a degree, reducing the probability of disturbance to grizzly bears by snowmobiles during this sensitive period.

3. The remaining issue involved the potential effects of motorized activity on grizzly bears using low elevation spring habitats in the post-denning season (primarily in extended use areas). The potential effects of motorized activity on reproductive-aged female grizzly bears in low elevation spring habitats are reduced or minimized by A24 in the following ways:

First, the subset of the population using these habitats in early spring (prior to early-mid April) is most likely to be males and lone females. These bears are mobile and can move from disturbance. Females with cubs and more vulnerable, but are likely to remain at the higher elevation denning habitat in the early spring.

Second, A24 would not open any currently closed routes in spring grizzly bear habitat to wheeled motorized use. Under A24, transportation of snowmobiles with trucks and other wheeled-vehicles through spring habitat would be limited only to established routes in accordance with the Forest travel plan. This travel plan is considered part of the baseline and is affected by A19 within the grizzly bear recovery zone.

Finally, a small proportion of grizzly bear spring habitat would be affected by extended season snowmobile use, which would taper off significantly when the snowpack recedes and grizzly bears would be most likely to present.

The Forest reports that snowmobile activity appears to have been increasing throughout the Forest (U.S. Forest Service 2003). The increase in spatial area covered by snowmobiles, and the frequency of use by snowmobiles has occurred with the development of highly-powered machines that can access areas previously off-limits to less-versatile machines. We acknowledge this activity, and for this biological opinion, we assume that snowmobile use will be contained within the areas and acres modeled by the Forest, as allowed by A24 (displayed in Tables 1, 7 and 8).

Detection of snowmobile disturbance impacts on individual grizzly bears is difficult. However, any significant effects of disturbance would be expected to manifest over the long term in one or several of the following: population size, reproductive rate, animals found outside the den during the winter's snowmobile season, animals exhibiting poor condition in the spring, or tracks found near den sites during the snowmobile season. It is likely that some level of detection of impacts to individual grizzly bears would be probable. To date, no such impacts related to snowmobile use have been detected in the NCDE. Research documents growth of the population since 1975 (Kendall et al. in press) and that demographic parameters are similar to other healthy grizzly bear populations in the U.S. (Yellowstone) and Canada (R. Mace, MFWP, unpublished presentation 2008).

Based on the best information available, the Service concludes that proposed snowmobile use on the Forest under A24 would not significantly affect the NCDE grizzly bear population as a whole. Although some females with cubs could be adversely affected by the extended snowmobile season, the effects are limited to those denned on the 6700 acres exposed to extended snowmobile seasons, 1.6 percent of all denning habitat. As such, impacts are limited to only a few female grizzly bears and thus, effects on the population as a whole are limited. Further, not all of the effects on post-emergent females and their cubs are expected to be significant. Finally, grizzly bears are known to have selected den sites away from areas they previously denned, after disturbance during the denning period had occurred. Thus females that are exposed to disturbances during the denning or post-emergent period could likely find denning options in areas outside the extended season areas.

A very limited amount of denning habitat occurs outside the recovery zone. Although the Forest's management of snowmobile use in grizzly bear habitat outside of the recovery zone portion of the Forest may directly and indirectly adversely affect individuals, we do not anticipate that these effects will negatively impact the grizzly bear population within the NCDE recovery zone. The Recovery Plan stated that grizzly bears living within the recovery zones are crucial to recovery goals and hence to delisting. The best available science indicates that over 700 to 800 grizzly bears live in the NCDE, mostly within but also outside the recovery zone boundaries. Mortalities and conflicts outside the recovery zone within 10 miles of the zone boundary are applied to grizzly bear recovery zone statistics. This is a conservative measure to account for individuals who are primary residents of the recovery zone. Grizzly bears living primarily outside the recovery zone are not included in the number or distribution of bears needed to reach recovery. Grizzly bears

inside and outside the recovery zone are listed as threatened under the Act, but only lands inside the recovery zones are considered essential to, and therefore managed for, recovery and survival of the grizzly bear population.

V. CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action (A24) are not considered in this section because they require separate consultation pursuant to section 7 of the Act (50 CFR 402.14 (b) (3) & (4)).

Private lands, both inholdings and surrounding the Flathead National Forest, are being developed at a fast rate for residential or business use. Winter activities such as snowshoeing, skiing, and dog sledding on private and state lands generally occur in areas already used by snowmobiles. Winter logging on private and state lands routinely occurs, but typically at lower elevations where doing so is economical.

Illegal snowmobile activity is likely to continue in wilderness and other restricted areas, as well as after the April 1 season ends on the Forest. However, since snowmobile riders are now provided with specific late-season use areas, they may be more inclined to use those areas rather than trespass in closed areas.

Recreation and sanitation issues on private land continue to create human-grizzly bear conflicts. The human population in the area has experienced relatively high growth during the recent decade, and growth is expected to continue. As the human population grows and more land is developed, the challenge to accommodate human uses in ways that continue to protect the grizzly bear population increases.

The large federal land ownership, large blocks of wilderness within which human access is restricted by regulation and topography, and regulated uses of the Forest, such as this amendment, serve to reduce the impacts of increasing human populations on grizzly bears, especially on den sites and high elevation habitat.

VI. CONCLUSION

After reviewing the current status of the grizzly bear, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects in the action area, it is the Service's biological opinion that snowmobile activity proposed under A24 is **not likely to jeopardize the continued existence of the grizzly bear**. No critical habitat has been designated for the grizzly bear, therefore none will be affected.

Regulations implementing section 7 of the Act define "*jeopardize the continued existence of*" as: "*to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both survival and recovery of a listed species in the wild by reducing*

the reproduction, numbers, or distribution of that species." (50 CFR 402.02).

The best information suggests that proposed levels of snowmobile use would not appreciably reduce the likelihood of either the survival or recovery of grizzly bears. Our conclusion is based on, but not limited to, the body of literature and information referenced in this document, meetings and discussions with the Forest, discussions with grizzly bear experts, the information in the BA, as modified. The *Effects of the Action* and *Species Response to the Proposed Action* sections analyze and summarizes key factors in detail. We find that although adverse effects are likely to some individual grizzly bears, the proposed action is not likely to appreciably diminish survival and/or recovery. The action overall promotes the conservation of grizzly bears and their habitat. The following factors, analyzed and presented in greater detail earlier in this opinion, summarize key factors in our rationale:

The following are key factors in our consideration of the effects of the proposed action on grizzly bears within the action area:

1) The proposed action significantly reduces the total acres of the Forest open to snowmobiling from 46 percent under the current Forest Plan to 29 percent of the Forest; from 1,080,400 acres to 690,900 (see Table 1). Of most commonly used terrain conducive to snowmobile use, the proposed action would reduce available acres from 63,000 acres open under the Forest Plan to 57,200 acres open under A24.

2) The best available scientific information suggests that denning habitat is abundant on the Forest (420,000 acres) and is well distributed (see maps at http://www.fs.fed.us/r1/flathead/nepa/a24/over_snow_user_map/index.htm)

3) The proposed action reduces the total acres of grizzly bear denning habitat available for snowmobiling from 24 percent under the current Forest Plan to about 7 to 8 percent, or from 100,896 acres to about 31,900 acres (see Table 5). Of the 31,900 acres, 18 percent are within 1000 meters, and only 1.5 percent are within 200 meters of roads open to winter motorized use (see Table 6).

4) The current Forest Plan prohibits snowmobiling after March 15. The proposed action would allow continued snowmobile use after March 15 on all areas open to snowmobiles, until March 31, and use after March 31 on a total of 52,400 acres within the grizzly bear recovery zone. The proposed use after March 31 on 52,400 represents in increase the period snowmobile use is allowed on the Forest. Thus the proposed action would allow potential disturbance effects to females with cubs after March 31, through use of snowmobiles that is currently prohibited by the Forest Plan.

We do not expect more impacts to females with cubs from snowmobile use above that currently allowed by the Forest Plan, as a result of allowing snowmobile use in denning habitat during the two weeks from March 15 to March 31. We do not expect significant effects on denned grizzly bears. The best science and information now available indicates average or median den emergence dates for female grizzly bears with cubs in the NCDE as

beginning in early to mid April; on average other population subsets leave dens earlier. Females with cubs, the cohort most vulnerable to adverse impacts from snowmobiles, would be most likely affected by snowmobile use after den emergence, in the 52000 acres of extended snowmobile use.

The proposed action would allow snowmobile use after female den emergence dates within 52,400 acres of the recovery zone, which is not allowed under the current Forest Plan. About 6,700 acres of the 52,400 acres is potential grizzly bear denning habitat, where females and cubs would be most vulnerable.

5) This 6700 acres of denning habitat constitutes less than 2 percent of the 420,000 acres of denning habitat on the Forest (U.S. Forest Service in litt. 2008)(see also Table 7). After March 31, the proposed action precludes disturbances generated by snowmobiling activity on over 98 percent of potential denning habitat on the Forest, thus protecting the vast majority of females with cubs, the subset of the population most vulnerable to deleterious effects of disturbance.

6) We do not rule out the possibility of adverse effects on females with cubs that den in the four areas with snowmobile seasons extending after den emergence dates (April 1) (see Tables 7 and 8). Further, if individuals or cubs were affected, the effects could include displacement of the family group from the den site area, which could be significant. However we reasonably expect very few females to be affected, given 1) the relatively low density of grizzly bears across the landscape, 2) the even lower density of females with cubs, and the resulting few in number that would have home ranges encompassing, and den in, the four areas (6700 acres total) , 3) not all 6700 acres of denning habitat would be exposed to snowmobile effects due to topography, terrain and forests; 4) the melting snow conditions that instigate emergence of females from dens also degrade the site-specific conditions for snowmobiling; snowmobile use tapers off at that time; 5) extended use periods do not all last through May 31; end dates are April 15, April 30, May 15 and May 31. Therefore the likelihood or probability of adverse effects is low, and if they occur, would affect only few females with cubs in the population.

7) Disturbances to grizzly bears in spring habitat would be very limited, even in the four areas where extended snowmobile use would be allowed. Snowpack has melted, or mostly so and is very patchy, in spring habitat during the period of use by grizzly bears. Such conditions are not conducive to snowmobile use.

8) The proposed action includes monitoring of the four areas with extended snowmobile seasons during the entire authorized season (BA *in* U.S. Forest Service in litt. 2008).

9) To date, there are no reliable records of den abandonment or other deleterious effects on grizzly bears caused by snowmobiles in the NCDE or other grizzly bear recovery zones.

The following are key factors in our consideration of the effects of the proposed action on the NCDE grizzly bear population as a whole:

10) The best available information suggests the NCDE grizzly bear population is stable to increasing. In 2008, scientific research produced a statistically valid DNA-based population estimate of 765 grizzly bears in the NCDE, for 2004 (the year the data was collected) (Kendall et al. in press). The 95 percent confidence interval around the estimate was 715 to 831 bears. This information is significant, as the minimum population estimate for 2004 as calculated with Recovery Plan methods was 299 grizzly bears, significantly underestimating the population in the NCDE. The Service will be revising the Recovery Plan methods for estimating population and establishing sustainable mortality limits.

11) Kendall et al. (in press) also indicate that since 1975, the grizzly bear population in the NCDE has grown.

12) Annual grizzly bear occurrences outside the recovery zone boundaries consistently indicate that the NCDE population is expanding its range.

13) Using the population estimate of 765 grizzly bears, the Recovery Plan limits for sustainable levels of known, human-caused female grizzly bear mortality for the NCDE, based on the average of the past 6 years, were exceeded in 2007 Much of the grizzly bear mortality in the past decade is associated with conflicts arising from attractants on private lands. Further the unprecedented number of conflicts and female grizzly bear mortalities in 2004 affects the running 6-year average of female mortalities for 2008. These unprecedented levels are largely attributed to a huckleberry crop failure in 2004. Each year since 2004, the annual known human-caused mortality of female bears has been significantly lower (less than one-half of the 2004 mortality) (see Table 3).

14) At this point, it is too early in the research to derive a reliable trend estimate for the NCDE population with data collected thus far by MFWP. Preliminary information indicates that between 2004 and 2008, approximately 95 percent of radio-collared females in the NCDE survived each year. Although these are not specific survival rates, this level of adult female survival, along with yearling and cub survival, appears to be on par with grizzly bear populations elsewhere that are stable to increasing (Rick Mace, MFWP, pers.comm. 2008)

15) The best information available to the Service suggests that snowmobile use has been increasing on the Forest (U.S Forest Service 2003). Results of the recent DNA-based demographic and population study supports the premise that concurrent with the increase in snowmobile activity over the past decade, grizzly bear demographic parameters in the NCDE recovery zone have remained generally stable and/or have improved. No appreciable impact on grizzly bear reproduction, numbers, or distribution, in the NCDE recovery zone from snowmobiling can be detected.

16) The recently released DNA-based population estimate of 765 grizzly bears in 2004 (Kendall et al. in press) is evidence that the environmental baseline in the NCDE leading to 2004 was conducive to supporting a healthy grizzly bear population. Since 2004, grizzly bear habitat conditions within the NCDE recovery zone have generally remained the same or have been improved through continued federal land management, enforcement of food and attractant storage protocols and continued information and education programs. Known,

human-caused grizzly bear mortality has declined since 2004.

17) Based on the best information available to the Service, no negative impacts to the NCDE recovery zone grizzly bear population resulting from snowmobile use can be discerned.

It is the Service's opinion that proposed action adequately conserves effective grizzly bear habitat, and adequately minimizes adverse effects on grizzly bears to levels that would not impede either recovery or survival of the NCDE grizzly bear population. Although A24 may result in adverse effects to individual grizzly bears, the effects are expected to impact very few grizzly bears. The proposed action adequately minimizes effects of snowmobile use on grizzly bears to levels that are conducive to the continued recovery of the grizzly bear population in this ecosystem. The proposed action is not likely to jeopardize grizzly bears in the NCDE. Therefore, the proposed action is not likely to jeopardize grizzly bears.

Assumptions made in this biological opinion will be reassessed (via re-initiation of formal consultation) if the grizzly bear population or snowmobile use changes substantively, or if ongoing or future research efforts or other information regarding the impact of snowmobile use on wildlife suggest serious consequences.

INCIDENTAL TAKE STATEMENT

I. INTRODUCTION

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by Service as intentional or negligent actions that create the likelihood of injury to listed wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns, which include breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.
The measures described below are nondiscretionary, and must be implemented by the agency so that they become binding conditions of any grant or permit issued to an applicant, as appropriate, in order for the exemption in section 7(o)(2) to apply. The Forest has a continuing duty to regulate the activity covered by this incidental take statement. If the Forest fails to assume and adhere to the terms and conditions of the incidental take statement, the protective coverage of section 7(o)

(2) may lapse. In order to monitor the impact of incidental take, the Forest must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement. [50 CFR 402.14(i) (3)]

II. AMOUNT OR EXTENT OF INCIDENTAL TAKE

The Service anticipates that snowmobile use proposed in A24 may incidentally result in some low level of take of grizzly bears. Snowmobiling is restricted on large proportions of denning and spring habitat on the Forest and thousands of acres of denning and spring habitat are legally unavailable to snowmobiles in the broader area where grizzly bears may occur. Where grizzly bear habitat and proposed snowmobile use do overlap, there is still some spatial separation. However, the potential of snowmobile use impacting an individual female grizzly bear's breeding, feeding, or sheltering to the extent that harm or harassment occurs cannot be eliminated. The incidental take is expected to be in the form of harm or harassment to individual female grizzly bears and/or cubs caused by premature den emergence or premature displacement from the den site area, resulting in reduced fitness of females and cubs, ultimately resulting in injury and possibly death.

The best information available, combined with the opinions of grizzly bear researchers we spoke to, indicates that snowmobile impacts to emergent grizzly bears was a higher concern than impacts to denning grizzly bears. The Service concludes that snowmobile-generated disturbance to grizzly bears in dens during the deep of winter is not likely to rise to the level causing significant impairment of breeding or sheltering to the point of injury or death. Further, the Service does not anticipate the effects of disturbance caused by snowmobiles would result in take of subadult or adult male grizzly bears or female grizzly bears without young, based on their independence and mobility after den emergence.

Based on the best information available, the Service anticipates a low level of incidental take in the form of harm or harassment, of female grizzly bears with cubs, or cubs. The noise and activity associated with snowmobile use may generate disturbances to a female grizzly bear with cubs to the extent that it displaces the recently emerged family group from the den or den site, causing decreased fitness of the adult female bear, and/or abandonment or decreased fitness of her cubs. If cubs attempt to follow their mother from a den site prior to their gaining some mobility, they may suffer from decreased fitness or death.

The incidental take of female grizzly bears and/or their young may be indicated by:

- A female grizzly bear's premature den emergence (earlier than documented for this ecosystem, based on gender, age, and reproductive status) following exposure to snowmobiles.
- The location of one or more cubs abandoned by their mother near or in a den in an area of snowmobile use.
- The location of one or more cubs accompanying a female prior to the normal (earlier than documented for this ecosystem) den emergence period in an area of snowmobile use.
- A female grizzly bear that emerges in poor fitness in early spring (when other grizzly bears are in good condition) in an area of snowmobile use.

However, the Service anticipates such incidental take of grizzly bears will be difficult to detect for the following reasons:

- Grizzly bears are difficult to detect in the wild.
- Grizzly bears are wide-ranging and their denning habitat is remote, largely wilderness, and difficult to access.
- Grizzly bear den sites cannot be precisely located over large portions of the denning habitat.
- Grizzly bear den sites are often not re-used, so even known den sites cannot be monitored over time for indications of early abandonment, injury, or mortality.
- Close monitoring of den sites may actually increase the risk of abandonment.
- The loss of fetuses or loss of cubs born in inaccessible underground den sites cannot be quantified.
- Decreased fitness, loss of young, and premature den emergence may all be related to a variety of other factors; establishing a causal relationship between snowmobiling and these effects would be difficult.
- Discovery of an individual grizzly bear injury or mortality attributed to snowmobiling is very unlikely.

The precise number of grizzly bears that would be incidentally taken is difficult to quantify for the following reasons:

- Grizzly bears are individualistic, not all would respond similarly to disturbances generated by snowmobiles.
- The exact number or distribution of grizzly bears in the population is unknown, den site locations are generally unknown, and the exact levels, frequency and location of snowmobile use is not known.
- The number of females with cubs, pregnant females, den emergence dates, and snowmobile use varies each year due to a number of factors, including snow conditions.
- There is no monitoring or research program in place in the NCDE recovery zone to monitor or quantify the impacts of snow machines on grizzly bears.

All of these variables are difficult to monitor or census. According to Service policy, as stated in the Endangered Species Consultation Handbook (March 1998) (Handbook), some detectable measure of effect should be provided, such as the relative occurrence of the species or a surrogate species in the local community, or amount of habitat used by the species, to serve as a measure for take. Take also may be expressed as a change in habitat characteristics affecting the species, such as water quality or flow (Handbook, p 4-47 to 4-48). Because of the difficulty of estimating the precise number of grizzly bears that would experience take in the manner described above, and the difficulty in detecting such take, we have developed a surrogate measure to estimate the amount of anticipated take and provide a measure to ensure this amount is not exceeded.

The surrogate measure for the number of grizzly bears harmed and harassed will be quantified using acres of the specific areas and the timeframes within which females with cubs would be exposed to the adverse effects of snowmobile use after emergence from dens. We expect that the

adverse effects of disturbance generated by snowmobiles would be similar to the effects from other motorized vehicles (e.g. cars, trucks and ATVs). Research has demonstrated that use of wheeled motorized vehicles on roads results in females with cubs being displaced from habitat near open roads, and displaced from areas with high road densities (Mace and Waller 1997). Therefore, for this analysis, we consider use of snowmobiles in or near the 6,700 acres of denning habitat after March 31 as imparting the same sort of displacement effects on females with cubs as the displacement effects generated by other vehicular road use. As described above, such displacement can result in harm or harassment by significantly impairing feeding and sheltering of the bears affected.

We anticipate that the take of female grizzly bears and/or their cubs during the spring at or near their dens would occur only in a small portion of the 52,400 total acres open to snowmobiling, and only after March 31. The take would occur in or near the 6,700 acres of denning habitat distributed within the 52000 acres. We do not anticipate that any take would occur outside these 52,400 acres. Therefore, we shall measure and limit the amount of exempted incidental take by the following criteria: If monitoring indicates that chronic snowmobile use (meaning continued or sustained use, not occasional) continues after these dates (above) in denning habitat within the specific 52,400 acres, or in other denning habitat on the Forest after March 31, the level of take we anticipate here would be exceeded, and reinitiation of consultation would be required. This anticipated level of take within the 52,400 acre area would seasonally "phase-out": take in the Canyon Creek Routes would be exempt from April 1-April 15; the Six Mile area from April 1 – April 30, the Challenge area from April 1 - May 15, and the Doris-Lost Johnny area from April 1 - May 31. After these dates, take resulting from snowmobile use is <u>not</u> exempt in these areas, except where exempted by the incidental take statement for Amendment 19 (see Appendix A).

To arrive at the low estimate for the amount or level of take of females and/or cubs we anticipate, using our surrogate measure, we reasoned that the amount of denning habitat within the extended season area where take could occur is limited to about 6700 acres of denning habitat within the 52,400 acres. We do not anticipate take in the Canyon Creek area, where snowmobiling is confined to groomed trails only and ends April 15. The 52,400 acres are divided into three relatively small areas in each extended use area, affecting approximately 3600, 2400 and 700 acres each (see Table 7). The 52,400 acres equates to about 212 square kilometers. The three areas are approximately 126, 71 and 13 square kilometers each. The amount of denning habitat within each is 15, 10 and 3 square kilometers, respectively. Female grizzly bears have large home ranges, ranging from over 60 to over 300 square kilometers (Mace and Waller 1997). Female grizzly bear home ranges overlap, but grizzly bears occur at (naturally) low densities, averaging 2.5 bears per 100 square kilometers in the Swan Mountains on the Forest (Mace and Waller 1997). Therefore, we expect only a few female grizzly bears would have home ranges that encompass portions of the three areas **and** use the affected denning habitat, and still fewer of these would be females with cubs. Further, not all of the denning habitat in the areas would be affected by snowmobiles due to terrain or timber or in some years, poor late season snow conditions. Additionally, even if exposed to disturbance caused by snowmobiles, not all females with cubs would be adversely affected to the point of injury or death. Finally, if a female is exposed to snowmobile disturbance during one year's denning period, there is evidence she could select another den site in years to come to avoid the disturbance. Considering all factors, the probability of snowmobile use resulting displacement of a female with cubs and impairing breeding, feeding or sheltering cannot

be entirely discounted, but we expect the probability is low. Therefore, we reasonably anticipate that few females or cubs would be harmed or harassed within the recovery zone, over the life of the amendment.

This surrogate measure of take is paired with a measure of take associated with direct mortality or injury to grizzly bears. We do not anticipate any direct mortality or injury to grizzly bears as result of snowmobiling (e.g. grizzly bears struck by people on snowmobiles). Therefore, no take of this type is exempted. If there is any human-caused injury to or mortality of grizzly bears directly attributable to snowmobiling, reinitiation of consultation would be required. In this case, effects on grizzly bears may be detected through the combined monitoring of: denning habitat as it relates to snowmobile use; anecdotal reports generated from Forest staff, other public agencies, or concerned citizens; and ongoing grizzly bear research efforts (e.g. MFWP NCDE trend study).

Snowmobile management in the action area within the recovery zone adequately minimizes the impact to the species. However, where denning habitat and snowmobile use may overlap in areas outside the recovery zone, incidental take may occur. On areas of the Forest outside of the NCDE recovery zone, all take from snowmobile use would be exempted. According to the Recovery Plan, grizzly bear recovery zones are designated geographic areas that contain the area and resources needed to sustain a biologically viable population of grizzly bears. Recovery zones offer defined areas to monitor population and demographic trends, conduct scientific study, and apply management specifically intended to improve the status of the species to the point of recovery. Grizzly bears, both inside and outside the recovery zone, are listed as threatened under the Act, and as such are protected under the provisions of the Act. However, only grizzly bears residing primarily within the NCDE recovery zone are crucial to recovery of the NCDE population, as defined by the Recovery Plan. Lands inside the recovery zone are considered necessary to, and are primarily managed for, recovery and survival of the NCDE grizzly bear population. The Recovery Plan acknowledged that only lands inside recovery zones would be managed primarily to promote recovery of the grizzly bear population. The Recovery Plan also acknowledged that grizzly bears could and would reside in areas outside recovery zones, but that recovery of the species was not dependent on lands outside recovery zones, or grizzly bears living primarily outside the recovery zones, and that these lands would not be managed primarily for grizzly bear use.

III. EFFECT OF THE TAKE

In the accompanying biological opinion, the Service determined that the anticipated level of incidental take is not likely to result in jeopardy to the species. Snowmobile impacts, although they have the potential to impact individual grizzly bears in certain circumstances, have evidently not risen to a level that impacts the population as a whole. The best information indicates the overall status of the NCDE grizzly bear population is stable to increasing. Impacts on the grizzly bear population, including anticipated levels of incidental take, as a result of the snowmobile use on the Forest proposed under Alternative 6 of the final environmental impact statement for Amendment 24 (U.S. Forest Service 2003) will not appreciably reduce survival or the recovery of the species.

IV. REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize the impacts of incidental take of grizzly bears.

A. The Forest shall quantify and monitor snowmobile use in a consistent and predictable way to reassess, if necessary, the assumptions in this biological opinion.

B. The Forest shall ensure adequate protection to known and discovered grizzly bear den sites and post-emergent females with cubs.

V. TERMS AND CONDITIONS

In order to be exempt from the prohibitions of section 9 of the Act, the Forest must comply with the following terms and conditions, which implement the reasonable and prudent measures (RPMs) described above and which outline the required reporting/monitoring requirements. These terms and conditions are non-discretionary.

The following terms and conditions implement RPM A:

1) The Forests shall follow the Strategy for Monitoring Winter Motorized Recreation on the Flathead National Forest (Appendix C, A24 FEIS). *Rationale: This information will be used by the Service to re-assess the probable impacts of snowmobiling on denning and emerging grizzly bears, and to determine whether the Service's assumptions and conclusions in this biological opinion remain valid. Furthermore, the monitoring of the effects of off-road vehicle use on national forest system lands is required by 36 CFR 295.5. Reliable information on winter use will be important for updating management and travel plans and for management of grizzly bears, lynx and other species.*

2) The Forest shall coordinate with the Grizzly Bear Recovery Coordinator, NCDE Subcommittee, and the Service to review the monitoring protocol and if necessary, revise or adapt the protocol to ensure adequate information can be attained to help achieve the objective(s) related to grizzly bears. The monitoring protocol must be adequate to establish an adequate baseline for current snowmobile use with which to compare and assess future use levels. The protocol may be adjusted to incorporate or integrate other snowmobile monitoring requirement related to Canada lynx or other Forest resources.

3) The Forest shall map snowmobile use and compare it to predicted grizzly bear denning habitat using the latest grizzly bear denning habitat models. Baseline maps for this monitoring shall be the existing maps of the A24 FEIS. Stimulus for new maps will be changes in either the snowmobile use (as detected by monitoring) compared to that predicted and mapped in the FEIS, and/or a revision of the grizzly bear denning model for the NCDE area.

4) Monitoring (as it relates to these terms and conditions) shall begin the first full winter season that A24 takes effect and shall continue annually for 5 years**.** At the end of the 5-year period, the Service and Forest shall reevaluate the need for continued monitoring.

The following terms and conditions implement RPM B:

5) In the event that an occupied grizzly bear den site is located:

   a) The Forest shall notify the Service within 48 hours, and shall confer with the Service to evaluate the site-specific information – for example, information about the individual grizzly bear (gender, age, and reproductive status), den site characteristics, and snowmobile use in the immediate area.
   b) If the den site appears exposed to impacts from snowmobiles, the Forest shall take appropriate measures to protect the site, based on the advice and approval of the Service. In some instances no additional measures may be required. In other instances, measures may require, for example, a seasonal snowmobile use plan for the immediate area, to reduce the likelihood of take of grizzly bears.

6) The Forest shall work with the Service to collect, collate, and distribute as needed, site-specific information related to the reporting of grizzly bear sightings or grizzly bear activity detected during the winter and early spring period.

7) In the event that one female grizzly bear with young is detected during the winter or prior to April 1 on lands administered by the Forest, the Forest shall immediately confer with the Service to determine whether site specific information is available or could be attained with which to: a) assess possible causes for the behavior, and b) develop any necessary protective measures related to snowmobile use in the area.

8) In the event that one female with young is detected in any of the four "extended use areas" during the "extended-use seasons" (Doris-Lost Johnny, Challenge, and Six-mile areas and Canyon Creek routes that would be open until May 31, May 15, April 30 and April 15, respectively), the Forest shall immediately confer with the Service to develop and implement, if necessary, any protective measures related to snowmobile use in the area.

9) The Forest shall continually provide outreach materials for users which highlight the dates and regulations for snowmobile use on the Forest and which including detailed maps of the extended season snowmobile areas.

10) *The following term and condition is intended to promote further consideration of the concept of "variable closure dates" for the extended use snowmobile areas. Variable closure dates would be based upon some site-specific guidelines that would trigger the closure of the extended-use snowmobile season prior to the maximum allowed programmatic dates in "poor" snow years (similar to the variable closures for permitted lift-served ski areas on the Forest). This would reduce or eliminate the potential for snowmobile use to occur on snow-free routes during the spring. The Service recognizes that upon further investigation such guidelines may not be practical or necessary to minimize take.*

    After 5 years of monitoring, the Forest shall, in cooperation with the Service, evaluate each of the "extended use areas" to determine if "variable closure dates" are practical, or necessary, to:

a) Minimize take of post emergence female grizzly bears with cubs in the den vicinity (*Rationale: Because den emergence is triggered in part by deteriorating snow conditions, guidelines developed through this process, if practical, may help further reduce the probability of affecting den-emergent females with cubs at the den site or in early spring habitat);* and

b) Reduce snowmobile impacts on the vegetation that contributes to the effectiveness of "reclaimed roads" which benefit grizzly bears (*Rationale: snowmobile damage has the potential to retard or prevent effective re-vegetation, and thus reduce the effectiveness of reclaimed roads*).

11) The Forest shall notify the public in the event of necessary temporary, or seasonal, closures triggered in accordance with the other terms and conditions. Such notification shall include posting the trailheads and/or access points of such closures.

12) The Forest shall prepare an annual report(s) documenting compliance with, and the discussions, outcomes, and any actions taken as a result of implementation of, the terms and conditions listed above (1 through 11). The report shall list each term and condition and detail any action taken or progress made towards implementation. The FEIS monitoring report may suffice if it includes the necessary information.

13) The Forest shall notify the Service's Montana Field Office or Grizzly Bear Recovery Coordinator within 24 hours of any bear-human conflicts that occur on the Forest, regardless of cause or season.

REINITIATION NOTICE

This concludes formal consultation on the *Winter Motorized Recreation Forest Plan Amendment for the Flathead National Forest* (A24) and its effects on grizzly bears. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if one or more of following occurs:

1. **The amount of extent of incidental take is exceeded.** In this case, if monitoring conducted under terms and conditions 1 through 4, or other information, indicates that chronic snowmobile use occurs in denning habitat outside the extended use areas addressed in this opinion after March 31, or in denning habitat in any of the extended use areas after the specified snowmobile season closure dates, reinitiation of consultation would be required.

2. **New information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion.** In this case, effects on grizzly bears may be detected through the combined monitoring of: denning habitat as it relates to snowmobile use; anecdotal reports generated from Forest staff, other public agencies, or concerned citizens; and ongoing grizzly bear research efforts. If there is any direct human-caused injury to or mortality of grizzly bears attributable to

snowmobiling, reinitiation of consultation would be required.

3. **The agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion.**

4. **A new species is listed or critical habitat designated that may be affected by the action.**

The Service retains the discretion to determine whether the conditions listed in (1) through (4) have been met and reinitiation of formal consultation is required. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

R. Mark Wilson
Field Supervisor

PERSONS CONTACTED on TECHNICAL/BIOLOGICAL MATTERS

U.S. Forest Service, Flathead National Forest
Steve Anderson, Forest Wildlife Biologist.
Jane Ingebretson, Wildlife Biologist.
Amy Jacobs, Wildlife Biologist.

U.S. Fish and Wildlife Service
Bridget Fahey, Region 6, Endangered Species Division Chief, Lakewood, CO
Wayne Kasworm, Grizzly Bear Researcher. Libby, MT
Chris Servheen, PhD. Grizzly Bear Recovery Coordinator. USFWS Missoula, MT
Anne Vandehey, Section 7 Coordinator, Montana Field Office, Helena, MT
Ben Conard, Wildlife Biologist, Montana Field Office, Creston, MT

Other
Katherine Kendall, PhD. Grizzly Bear Researcher, USGS, Glacier Field Station, East Glacier, MT.
John Waller, PhD. Carnivore Biologist, National Park Service, Glacier National Park, MT
Rick Mace, PhD. Grizzly Bear Researcher, Montana Fish, Wildlife and Parks, Kalispell, MT

LITERATURE CITED

Ake, K., D. Carney, P. Dolan, D. Godtel, J. Gore, R. Harris, R. Mace, M. Madel, C. Servheen, A. Soukkala, A. Vandehey, J. Waller, and T. Wittinger. 1998. Rationale and choices made in the review and development of an access direction proposal for the NCDE grizzly bear ecosystem. 16 pp. plus appendices.

Aune, K.A. and W.F. Kasworm. 1989. Final report: East front grizzly studies. Montana Department of Fish, Wildlife and Parks, Helena. 332 pp.

Bennett, L. E. 1995. A review of the potential effects of winter recreation on wildlife in Grand Teton and Yellowstone National Parks: a bibliographic data base. Final Report. United States Park Service and Univ. of Wyoming Coop. Fish and Wildlife Res. Unit, Laramie, Wyoming.

Blix, A.S. and J.W. Lentfer. 1992. Noise and vibration levels in artificial polar bear dens as related to selected petroleum exploration and development activities. Arctic 45(1):20-24.

Craighead, F.C. 1976. Grizzly bear ranges and movement as determined by radio-tracking. Pages 97-109 *in* M.R. Pelton, J.W. Lentfer, and G.E. Folk, Jr. editors. Bears–their biology and management. International Union for Conservation of Nature Publication. New Series 23.

Craighead, F.C., Jr. and J.J. Craighead. 1972a. Data on grizzly bear denning activities and behavior obtained by using wildlife telemetry. International Conference on Bear Research and Management 1:84-106.

Craighead, F.C. and J.J. Craighead. 1972b. Radio tracking of grizzly bears and elk in Yellowstone National Park, Wyoming, 1959-1960. Pp. 55-62 *In* P.H. Oehser, editor. National Geographic Society Research Reports, 1955-060. National Geographic Society, Washington, D.C.

Craighead, J.J., J.S. Sumner, and J.A. Mitchell. 1995. The grizzly bears of Yellowstone: their ecology in the Yellowstone ecosystem, 1959-1992. Island Press. 533 pp.

Egbert, A.L., and A. W. Stokes. 1976. The social behavior of brown bears on an Alaskan salmon stream. International conference on bear research and management 3:41-56.

Glenn, L.P., J.W. Lentfer, J B Faro, and L.H. Miller. 1976. Reproductive biology of female brown bears (*Ursus arctos*), McNeil River, Alaska. Pages 381-390 *in* M.R. Pelton, J.W. Lentfer, and G.E Folk, Jr., editors. Bears–their biology and management. International Union of Conservation of Nature publication New series 40.

Graves, T. and V. Reams, editors. 2001. Record of the snowmobile effects on wildlife: monitoring protocols workshop. April 10-12, 2001, Denver, CO.

Hammer, K. J. 2002. Unpublished report. Snowmobiling's endless winter: facilitating physical access also extends the snowmobile season, resulting in harm to wildlife security, vegetation, soils and water. 7 pp.

Harding, L. and J.A. Nagy. 1980. Responses of grizzly bears to hydrocarbon exploration on Richards Island, Northwest Territories, Canada. International Conference Bear Research and Management 4:277-280.

Haroldson, M., M.A. Ternent, K.A. Gunther, and C.C. Schwartz. 2002. Grizzly bear denning chronology and movements in the Greater Yellowstone Ecosystem. Ursus 13:29-37.

Herrero, S. 1978. A comparison of some features of the evolution, ecology, and behavior of black and grizzly/brown bears. Carnivore 1(1):7-17.

Hornocker, M.G. 1962. Population characteristics and social and reproductive behavior of the grizzly bear in Yellowstone National Park. M.S. Thesis, [formerly] Montana State University [now The University of Montana], Missoula. 94 pp.

Interagency Grizzly Bear Committee (IGBC). 1987. Grizzly bear compendium. U.S. Fish and Wildlife Service, Missoula, Mont. 540 pp.

Interagency Grizzly Bear Committee (IGBC). 1998. Interagency Grizzly Bear Committee Taskforce Report: Grizzly bear/motorized access management (revision approved by IGBC July 29, 1998). 6pp.

Jonkel, C. and I. M.Cowan. 1971. The black bear in the spruce-fir forest. Wildlife Monographs 27:1-55.

Jonkel, C. 1980. Winter disturbance and grizzly bears. Border Grizzly Project Spec. Rpt. 46. The University of Montana, Missoula. 3pp. UM Mansfield Library, Level 4, Montana Collection, call #599.7446 J79wi.

Jonkel, J. 2008. Unpublished presentation to the NCDE subcommittee. November 5. Helena, Montana.

Judd, S.L., R. Knight and B. Blanchard. 1986. Denning of grizzly bears in the Yellowstone National Park area. International Conference Bear Research and Management 6:111-117.

Kendall, K. C., L.P. Waits. 2002. Using DNA to monitor grizzly bear populations in the Greater Glacier Area. Northern Rocky Mountain Science Center, U.S. Geological Survey, Glacier National Park, West Glacier, MT. 2 pp. Available at: <http://nrmsc.usgs.gov/research/beardna.htm>.

Kendall, K. C. 2004. Northern Divide Grizzly Bear Project web site: http://www.nrmsc.usgs.gov/projects/DNA_NCDE.htm

Kendall, K. C. 2008. Northern Divide Grizzly Bear Project web site: http://www.nrmsc.usgs.gov/projects/DNA_NCDE.htm

Kendall, K.C., J. Stetz, J. Boulanger, A.C. Macleod_D. Paetkau,, and G.C.White__In press. Demography and genetic structure of a recovering grizzly bear population. Journal of Wildlife Management. 73 (1).

Kistchinksii, A.A. 1972. Life history of the brown bear (*Ursus arctos L.)* in northeast Siberia. Pages 67-73 *in* S. Herrero, editor. Bears--their biology and management. International Union Conservation of Nature Publication New Series 23.

Knight, R., J. Basile, K. Greer, S. Judd, L. Oldenburg, and L. Roop. 1976. Yellowstone grizzly bear investigations, annual report of the Interagency Study Team. 1975. U.S. Dept. Interior, Natl. Park Serv. Misc. Rep. 9. 46 pp.

Knight, R., J. Basile, K. Greer, S. Judd, L. Oldenburg, and L. Roop. 1977. Yellowstone grizzly bear investigations, annual report of the Interagency Study Team. 1976. U.S. Dept. Interior, Natl. Park Serv. Misc. Rep. 10. 75 pp.

Knight, R., J. Basile, K. Greer, S. Judd, L. Oldenburg, and L. Roop. 1978. Yellowstone grizzly bear investigations, annual report of the Interagency Study Team. 1977. U.S. Dept. Interior, Natl. Park Serv. 107 pp.

Knight, R. L. and K.J. Gutzwiller, editors. 1995. Wildlife and recreationists: coexistence through management and research. Island Press. Washington, DC. 372 pp.

Linnell, J.D.C., J.E. Swenson, R. Andersen, and B. Barnes. 2000. How vulnerable are denning bears to disturbance? Wildlife Society Bulletin 28(2):400-413.

Mace, R.D., and J.S. Waller. 1997. Final report. Grizzly bear ecology in the Swan Mountains. Montana Fish Wildlife and Parks. 191 pp.

Madel, M. 2008. Unpublished presentation to the NCDE subcommittee. November 5. Helena, Montana.

Mann, Jim. 2006. Where the bears are. *The Daily Inter Lake* (newspaper), January 27, 2006, Kalispell, Montana.

McLellan, B.N., F.W. Hovey, R.D. Mace, J.G. Woods, D.W. Carney, M.L. Gibeau, W.L. Wakkinen, W.F. Kasworm. 1999. Rates and causes of grizzly bear mortality in the interior mountains of British Columbia, Alberta, Montana, Washington, and Idaho. Journal of Wildlife Management 63(3):911-920.

Montana Level One Terrestrial Biologists Team. 2003. Unpublished notes. December 9, 2003, Missoula, Montana.

Mundy, K.R.D. and D.R. Flook. 1973. Background for managing grizzly bears in the national parks of Canada. Canadian Wildlife Service Report Series Number 22. 35pp.

Murie, A. 1944. The wolves of Mount Mckinley. National Park Service Fauna serial No. 5. U.S. Government Printing Office, Washington, D.C. 238 pp.

Murie, A. 1962. Mammals of Mount McKinley National Park, Alaska. Mount McKinley Natural Historical Association 56 pp.

NCDE Access Technical Group. 2002. NCDE Access Management Rule Set Proposed Direction. Unpublished Report, September 10, 2002.

Pearson, A.M. 1975. The northern interior grizzly bear *Ursus Arctos l*. Canadian Wildlife Service Report Serial Number 34, Ottawa. 86 pp.

Peterson, Chris. 2006. DNA study shows highest concentration of bears in Park. Hungry Horse News (newspaper), February 1, 2006, Hungry Horse, Montana.

Podruzny, S.R., S. Cherry, C.C. Schwartz, and L.A. Landenburger. 2002. Grizzly bear denning and potential conflict areas in the Greater Yellowstone Ecosystem. Ursus 13:19-28.

Reynolds, P.E., H.V. Reynolds, and E.H. Follman. 1986. Responses of grizzly bears to seismic surveys in northern Alaska. International Conference on Bear Research and Management 6:169-175.

Rogers L.L. and S.M. Rogers. 1976. Parasites of bears: a review. International Conference on Bear Research and Management 3:411-430

Ruediger, B., J. Claar, S. Mighton, B. Naney, T. Rinaldi, F. Wahl, N. Warren, D. Wenger, A. Williamson, L. Lewis et al.. 2000. Canada lynx conservation assessment and strategy (LCAS). USDA Forest Service, USDI Fish and Wildlife Service, USDI Bureau of Land Management, and USDI National Park Service. Forest Service Publication #R1-00-53. Missoula, MT. 142 pp.

Russell, R.H., J.W. Nolan, N.G. Woody, G.H. Anderson and A.M. Pearson. 1978. A study of the grizzly bear (*Ursus Arctos*) in Jasper National Park: A progress report 1976 and 1977. Parks Canada, prepared by Canadian Wildlife Service, Edmonton, Alberta. 95 pp.

Schallenberger, A. 1980. Review of oil and gas exploitation impacts on grizzly bears. Int. Conf. Bear Res. and Manage. 4:271-276.

Schoen, J.W., L.R. Breir, J.W. Lentfer, and L.J. Johnson. 1987. Denning ecology of brown bears on Admiralty and Chichagof Islands. International Conference on Bear Research and Management 7:293-304.

Servheen, C. and R. Klaver. 1983. Grizzly bear dens and denning activity in the Mission and Rattlesnake Mountains: Montana. Int. Conf. Bear Res. and Manage. 5:201-207

Servheen, C. 2003. Unpublished data. 2002 population demographics and status for the NCDE in relation to the grizzly bear recovery plan (USFWS 1993a). U.S. Fish and Wildlife Service, Missoula, Montana.

Servheen, C. 2004. Unpublished data. 2003 population demographics and status for the NCDE in relation to the grizzly bear recovery plan (USFWS 1993a). U.S. Fish and Wildlife Service, Missoula, Montana.

Servheen, C. 2005. Unpublished data. 2004 population demographics and status for the NCDE in relation to the grizzly bear recovery plan (USFWS 1993a). U.S. Fish and Wildlife Service, Missoula, Montana.

Servheen, C. 2008. Unpublished memo. Interim revised calculation of mortality limits in the NCDE. Memo to NCDE grizzly managers. Nov. 20. Missoula, Montana. 3 pp.

Smith, R.B. and L.J.Van Daele. 1990. Impacts of hydroelectric development on brown bears, Kodiak Island, Alaska. International Conference on bear research and Management 8:93-104.

Swenson, J.E., F. Sandegren, S. Brunberg and P. Wabakken. 1997. Winter den abandonment by brown bears *Ursus arctos*: causes and consequences. Wildlife Biology 3(1):35-38.

Storer, T.I. and L.P. Tevis. 1955. California grizzly. University of Nebraska Press, Lincoln. 335 pp.

U.S. Fish and Wildlife Service. 1982. Grizzly bear recovery plan. U.S. Fish and Wildlife Service, Denver, CO. 195 pp.

U.S. Fish and Wildlife Service. 1986. Biological opinion on Flathead National Forest Land and Resource Management Plan. Helena, Montana.

U.S. Fish and Wildlife Service. 1993. Grizzly bear recovery plan, revised. U.S. Fish and Wildlife Service, Missoula, Montana. 181 pp.

U.S. Fish and Wildlife Service. 1995. Biological opinion on Amendment 19 to the Flathead National Forest Land and Resource Management Plan. Helena, Montana.

U.S. Fish and Wildlife Service. 1998. Endangered species consultation handbook: procedures for conduction consultation and conference activities under section 7 of the Endangered Species Act. U.S. Gov't Printing Office, Washington, DC. ISBN 0-16-049596-2

U.S. Fish and Wildlife Service. 2000. Grizzly bear recovery in the Bitterroot ecosystem final environmental impact statement. March 2000. U.S. Fish and Wildlife Service, Denver, CO.

U.S. Fish and Wildlife Service 2002a. Intra-Service Section 7 Consultation on an Amendment to Montana's Section 6 Cooperative Agreement to Incorporate an Amended Conservation Plan for the Grizzly Bear in Montana. Regional Director, Fish and Wildlife Service, Region 6, Denver, Colorado. 42pp.

U.S. Fish and Wildlife Service. 2002b. Biological opinion on the effects of snowmobile use on grizzly bears (Ursus arctos horribilis) on the Gallatin, Beaverhead-Deerlodge, Custer, Bridger-Teton and Shoshone National Forests. Montana Filed Office, Helena, Montana. May 30, 2002. 40pp.

U.S. Fish and Wildlife Service. 2004. Biological opinion on the effects of the Access Management Amendment, Kootenai, Lolo, and Idaho Panhandle National Forests land and resource management plans. FWS ref. 1-9-02-F-148. Upper Columbia Fish and Wildlife Office, Spokane, WA, and Montana Field Office, Helena, MT. 163 pp.

U.S. Fish and Wildlife Service. 2005. Biological opinion on the effects of the Flathead National Forest Plan Amendment 19 Revised Implementation Schedule on Grizzly Bears. October 25, 2005, Montana Field Office, Helena, MT. 171 pp.

U.S. Forest Service. 1986. Flathead National Forest Land and Resource Management Plan. Flathead National Forest, Kalispell, Montana.

U.S. Forest Service. 1995. Forest Plan Amendment 19, Allowable Sale Quantity and Objectives and Standards for Grizzly Bear Habitat Management, Decision Notice. Flathead National Forest. 30 pp + appendix.

U.S. Forest Service. 2001a. Record of Decision. Amendment to nine National Forest Land and Resource management Plans in Montana, North and South Dakota. Management Direction Related to Off-highway Vehicles. USDA-Forest Service, Northern Region, Missoula, Montana. January 2001. 17 pp.

U.S. Forest Service. 2001b. Biological assessment on the effects of snowmobile use on grizzly bears, Gallatin, Beaverhead-Deerlodge, Custer, Bridger-Teton and Shoshone National Forest, greater Yellowstone area. July 20, 2001. 53 pp.

U.S. Forest Service. 2003. Flathead National Forest Winter Motorized Recreation Amendment 24 Final Environmental Impact Statement, December 2003. FNF Supervisor's Office, Kalispell, MT

U.S. Forest Service. 2004a. Biological Assessment for Terrestrial Wildlife Species: Winter Motorized Recreation Forest Plan Amendment (as amended 3/19/04). Flathead National Forest, Supervisor's Office, Kalispell, MT. 34pp plus maps.

U.S. Forest Service. 2004b. Flathead National Forest 2003 LRMP Amendment 19 Monitoring Report. May 17, 2004. Flathead National Forest Supervisor, Kalispell, MT. 16pp.

U.S. Forest Service. 2005. Flathead National Forest 2004 LRMP Amendment 19 Monitoring Report. May 2005. Under August 1, 2005 cover letter, Flathead National Forest Supervisor, Kalispell, MT. 21pp.

U.S. Forest Service. 2008. *In litt.* Letter from Barbouletos to Wilson requesting reinitiation of formal consultation on A24. July 22.

U.S. Forest Service. 2008b. Flathead National Forest 2007 LRMP Amendment 19 Monitoring Report. 2008. April 16. Under cover letter, Flathead National Forest Supervisor, Kalispell, MT. 21pp.

Vroom, G.W., S. Herrero, and R.T. Ogilvie. 1977. The ecology of winter den sites of grizzly bears in Banff National Park, Alberta. International conference on bear research and management 3: 321-330.

Wittinger, T. et al.. 2002. Unpublished report (October 9, 2002). Grizzly bear distribution outside of recovery zones. Interagency documentation regarding methods and results. USDA-Forest Service Northern Region, Missoula, MT.

APPENDIX A

Proposed changes to some definitions in Flathead National Forest Amendment 19 Appendix TT.

Flathead Forest Plan Amendment 24
Modifications to Wording in Appendix TT
Part of Ongoing Consultation with U.S. Fish and Wildlife Service
May 20, 2004

Within the Canyon Creek, Sixmile, Skyline Challenge and Lost Johnny areas, as shown in Appendix WW maps, the Forest Service will calculate and report open road density in the Annual A-19 Monitoring Report as follows:

(1) *Calculate and report open road density and core area from the end of the legal snowmobiling season to the end of the non-denning season (December 1).*

-and-

(2) Calculate and report open road density from the end of the denning period (April 1) to the end of the legal snowmobiling season (Canyon Creek area until April 15, Sixmile area until April 30, Skyland Challenge area until May 15, and Lost Johnny area until May 31. See Appendix WW map). This will help to disclose effects of motorized snowmobile use for the allowed period following denning season.

Proposed Changes to Appendix TT wording

Existing Forest Plan	Alternative 6 in the FEIS
Non-Denning Season Definition: *The non-denning season is defined as that period from March 16 to November 15.*	*Non-Denning Season Definition: The non-denning season is defined as that period from April 1 through November 30.*
RESTRICTED ROAD Definition: A road on which motorized vehicle use is restricted during the entire non-denning period. The road requires physical obstruction and motorized vehicle use in the non-denning period is legally restricted by order.	RESTRICTED ROAD Definition: A road on which motorized vehicle use is restricted during the entire non-denning *season*. The road requires physical obstruction, and motorized vehicle use during prohibited periods is legally restricted by order. *An exception to the restriction on motorized use is snowmobile use on some specific roads and areas for specific periods of times. See preface and Appendix WW for exceptions.*
RESTRICTED ROAD Use of Restricted Roads in Calculations: All restricted roads will be included in calculating total motorized access route density. Seasonally restricted roads, that are open during the non-denning period, will be considered open for the purpose of calculating open road density.	RESTRICTED ROAD Use of Restricted Roads in Calculations: All restricted roads will be included in calculating total motorized access route density. Seasonally restricted roads, that are open during the non-denning season, will be considered open for the purpose of calculating open road density. *See preface for exceptions regarding snowmobiling*.

Existing Forest Plan	Alternative 6 in the FEIS
RECLAIMED ROAD Closure Device: (b) The first portion of the road (typically 200 to 600 feet) will be treated in such a manner so as to preclude its use as a motorized or non-motorized travel way. This will include: (1) making the road junction area unattractive as a travelway, and (2) treating the remainder of the first portion to make awareness of the road improbable and preclude motorized or non-motorized use.	RECLAIMED ROAD Closure Device (b) The first portion of the road (typically 200 to 600 feet) will be treated in such a manner so as to preclude its use as a motorized or non-motorized travel way *during the non-denning season.* This will include: (1) making the road junction area unattractive as a travel way, and (2) treating the remainder of the first portion to make awareness of the road less likely and minimize the likelihood of motorized or non-motorized use, *other than snowmobile use, where and when that use is allowable. (See Appendix WW).*
RECLAIMED ROAD Closure Device: (c) Treat the road, other than the first portion, in a way that will discourage its use as a motorized or non-motorized travelway.	RECLAIMED ROAD Closure Device (c) Treat the road, other than the first portion, in a way that will discourage its use as a motorized or non-motorized travel way, *other than snowmobile use, where and when that use is allowable (See Appendix WW).*
RECLAIMED ROAD Use of Reclaimed Roads in Calculations: Reclaimed roads that fully satisfy the definition of a reclaimed road will not be included in calculations of open motorized access density, total motorized access density, or security core area. Roads that have been treated, but that do not yet fully satisfy the definition of a reclaimed road will be included in calculations for total motorized access route density. These roads will not be included in calculations for open motorized access route density. These roads will not be included in calculations for open motorized access route density, or security core area if use is low-intensity and non-motorized.	RECLAIMED ROAD Use of Reclaimed Roads in Calculations: Reclaimed roads that fully satisfy the definition of a reclaimed road will not be included in calculations of open motorized access density, total motorized access density, or security core area. Roads that have been treated, but that do not yet fully satisfy the definition of a reclaimed road will be included in calculations for total motorized access route density. These roads will not be included in calculations for open motorized access route density. These roads will not be included in calculations for open motorized access route density, or security core area if use is low-intensity and non-motorized. *See preface for exceptions.*

Existing Forest Plan	Alternative 6 in the FEIS
SECURITY CORE AREA Restricted Roads in Security Core Areas: Restricted roads may occur within security core areas, but they may not receive motorized use during the non-denning period.	SECURITY CORE AREA Restricted Roads in Security Core Areas: Restricted roads may occur within security core areas, but they may not receive motorized use during the non-denning period, with the exception of specific *snowmobile use, which is allowed in the areas and routes defined by Amendment 24 and shown in the maps of Appendix WW: See preface.*
SECURITY CORE AREA Vegetation Management Within Security Core Areas: Vegetation management may occur within security core areas so long as the objective and criteria for security core areas continue to be met. Access use levels must be met during the non-denning period, and requires that many planned activities, and all motorized activities, occur during the denning period. Exceptions to established criteria require reconsultation with the U.S. Fish and Wildlife Service.	SECURITY CORE AREA Vegetation Management Within Security Core Areas: Vegetation management may occur within security core areas so long as the objective and criteria for security core areas continue to be met. Access use levels must be met during the non-denning period, and requires that many planned activities, and all motorized activities, occur during the denning season, *with the exception of specific snowmobile use, which is allowed in the areas and along routes defined by Amendment 24 as shown in Appendix WW, and listed in the preface*. Other exceptions to established criteria require reconsultation with the U.S. Fish and Wildlife Service.